

From the Banking Regulation and Supervision Agency:

**COMMUNIQUE ON CALCULATION OF THE RISK WEIGHTED EXPOSURE
AMOUNT FOR CREDIT RISK BY INTERNAL-RATINGS BASED APPROACHES**

(Published in the Official Gazette dated October 23, 2015, Nr 29511)

SECTION ONE

Purpose and Scope, Legal Basis and Definitions

Purpose and Scope

ARTICLE 1- (1) The purpose of this Communiqué is to set down the procedures and principles regarding the banks' calculation of risk weighted exposure amount for credit risk using Internal Ratings-based Approach.

Legal Basis

ARTICLE 2- (1) This communiqué is based on Articles 43, 45 and 93 of Banking Law Nr. 5411 dated October 19, 2005 and Article 4(1) of Regulation on Measurement and Evaluation of Capital Adequacy of Banks.

Definitions and Abbreviations

ARTICLE 3- (1) The following terms and expressions used in this Communiqué shall have the meanings expressly designated to them below:

- a) Parent undertaking: Parent undertaking as defined in Article 3 of the Law,
- b) Investment firm: Investment firm as defined in Article 3 of the Regulation,
- c) Residual risk: Risks stemming from unforeseen inefficiency of the credit risk mitigation techniques used,
- ç) Minimum lease payments: Minimum lease payments as defined in Article 3 of the Regulation,
- d) Subsidiary: Subsidiary as defined in Article 3 of the Law,
- e) Bank: Banks as defined in Article 3 of the Law,
- f) Expected Loss (EL): The ratio of the amount expected to be lost on an exposure from a potential default of a counterparty or dilution over a one year period to the amount outstanding at default,
- g) Senior claims: Senior claims as defined in Article 3 of the Regulation,
- ğ) EL_{BE} : Best estimate of expected loss,
- h) Rating system: All of the methods, processes, controls, data collection and IT systems that support the assessment of credit risk, the assignment of exposures to rating grades or pools, and the quantification of default and loss estimates that have been developed for a certain type of exposures,
- i) Outsourcing institution: Outsourcing institution as defined in Article 3 of the Law,
- ı) Conversion factor: Non-cash loans and commitments' credit conversion factors to cash loans which are determined by Agency for banks using Foundation IRB Approach and internally estimated by banks that are using Advanced IRB Approach.
- j) Business unit: Subsidiaries, business line or branch in foreign countries,
- k) Financial instrument: Financial instrument as defined in Article 3 of the Regulation,
- l) Financial holding company: Financial holding company as defined in Article 3 of the Law,
- m) Financial institution: Financial institution as defined in Article 3 of the Law,

- n) Advanced IRB Approach: Advanced IRB Approach as defined in Article 3 of the Regulation,
- o) Internal ratings based approaches (IRB): Internal ratings based approaches as defined in Article 3 of the Regulation,
- ö) Advised limit: Credit limit determined by the bank and about which the obligor has been informed by the bank,
- p) Subordinated claims: Subordinated claims as defined in Article 3 of the Regulation,
- r) Mortgage-backed security: Mortgage-backed security as defined in Article 3 of the Regulation,
- s) Public sector entity: Public sector entity as defined in Article 3 of the Regulation,
- ş) Law: Banking Law Nr. 5411,
- t) Loss: Economic loss, including material discount effects, and material direct and indirect costs associated with collecting on the instrument,
- u) Collective investment undertaking (CIU): Collective investment undertaking as defined in Article 3 of the Regulation,
- ü) Credit valuation adjustments (CVA): Credit valuation adjustments as defined in Annex 2 of the Regulation,
- v) Credit rating agency (CRA): Credit rating agency as defined in Article 3 of the Regulation,
- y) Credit risk mitigation: Credit risk mitigation as defined in Article 3 of the Regulation,
- z) Agency: Banking Regulation and Supervision Agency,
- aa) Board: Banking Regulation and Supervision Board,
- bb) Small and medium-sized enterprises (SME): Small and medium-sized enterprises as defined in Article 3 of the Regulation,
- cc) Securitisation: Securitisation as defined in Article 3 of the Regulation,
- çç) Sovereign: Sovereign as defined in Article 3 of the Regulation,
- dd) Credit event: Credit event as defined in Article 3 of the Regulation,
- ee) Master netting agreement: Master netting agreement as defined in Article 3 of the Regulation,
- ff) Own funds: Own funds as defined in Article 3 of the Regulation,
- gg) Reference obligation: Reference obligation as defined in Article 3 of the Regulation,
- ğğ) Specific wrong-way risk: Specific wrong-way risk as defined in Annex 2 of the Regulation,
- hh) Standardised approach: Standardised approach as stated in Article 5 of the Regulation,
- ıı) Probability of default (PD): Probability of default of a counterparty over a one year period,
- ii) Loss given default (LGD): The ratio of the loss on an exposure due to the default of a counterparty to the amount outstanding at default,

jj) Dilution risk: The risk that an amount receivable is reduced through cash or non-cash credits to the obligor,

kk) Foundation IRB Approach: Foundation IRB Approach as defined in Article 3 of the Regulation,

ll) Financial derivatives: Contracts listed in Article 5(6) of the Regulation,

mm) Recognised exchanges: Recognised exchanges as defined in Article 3 of the Regulation,

nn) Regulation: Regulation on Measurement and Evaluation of Capital Adequacy of Banks,

oo) Volatility: Volatility as defined in Article 3 of the Regulation.

SECTION TWO

General Provisions Regarding Internal Ratings Based Approach

Supervisory permission period regarding internal ratings based approach

ARTICLE 4- (1) Prior permission to the use the IRB Approach, including own estimates of LGD and conversion factors, shall be required for each exposure class and for each rating system and internal model approaches to equity exposures and for each approach to estimating LGDs and conversion factors used. Use of an internal rating system permitted by a different supervisory authority by the bank does not provide any exemption in the application of the provisions of this Communiqué.

(2) In order to grant permission from the Agency to use IRB approaches to calculate the risk weighted exposure amounts for credit risk the bank's systems used for credit risk management and credit rating must be sound and reliable and met the minimum requirements laid down in Annex 2 and below.

a) The bank's rating systems must provide for a meaningful assessment of obligor and transaction characteristics, a meaningful differentiation of risk and accurate and consistent quantitative estimates of risk.

b) Internal ratings and default and loss estimates used in the calculation of capital requirements and associated systems and processes must play an essential role in the risk management and decision-making process, and in the credit approval, internal capital allocation and corporate governance functions of the bank.

c) The bank must have a credit risk control unit reporting to risk management unit responsible for bank's rating systems.

ç) The bank must collect and store all relevant data to provide effective support to its risk measurement and management process.

d) The bank must document its rating systems and the rationale for their design and validates its rating systems.

e) The bank must have validated each rating system and each internal models approach for equity exposures during an appropriate time period prior to the permission to use this rating system or internal models approach to equity exposures, have assessed during this

time period whether the rating system or internal models approaches for equity exposures are suited to the range of application of the rating system or internal models approach for equity exposures, and have made necessary changes to these rating systems or internal models approaches for equity exposures following from its assessment.

f) The bank must have calculated under the IRB Approach the capital requirements resulting from its risk parameters estimates.

g) The bank must have assigned and must continue with assigning each exposure in the range of application of a rating system to a rating grade or pool of this rating system; the bank must have assigned and must continue with assigning each exposure in the range of application of an approach for equity exposures to this internal models approach

g) The bank must submit data and estimates regarding the rating systems to Risk Center for 3 years prior to the permission application.

(3) Models or rating systems purchased from third parties must also meet the minimum requirements that are listed for use of IRB approaches.

(4) Rating systems must have been used for at least 3 years prior to the application of permission for risk management purposes and must broadly meet the minimum requirements set out in Annex 2 during this period. In order to demonstrate this, bank must have a credible track record in the use of internal ratings information. Improvements made in the rating systems do not constitute any incompliance to the minimum 3 year requirement stated above.

(5) In order to be able to use the Advanced IRB Approach, own estimates of LGD and conversion factors must have been used for at least 3 years prior to the application of permission for risk management purposes and must broadly meet the minimum requirements set out in Annex 2 during this period. In order to demonstrate this, bank must have a credible track record in the use of internal ratings information. Improvements made in the rating systems do not constitute any incompliance to the minimum 3 year requirement stated above.

(6) Where the bank which already has the permission to use IRB approaches intends to extend the scope of the use of rating systems to exposures that are significantly different than the existing coverage, such that the existing experience is not sufficient to meet the requirements of these provisions in respect of the additional exposures then the requirements of paragraphs 4 and 5 should be satisfied again.

(7) Material changes to a rating system or an internal models approach to equity exposures and material changes to the range of application of a rating system or an internal models approach to equity exposures are subject to permission. Scope of the use of rating system that is developed to cover a specific type of exposure class must cover each exposure falling into this exposure class.

(8) All changes to rating systems and internal models approaches to equity exposures should be reported to the Agency.

Implementation of internal ratings-based approach

ARTICLE 5- (1) Without prejudice to the provisions of Article 9, IRB Approaches are implemented for all exposures in consolidated and unconsolidated basis.

(2) Subject to permission granted from the Agency IRB Approaches could be implemented sequentially across

- a) Bank's subsidiaries,
- b) Exposure classes listed in Article 6 existing in the bank or in its subsidiaries,
- c) Retail exposure types with different correlations stated in paragraphs 10 to 13 of Annex 1 Part One,
- ç) LGD or conversion factor parameters during the transmission period from Foundation IRB Approach to Advanced IRB Approach.

In order to be eligible to implement IRB Approaches sequentially, the ratio of the risk weighted exposure amount calculated by IRB Approach to the sum of the risk weighted exposure amount for the rest of the exposures calculated by Standardised Approach and the risk weighted exposure amount calculated by IRB Approach must be at least 50%. This requirement should be met in consolidated and unconsolidated basis. This calculation excludes the exposure class and claims for which Standardised Approach is used according to Article 9 and the transactions carried out with central counterparties for which risk weighted exposure amount is calculated according to Annex 4 of the Regulation. Agency is in charge of differentiating the aforementioned ratio across banks.

(3) The ratio stated in paragraph 2 must be at least 70% in two years following the initial permission and must be 100% in a time period, which is determined by the bank and approved by the Agency taking into account the structure and level of business line of the bank, structure and the number of the rating systems of the bank. Sequential implementation of IRB Approaches are subject to the requirements set out by the Agency. The bank cannot make preferences just to minimise its capital requirement during sequential implementation of IRB Approaches.

(4) Without prejudice to Article 9 the bank that uses the IRB Approach for any exposure class must use the IRB Approach for other assets exposure class and the equity exposure class. For these exposure classes IRB Approaches cannot be implemented sequentially.

Categorisation of exposures under the IRB Approach

ARTICLE 6 - (1) The exposures are classified as follows. The classification must be consistent over time.

- a) Central governments and central banks exposures,
- b) Banks and investment firms exposures,
- c) Corporate exposures,
- ç) Retail exposures,
- d) Equity exposures,
- e) Securitization exposure,
- f) Other assets.

(2) The following exposures are classified as central governments and central banks exposures.

- a) Certain public sector entities and regional governments and local authorities identified as central governments according to Regulation, Annex-1.

b) Multilateral development banks and international organisations that meet the criteria for a 0% risk weight under the Regulation, Annex-1.

(3) The following exposures are classified as bank and investment firm exposures.

a) Foreign investment firms and banks that are subject to supervisory and regulatory capital arrangements comparable to those under Capital Markets Board of Turkey or Agency.

b) Regional governments, local authorities and public sector entities that are not classified as exposure to central governments and central banks under the Regulation, Annex-1.

c) Financial institutions that are classified as banks and investment firms exposure under the Regulation, Annex-1.

ç) Multilateral development banks that do not meet the criteria for a 0% risk weight under the Regulation, Annex-1.

(4) An exposure is categorised as a retail exposure if it meets all of the following criteria.

a) Exposure must be one of the following.

Exposures to individuals.

2) Loans extended to small businesses entities provided that the exposure of the banking group to the SME and the SME's risk group does not exceed the retail loan limit determined in accordance with the subparagraph (c) of the second paragraph of the Regulation.

3) Residential mortgage loans provided that credit is extended to an individual that is an owner-occupier of the property.

b) Exposures are treated by the bank in its risk management consistently over time and in a similar manner.

c) Exposures are not managed just as individually as exposures in the corporate exposure class.

ç) Each exposure represents one of a significant number of similarly managed exposures.

(5) In the calculation of the limit in paragraph 4(a)(2), credit exposure equivalents of non-cash loans and commitments through the use of conversion factors, positive replacement costs of derivatives and positive net exposure values of securities financing transactions are taken into account.

(6) The present value of retail minimum lease payments shall be included in the retail exposure class.

(7) The following exposures are classified as equity exposures.

a) Non-debt exposures conveying a subordinated claim on the assets;

b) Debt exposures and other securities, partnerships, derivatives, the economic substance of which is similar to the exposures specified in point (a).

(8) Exposures in the form of units, shares or off-balance sheet exposures in CIUs are classified as equity exposure.

(9) Within the corporate exposures, exposures are categorized as specialised lending if they meet all of the following criteria. The five sub-classes of specialised lending are project finance, object finance, commodities finance, income-producing real estate, and high-volatility commercial real estate.

a) The exposure is typically to an entity which was created specifically to finance and/or operate physical assets,

b) The terms of the obligation give the lender a substantial degree of control over the assets and the income that it generates,

c) The primary source of repayment of the obligation is the income generated by the assets, rather than the independent capacity of a broader commercial enterprise.

ç) The borrowing entity has little or no other material assets or activities, and therefore little or no independent capacity to repay the obligation, apart from the income that it receives from the assets being financed.

(10) Project finance is a method of funding in which the lender looks primarily to the revenues generated by a single project, both as the source of repayment and as security for the exposure. Project finance may take the form of financing of the construction of a new capital installation, or refinancing of an existing installation.

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

(12) Commodities finance refers to structured short-term lending to finance reserves, inventories, or receivables of exchange-traded commodities, where the exposure will be repaid from the proceeds of the sale of the commodity and the borrower has no independent capacity to repay the exposure.

(13) Income-producing real estate refers to a method of providing funding to real estate where the prospects for repayment and recovery on the exposure depend primarily on the cash flows generated by the asset. The primary source of these cash flows would generally be lease or rental payments or the sale of the asset. It is an exemption for the application of paragraph 9(ç) in cases the borrower has some sources of revenue other than real estate.

(14) High-volatility commercial real estate lending is the financing of commercial real estate that exhibits higher loss rate volatility compared to other types of specialised lending. HVCRE class includes commercial real estate exposures secured by properties of types that are categorized as high-volatility commercial real estate by the Agency or other national supervisors and loans financing any of the land acquisition, development and construction phases for properties of those types. HVCRE class also includes the loans financing any of the land acquisition, development and construction phases for other type of properties that are not categorized as high-volatility commercial real estate by the Agency or other national supervisors provided that the borrower has substantial equity at risk and the source of repayment at origination of the exposure is either the future sale of the property or cash flows whose source of repayment is substantially uncertain such as the property has not yet been leased to the occupancy rate prevailing in that geographic market for that type of commercial real estate. Commercial loans financing any of the land acquisition, development and construction phases exempted from treatment as HVCRE loans on the basis of certainty of repayment of borrower equity are subject to the same risk weights that are applied to the other specialized lending exposures with maturity longer than 2.5 years determined in paragraph 7

of First Section of Annex 1 regardless of the maturity of the commercial loans that are exempted from HVCRE treatment.

(15) Any exposure that are not classified under points (a), (b), (ç), (d) and (e) of paragraph 1 are classified as corporate exposure under point (c) of paragraph 1.

(16) Other assets exposure class consists of non credit-obligation assets and exposures whose counterparty is indefinite . The residual value of leased properties shall be assigned to other assets exposure class, except to the extent that residual value is already included in the lease exposure laid down in Annex-1, Part Three, paragraph 8.

(17) The exposure from providing protection under an nth- to-default basket credit derivative shall be assigned to the same class to which the exposures in the basket would be assigned, except if the individual exposures in the basket would be assigned to various exposure classes in which case the exposure shall be assigned to the corporates exposure class.

Calculation of risk weighted exposure amounts

ARTICLE 7- (1) The risk-weighted exposure amounts for credit risk for exposures in belonging to one of the exposure classes referred to in points (a) to (d) and (f) of article 6(1) and the counterparty credit risk whether in the trading or banking book shall, unless held in trading book, be calculated in accordance with Annex 1, paragraph 1 to 32 of Part One except where those exposures are deducted from own funds according to Regulation on the Own Funds of Banks published in Official Journal No 28756 of September 5, 2013.

(2) Risk weighted exposure amounts for credit risk is calculated based on the the parameters PD, LGD, exposure value and maturity. PD, LGD and maturity are calculated in accordance with Annex 1, Part Two; exposure is calculated in accordance with Annex 1, Part Three.

(3) PD parameters of central governments and central banks, banks and investment firms and corporate exposures are provided by banks own estimates. When Foundation IRB Approach is used for these exposure classes supervisory LGD estimates in Annex 1, Part Two, paragraph 7 and conversion factors in accordance with Annex 1, Part Three are used, while in Advanced IRB Approach banks provide their own estimates of LGD and conversion factors.

(4) Banks that meet the requirements for the calculation of risk weighted exposure amount of corporate exposure via Foundation or Advanced IRB Approach must use the same approaches to derive risk weights for all classes of specialised lending except high-volatility commercial real estate lending. In calculation of risk weighted exposure amount of high-volatility commercial real estate lending, separate correlation function is used as described in Annex 1, Part One, paragraph 6. A bank should not move to the Advanced IRB Approach for the high-volatility sub-class without also doing so for income-producing real estate exposures at the same time. Banks that can not estimate the PD or that do not meet the requirements for the estimation of PD in accordance with Annex 2 for their one of the specialised lending assets are required to calculate risk weighted exposure amount in accordance with Annex 1, Part One, paragraph 7 and based on Annex 3.

(5) For retail exposure pools, banks must provide their own estimates of PD, LGD and conversion factor.

(6) Credit risk of purchased receivables are composed of default risk and dillution risk. Dillution risk of purchased receivables is calculated in accordance with Annex 1, Part

One, paragraph 33. For hybrid pools containing mixtures of exposure types, if the purchasing bank cannot separate the exposures by type, the risk-weight function producing the highest capital requirements for the exposure types in the receivable pool applies.

(7) Risk weighted amounts of equity exposures are calculated with Simple Risk Weight Method in accordance with Annex 1, Part One, paragraphs 17 to 20 or with PD/LGD Approach in accordance with Annex 1, Part One, paragraphs 21 to 23 or with Internal Models Method in accordance with Annex 1, Part One, paragraphs 24 to 25. Banks can use PD/LGD Approach or Internal Models Method only after receiving a prior permission of Agency. The PD/LGD approach to equity exposures remains available for banks that adopt the Advanced IRB Approach for other exposure types. To be eligible for the Internal Models Method a bank must demonstrate to its supervisor that it meets minimum requirements defined in Annex 2, paragraphs 57 to 59 at the outset and on an ongoing basis. Article 33 of the Regulation is applied to a bank that fails to demonstrate continued compliance with the minimum requirements. In the interim, banks would be expected to compute capital charges using Simple Risk Weight Approach. Risk weighted amounts of exposure in CIUs are calculated in accordance with Annex 1, paragraphs 26 to 31.

(8) The risk-weighted exposure amounts for securitised exposures and for exposures belonging to the securitisation exposure class shall be calculated in accordance with Communiqué on the Calculation of Risk-weighted Exposure Amounts Related to Securitisation.

(9) When credit risk mitigation is used risk weighted exposure amounts and expected loss amounts are calculated in accordance with Communiqué on Credit Risk Mitigation Techniques in Foundation IRB Approach and in accordance with Annex-1 in Advanced IRB Approach.

(10) When credit risk mitigation remaining maturity is less than the remaining maturity of exposure, rules defined in Section 6 of Communiqué on Credit Risk Mitigation Techniques are applied.

Calculation of expected loss amounts

ARTICLE 8- (1) Expected loss is calculated in accordance with Annex 1, Part One, paragraphs 4 to 41.

(2) EL amounts of exposures except securitisation exposures and the PD/LGD approach for equity exposures are deducted from the sum of provisions calculated in accordance with Regulation on Procedures and Principles for Determination of Qualifications of Loans and Other Receivables by Banks and Provisions to be Set Aside published in Official Journal No 29750 of June 22, 2016. When the difference is negative, the absolute value of this amount is deducted from core capital in accordance with Regulation on Own Funds of Banks. When the difference is positive, this amount is added to Tier 2 capital in accordance with Regulation on Own Funds of Banks up to maximum of 0,6% of credit risk-weighted exposure amounts calculated within the IRB Approach except securitisation exposures and equity exposures where the PD/LGD approach is used. Discounts made to non-performing purchased receivables are also recognised as specific provisions.

Exclusions to usage of IRB approaches

MADDE 9- (1) Where banks have received the prior permission of the Agency, banks permitted to use the IRB Approach in the calculation of risk-weighted exposure amounts for one or more exposure or exposure classes may apply the Standardised Approach for the following exposures.

a) Some exposures in non-significant business units as well as asset classes or subclasses in the case of retail which correspond to different correlation given in Annex 1, Part One paragraphs 10 to 13 that are immaterial in terms of size and perceived risk profile,

b) Equity investments in entities whose debt obligations qualify for 0% risk weight under Regulation, Annex 1,

c) To promote specified sectors of the economy, equity holdings, up to an aggregate of 10% of own-funds, made under legislated programmes that provide significant subsidies for the investment to the bank and involve some form of government oversight and restrictions on the equity investments,

ç) The equity exposures if their aggregate value, excluding all legislative programmes discussed in paragraph 1(c) of this Article, not exceeds on average over the prior year, 10% of bank's own-funds and 5% of a bank's own-funds if the equity portfolio consists of less than 10 individual holdings.

SECTION THREE Provisional and Final Provisions

Reporting obligation

PROVISIONAL ARTICLE 1 – (1) The obligation of reporting in accordance with paragraph 3(ğ) of Article 4 is not required for banks that are reporting to Risk Center since 01.01.2015 continuously.

Repealed communiqué

Article 10 - (1) Communiqué on Calculation of the Risk Weighted Exposure Amount For Credit Risk By Internal-Ratings Based Approaches published on Official Gazette dated 06/09/2014 and numbered 29111 is repealed.

(2) References to the mentioned communiqué is accepted as done to this Communiqué.

Entry into Force

ARTICLE 11- This Communiqué enters into force on 31/03/2016.

Enforcement

ARTICLE 12- (1) The provisions of this Communiqué are enforced by the Chairman of the Banking Regulation and Supervision Agency.

ANNEX-1

CALCULATION OF RISK WEIGHTED EXPOSURE AMOUNTS AND EXPECTED LOSS AMOUNTS

PART ONE

Risk Weighted Exposure Amounts and Expected Loss Amounts

1. CALCULATION OF RISK WEIGHTED EXPOSURE AMOUNTS

1.1 Risk weighted exposure amounts for exposures to corporates, banks and investment firms, central governments and central banks

1. Subject to the application of the specific treatments laid down in paragraphs 2, 3 and 4, the risk weighted exposure amounts for exposures to corporates, banks and investment firms, central governments and central banks shall be calculated according to the following formula.

Risk Weighted Exposure Amounts = Risk Weight (RW) x Exposure Value

2. In the formula defined in paragraph 1;

a) If PD = 0, RW shall be 0;

b) If PD = 1, (for defaulted exposures)

1) where banks apply Foundation IRB Approach, RW shall be 0.

2) where banks apply Advanced IRB Approach, RW shall be calculated according to following formula.

$$RW = \max \left\{ 0 ; 12,5 \times (LGD - EL_{BE}) \right\}$$

In the formula, EL_{BE} , shall be the bank's best estimate of expected loss for the defaulted exposure in accordance with Annex-2, paragraph 40(g).

c) If $0 < PD < 1$, RW shall be calculated according to following formula.

$$RW = \left[LGD \times N \left(\frac{G(PD)}{\sqrt{1-R}} + \sqrt{\frac{R}{1-R}} \times G(0,999) \right) - LGD \times PD \right] \times \frac{(1 + (M - 2,5) \times b)}{(1 - 1,5 \times b)} \times 12,5$$

where;

- $N(x)$ = the cumulative distribution function for a standard normal random variable (i.e. the probability that a normal random variable with mean zero and variance of one is less than or equal to x);

- $G(z)$ = denotes the inverse cumulative distribution function for a standard normal random variable (i.e. the value x such that $N(x) = z$)
- M , maturity,
- R = denotes the coefficient of correlation, is defined as;

$$R = 0,12 \times \frac{(1 - e^{(-50 \times PD)})}{(1 - e^{-50})} + 0,24 \times \left[1 - \frac{(1 - e^{(-50 \times PD)})}{(1 - e^{-50})} \right]$$

- b = the maturity adjustment factor, which is defined as;

$$b = (0,11852 - 0,05478 \times \ln(PD))^2$$

3. Regulated financial institutions whose total assets are greater than or equal to 192,5 billion Turkish Lira. The most recent audited financial statement of the parent company and consolidated subsidiaries must be used in order to determine asset size. For the purpose of this paragraph, a regulated financial institutions defined as a parent and its subsidiaries where any substantial legal entity in the consolidated group is supervised by a regulator that imposes prudential requirements consistent with international norms.

4. The risk weighted exposure amount for exposures which meet the requirements set out in Articles 14 and 31 of Communiqué on Credit Risk Mitigation Techniques may be adjusted according to the following formula in order to reflect the effect of double default of both borrower and credit risk mitigant. A bank may decide separately for each eligible exposure whether to apply the double default framework or not.

$$\text{Risk Weighted Exposure Amounts} = RW \times \text{Exposure Value} \times [0,15 + (160 \times PD_{pp})]$$

where

PD_{pp} = PD of the protection provider.

RW shall be calculated using the relevant risk weight formula set out in paragraph 2 for the exposure, the PD of the obligor and the LGD of a comparable direct exposure to the protection provider. The maturity factor (b) defined in in paragraph 2 shall be calculated using the lower of the PD of the protection provider and the PD of the obligor. The LGD associated with an unhedged facility to the guarantor or the unhedged facility to the obligor, depending upon whether in the event both the guarantor and the obligor default during the life of the hedged transaction available evidence and the structure of the guarantee indicate that the amount recovered would depend on the financial condition of the guarantor or obligor, respectively; in estimating either of these LGDs, a bank may recognise collateral posted exclusively against the exposure or credit protection, respectively. If protection against dilution risk has been purchased, risk-weight is calculated with PD being equal to the estimated EL, LGD being equal to 100%.

5. Banks must use the following correlation for the calculation of risk weights formula in paragraph 2 for corporate exposures to SME.

$$R = 0,12 \times \frac{(1 - e^{(-50 \times PD)})}{(1 - e^{-50})} + 0,24 \times \left[1 - \frac{(1 - e^{(-50 \times PD)})}{(1 - e^{-50})} \right] - 0,04 \times \left(1 - \frac{(\min\{\max\{(C/10), S\}; C\} - (C/10))}{9C/10} \right)$$

In this formula “S” is expressed in millions of TL as the net total annual sales of the risk group of which the SME is a part on a consolidated basis. For purchased receivables the maximum of total annual sales shall be the weighted average by individual exposures of the pool. Total assets of the consolidated group may be used instead of total sales provided that total sales is not a meaningful indicator of firm size. If the bank does not have the information to calculate the average size of the pool, the correlation formula in paragraph 2 must be used.

6. Banks must use the following correlation formula for the calculation of risk weights in paragraph 2 for high-volatility commercial real estate exposures.

$$R = 0,12 \times \frac{(1 - e^{(-50 \times PD)})}{(1 - e^{-50})} + 0,30 \times \left[1 - \frac{(1 - e^{(-50 \times PD)})}{(1 - e^{-50})} \right]$$

7. Banks that can not estimate PD or do not meet the minimum requirements for estimation of PD defined in Annex-2 for specialised lending, risk weights are determined according to Table 1. Banks must map their internal grades to five supervisory categories provided in Annex-3.

Tablo 1

	Remaining Maturity (Year)	1st Category (Strong)	2nd Category (Good)	3rd Category (Satisfactory)	4th Category (Weak)	5th Category (Default)
High-Volatility Commercial Real Estate Exposures	<2,5	%70	%95	%140	%250	%0
	≥2,5	%95	%120	%140	%250	%0
Other Specialised Lending	<2,5	%50	%70	%115	%250	%0
	≥2,5	%70	%90	%115	%250	%0

8. Purchased corporate receivables’ risk weighted exposure amounts for default risk are calculated by using bottom-up approach (at individual level) for corporate exposures risk quantification standards. However, banks can calculate purchased corporate receivables’ risk weighted exposure amounts for default risk by using top-down approach (at pool level) based on the risk quantification standards for retail exposures provided that purchased corporate receivables comply with the requirements defined in the following paragraphs (a) to (ç). In that case, banks shall comply with the requirements set out in Annex-2, paragraphs 50 to 55 and the risk weight formula for corporate exposure is used in order to calculate the risk weight of the pool. The existence of full or partial recourse to the seller does not automatically disqualify a bank from adopting this top-down approach, as long as the cash flows from the purchased corporate receivables are the primary protection against default risk for purchased receivables. The use of the top-down purchased receivables treatment (at pool level) is limited to situations where it is intended for receivables that are purchased for inclusion in asset backed securitisation structures and it would be an undue burden on a bank to be subjected to the risk quantification standards for corporate exposures defined in Annex-2. When PD or/and LGD parameters of receivable pool is estimated reliably, PD estimated and banks own LGD estimates or LGD parameters defined in point (a) and (b) of paragraph 7 of Part Two is used respectively for Advanced IRB Approach and Foundation IRB Approach. When PD or/and LGD parameters of receivable pool is not estimated reliably, then EL is

decomposed into its PD and LGD components and these components are used for risk weight formula. The estimated EL must be calculated for the receivables on a stand-alone basis; that is, without regard to any assumption of recourse or guarantees from the seller or other parties. PD or/and LGD parameters are estimated in accordance with Part Two, paragraphs 2,7 and 8.

- a) The receivables are purchased from unrelated, third party sellers, and as such the bank has not originated the receivables either directly or indirectly.
- b) The receivables must be generated on an arm's-length basis between the seller and the obligor. As such, intercompany accounts receivable and receivables subject to contra-accounts between firms that buy and sell to each other are ineligible.
- c) The purchasing bank has a claim on all proceeds from the pool of receivables or a pro-rata interest in the proceeds.
- ç) The size of one total exposure from one individual relative to the total pool is no more than %3,5.

9. Where a bank provides credit protection for a number of exposures under terms that the nth default among the exposures shall trigger payment and that this credit event shall terminate the contract, if the product has an external credit assessment from an CRA the risk weights set out in Communiqué on the Calculation of Risk-weighted Amounts Related to Securitisation shall be applied. If the product is not rated by an CRA, the risk weights of the exposures included in the basket will be aggregated, excluding n-1 exposures where the sum of the expected loss amount multiplied by 12,5 and the risk weighted exposure amount shall not exceed the nominal amount of the protection provided by the credit derivative multiplied by 12,5. The n-1 exposures to be excluded from the aggregation shall be determined on the basis that they shall include those exposures each of which produces a lower risk-weighted exposure amount than the risk-weighted exposure amount of any of the exposures included in the aggregation. A 1.250 % risk weight shall apply to positions in a basket for which a bank cannot determine the risk-weight.

1.2 Risk Weighted Exposure Amounts for Retail Exposures

10. The risk-weighted exposure amounts for retail exposures shall be calculated according to the following formula:

Risk Weighted Exposure Amounts = Risk Weight (RW) x Exposure Value

In the formula RW is calculated by using the followings formula;

- a) If PD = 0;

$$RW = \max \left\{ 0 ; 12,5 \times (LGD - EL_{BE}) \right\}$$

In the formula, EL_{BE}, shall be the bank's best estimate of expected loss for the defaulted exposure in accordance with Annex-2, paragraph 40(g).

- b) If 0 < PD < 1, RW shall be calculated according to following formula.

$$RW = \left[LGD \times N \left(\frac{G(PD)}{\sqrt{1-R}} + \sqrt{\frac{R}{1-R}} \times G(0,999) \right) - LGD \times PD \right] \times 12,5$$

where;

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

$$R = 0,03 \times \left(\frac{(1 - e^{(-35 \times PD)})}{(1 - e^{-35})} \right) + 0,16 \times \left[1 - \frac{(1 - e^{(-35 \times PD)})}{(1 - e^{-35})} \right]$$

11. The risk weighted exposure amount for each exposure to an SME as referred to in Article 6 of the Communiqué which meets the requirements set out in Articles 14 and 31 of Communiqué on Credit Risk Mitigation Techniques calculated in accordance with paragraph 4 in order to reflect the double default treatment.

12. For residential mortgage loans provided that credit is extended to an individual that is an owner-occupier of the property coefficient of correlation of 0,15 shall replace the figure produced by the correlation formula in paragraph 10.

13. For qualifying revolving retail exposures in accordance with points (a) to (d), a coefficient of correlation of 0,04 shall replace the figure produced by the correlation formula in paragraph 10.

a) The exposures are to individuals.

b) The exposures are defined as those where customers' outstanding balances are permitted to fluctuate based on their decisions to borrow and repay, unsecured, and to the extent they are not drawn immediately and unconditionally, cancellable by the bank. Undrawn commitments may be considered as unconditionally cancellable if the terms permit the bank to cancel them to the full extent allowable under consumer protection and related legislation.

c) The maximum exposure to a single individual in the sub-portfolio of qualifying revolving retail exposures must be less than or equal to 275 thousand TL.

ç) The use of the correlation in this paragraph is limited to portfolios that have exhibited low volatility of loss rates relative to their average level of loss rates, especially within the low PD bands.

d) The treatment as a qualifying revolving retail exposure shall be consistent with the underlying risk characteristics of the sub-portfolio.

14. Banks shall review the relative volatility of loss rates across the qualifying revolving retail sub-portfolios, as well the aggregate qualifying revolving retail portfolio, and retain relevant reports of audit.

15. For purchased retail receivables banks shall comply with the minimum requirements set out in Annex-2, paragraphs 50 to 55.

1.3 Risk Weighted Exposure Amounts for Equity Exposures

1.3.1 Approaches for Equity Exposures

16. Banks shall determine their risk-weighted exposure amounts for equity exposures in accordance with paragraphs 17 to 25 by using Simple Risk Weight Method, PD/LGD Approach or Internal Models Method. Risk weight exposure amount is not calculated for those deducted from core capital listed in Regulation on Own funds of Banks and those that are subject to a 250% or 1250% risk weight in accordance with Regulation, Annex-1. Banks are permitted to employ both Simple Risk Weight Method and Internal Models Method simultaneously to different portfolios based on the purpose of their own internal risk management. The method used should be consistent with the amount and complexity of the bank's equity holdings and commensurate with the overall size and sophistication of the bank. Banks' choices must be made consistently, and in particular not determined by regulatory arbitrage considerations.

1.3.1.1 Simple Risk Weight Method

17. Under the Simple Risk Weight Approach, the risk weighted exposure amount shall be calculated according to the formula.

Risk Weighted Exposure Amounts = Risk Weight (RW) x Exposure Value

18. The following RW values are used in the calculation of formula in paragraph 17.

$$RW = \begin{cases} \text{For equity exposures listed in a recognised exchange} & \%300 \\ \text{For all other equity exposures} & \%400 \end{cases}$$

19. Short cash positions and derivative instruments held in the banking book are permitted to offset long positions in the same individual stocks provided that these instruments have been explicitly designated as hedges of specific equity holdings and that they have remaining maturities of at least one year. Other short positions are to be treated as if they are long positions with the relevant risk weight applied to the absolute value of each position. In the context of maturity mismatched positions, the methodology defined in Communiqué on Credit Risk Mitigation Techniques is used.

20. Banks may recognise unfunded credit protection obtained on an equity exposure.

1.3.1.2 PD/LGD Approach

21. Under the PD/LGD Approach, the risk weighted exposure amount is equal to the sum of the value calculated in accordance with paragraphs 1 and 2 and the EL amount calculated in accordance with paragraph 39 multiplied by 12,5. The bank's estimate of the PD of a corporate entity in which it holds an equity position must satisfy the same requirements as the bank's estimate of the PD of a corporate entity where the bank holds debt. If a bank

does not hold debt of the company in whose equity it has invested, and does not have sufficient information on the position of that company to be able to use the applicable definition of default

in accordance with paragraphs 29 to 35 of Annex-2, a 1.5 scaling factor will be applied to the risk weights derived from the corporate risk-weight function, given the PD set by the bank. If, however, the bank's equity holdings are material and it is permitted to use a PD/LGD Approach for regulatory purposes but the bank has not yet met the relevant standards, the Simple Risk-Weight Method under the Market-Based Approach shall apply.

22. 1.250% risk weight can be applied, if for each equity exposure risk weighted exposure amount calculated according to paragraph 21 exceed the exposure value multiplied by 12,5. For all equity exposures, if capital charges calculated under the PD/LGD approach in accordance with paragraph 21 is less than the risk weights exposure amount calculated by using the minimum risk weights determined in the following points (a) to (c), then these minimum risk weights are used.

a) For equity exposures listed in a recognised exchange where the expected holding period of the equity is at least five years and for equities not listed in a recognised exchange where the returns on the investment are based on regular and periodic cash flows not derived from capital gains: 100% risk weight.

b) For other equity exposures listed in a recognised exchange, including net short positions as defined in paragraph 19: 200% risk weight.

c) For all other equity holdings, including net short positions as defined in paragraph 19: 300% risk weight.

23. Banks may recognise unfunded credit protection obtained on an equity exposure in accordance with the methods set out in Article 56 of Communiqué on Credit Risk Mitigation Techniques. For these purposes equity positions will be treated as having a five-year maturity and LGD of %90.

1.3.1.3 Internal Models Method

24. The risk weighted exposure amount shall be calculated by multiplying the potential loss on the bank's equity exposures by 12,5. Potential loss is derived using internal value-at-risk models subject to the 99th percentile, one-tailed confidence interval of the difference between quarterly returns and an appropriate risk-free rate computed over a long-term sample period. The risk weighted exposure amounts at the equity portfolio level shall not be less than the Simple Risk Weight Method using a 200% risk weight for equity exposures listed in a recognised exchange and a 300% risk weight for all other equity holdings.

25. Banks may recognise unfunded credit protection obtained on an equity position.

1.3.2 Risk Weighted Exposure Amounts for Investment in CIUs

26. The risk weighted exposure amount for investment in CIUs can be calculated by Look-Through Approach provided that there is sufficient and frequent information provided to the bank regarding the underlying exposures of the CIUs and such information is verified by an independent third party. Independent third parties are limited to the depository or the custodian bank or the management company. In calculation of CIU's risk weighted exposure amounts, CIU's derivative investments shall be taken into account in which the underlying receives a risk weighting treatment under the Regulation, Annex-1 and the associated

counterparty credit risk exposure in accordance with the Regulation, Annex-2 and Annex-4. Instead of determining a CVA charge associated with the fund's derivatives exposures in accordance with the Regulation, banks must multiply the counterparty credit risk exposure by a factor of 1,5 before applying the risk weight associated with the counterparty.

In addition, when an IRB calculation is not feasible for some or all of the exposures of CIUs, the risk weighted exposure amount can be calculated as follows.

- a) The risk weighted exposure amount of equity exposures is calculated via Simple Risk Weight Method.
- b) The risk weighted exposure amount of all other exposures of CIU is calculated via Standardised Approach.
- c) In calculation of (a) if it is unknown that whether the equity is traded in a recognised exchange or not, then its risk weighted exposure amount is calculated as other equity exposure.

27. If there is no sufficient information about underlying exposures of the CIUs, the risk weighted exposure amount can be calculated by Mandate-Based Approach using the information contained in a CIU's mandate or in the national regulations governing CIU or disclosures of the CIU. In this calculation, underlying exposures of the CIUs are risk weighted assuming the underlying portfolios are invested to the maximum extent allowed under the CIU's mandate in those assets attracting the highest capital requirements and their weighted exposure amount is calculated in accordance with points (a) to (c) of paragraph 26. Whenever the underlying risk of a derivative exposure or an off-balance-sheet item receives a risk weighting treatment under the Regulation, the notional amount of the derivative position or of the off-balance sheet exposure is risk weighted accordingly. If the underlying is unknown, the full notional amount of derivative positions must be used for the calculation. If the notional amount of derivatives is unknown, it will be estimated conservatively using the maximum notional amount of derivatives allowed under the mandate. Exposure value of derivatives may be determined in accordance with Annex-2, Section Two, Part One of the Regulation. Whenever the replacement cost is unknown, the exposure measure for counterparty credit risk will be calculated in a conservative manner by using the notional amount as a proxy for the replacement cost. Whenever the add-on factor is unknown, the maximum add-on factor of 15% applies. Instead of determining a CVA charge associated with the CIU's derivative exposures in accordance with the Regulation, banks must multiply the counterparty credit risk exposure calculated in accordance with Annex-2, Section Two, Part One of the Regulation by a factor of 1,5 before applying the risk weight associated with the counterparty.

28. Where neither the Look-Through Approach nor the Mandate-Based Approach is feasible, banks are required to apply a 1.250% risk weight to the bank's investment in CIUs.

29. While using Look-Through Approach, if banks do not have adequate data to perform the calculations themselves, they may rely on third-party calculations defined in paragraph 26 for determining the risk weights associated with their investments in CIUs. In this case, the risk weighted exposure amount for CIU's underlying exposures is the amount calculated in accordance with points (a) to (c) of paragraph 26 multiplied by 1,2.

30. When a bank has an investment in CIU that itself has an investment in another CIU, which the bank identified by using either the Look-Through Approach or the Mandate-Based Approach, the risk weight applied to the investment of the first CIU can be determined by using one of the three approaches set out in paragraphs 26, 27 or 28. For all subsequent layers,

the risk weights applied to an investment in another CIU can be determined by using the Look-Through Approach under the condition that the Look-Through Approach was also used for determining the risk weight for the investment in the CIU at the previous layer. Otherwise, the risk weight set out in paragraph 28 must be applied.

31. The risk weighted exposure amount for investment in CIUs is calculated with the following formula in the context of Look-Through Approach or the Mandate-Based Approach.

Risk Weighted Exposure Amount = Average Risk Weight × Leverage × Exposure Value

In the formula, the average risk weight of CIU is the ratio of the total risk weighted exposure amount to the total assets of the CIU and the leverage is the ratio of total assets to total equity of CIU, exposure value is the bank's investment in a CIU. In Mandate-Based Approach leverage is taken into account by using the maximum financial leverage permitted in the CIU's mandate or in the national regulation governing the CIU or disclosures of the CIU. When determining the risk weighted exposure amount related to bank's investment in a CIU, the multiplication of average risk weight and leverage is subjected to a cap of 1.250%.

1.4 Risk Weighted Exposure Amounts for Other Assets

32. 0 % risk weight shall be assigned to cash in hand and equivalent cash items as well as gold bullion held in own vault or on an allocated basis to the extent backed by bullion liabilities. The risk weighted exposure amounts for other non credit-obligation assets shall be calculated according to the following formula:

Risk weighted exposure amount = 100 % x Exposure value

Risk weighted exposure amount of residual value of leased assets shall be calculated as follows:

Risk weighted exposure amount = 100 % x Residual value

2. CALCULATION OF RISK WEIGHTED EXPOSURE AMOUNTS FOR DILUTION RISK OF PURCHASED RECEIVABLES

33. Risk weights for dilution risk of purchased corporate and retail receivables are calculated according to the formula set out in the second paragraph. Risk weights for dilution risk of purchased retail receivables and regardless of calculated at pool level or individual level risk weights for dilution risk of purchased corporate receivables are calculated by parameters found after decomposing EL estimate for individual receivable or pool of receivables provided that banks comply with the requirements set out in Annex-2, paragraphs 50 to 55 depending on bank's choice. This estimate must be computed on a stand-alone basis; that is, under the assumption of no recourse or other support from the seller or third-party guarantors. Banks can utilise external and internal data to estimate EL. The value of maturity is 1 year provided the bank monitors and manages its dilution risk such that dilution risk would be removed in 1 year. Dilution risk may be ignored with the permission of the Agency for calculation of capital requirement for purchased corporate or retail receivables where this risk for a bank is immaterial.

3. CALCULATION OF EL AMOUNT

34. EL amount is calculated by taking into account PD, LGD and exposure value used for calculation of risk weighted exposure amount for each claim.

35. EL amount is recognised as zero for other assets exposure class.

36. EL and EL amount for corporate exposures, exposures to banks and investment firms, exposures to central governments and central banks and retail exposures is calculated according to the formula given below.

$$EL = PD \times LGD$$

$$EL \text{ amount} = EL \times \text{exposure value}$$

In case a bank uses Advanced IRB Approach EL for defaulted assets (PD=1) is best estimate of EL (EL_{BE}) that is calculated according to the point (g) of paragraph 40. EL is recognised as zero for claims subject to the double default treatment explained in paragraph 4.

37. EL levels of the risks regarding the specialised lending which is subject to the treatment given at paragraph 7 are determined by Table 2.

Table 2

	Remaining Maturity (Year)	1st Category (Strong)	2nd Category (Good)	3rd Category (Satisfactory)	4th Category (Weak)	5th Category (Default)
High-Volatility Commercial Real Estate	-	%0,4	%0,4	%2,8	%8	%50
Other Specialised Lending	<2,5	%0	%0,4	%2,8	%8	%50
	≥2,5	%0,4	%0,8	%2,8	%8	%50

38. EL amount is recognized as zero for equity exposures for which risk weighted exposure amount is calculated according to Simple Risk Weight Method.

39. EL and EL amount for equity exposures for which risk weighted exposure amount is calculated according to PD/LGD Approach is calculated with the formula given below.

$$EL = PD \times LGD$$

$$EL \text{ amount} = EL \times \text{exposure value}$$

40. EL amount is recognized as zero for equity exposures for which risk weighted exposure amount is calculated according to Internal Models Method.

41. EL amount for dilution risk of purchased receivables is calculated according to the formula given below.

$$EL = PD \times LGD$$

$$EL \text{ amount} = EL \times \text{exposure value}$$

PART TWO
Probability of Default, Loss Given Default and Maturity

1. CORPORATE EXPOSURES, EXPOSURES TO BANKS AND INVESTMENT FIRMS, EXPOSURES TO CENTRAL GOVERNMENTS AND CENTRAL BANKS

1.1 Probability of Default

1. PD of corporate exposures and exposures to banks and investment firms cannot be less than 0.03%.

2. For purchased corporate receivables in respect of which risk weighted exposure amount of default risk is calculated at pool level and the bank is able to estimate the pool's PD in a reliable manner then this PD is used. If this is not the case then the PDs determined below are used.

a) For Foundation IRB Approach PD of senior claims on purchased corporate receivables must be the bank's estimate of EL divided by LGD of the pool receivables.

b) For Foundation IRB Approach PD of subordinated claims on purchased corporate receivables must be the bank's estimate of EL for the pool.

c) For Advanced IRB Approach PD of purchased corporate receivables must be the bank's estimate of EL divided by bank's estimate of LGD.

3. The PD of obligors in default must be 100%

4. For Foundation IRB Approach banks may recognise unfunded credit protection for credit risk (including default risk and dilution risk for purchased corporate receivables) by adjusting PDs subject to Communiqué on Credit Risk Mitigation Techniques.

5. For Advanced IRB Approach banks may recognise unfunded credit protection for credit risk (including default risk and dilution risk for purchased corporate receivables) by adjusting PDs (or LGDs) provided that the minimum requirements stated between paragraphs 45 and 47 of Annex 2 are met. Article 56 of Communiqué on Credit Risk Mitigation Techniques must be followed given that unfunded credit protection is recognised by adjusting PDs. This adjustment must be applied consistently across credit protection types. This adjustment cannot be applied for receivables hedged by a guarantee such that the adjusted risk weight would be lower than that of a comparable, direct exposure to the guarantor.

6. For dilution risk of purchased corporate receivables, PD must be equal to the EL estimate for dilution risk.

1.2 Loss Given Default

7. For Foundation IRB Approach LGD values given below must be used. With regard to the implementation of points below unfunded credit protections and with regard to the implementation of all point but (b) funded credit protections subject to the provisions of Communiqué on Credit Risk Mitigation Techniques may be recognised by adjusting LGD.

a) Senior claims: 45%.

b) Subordinated claims: 75%.

c) Senior claims on purchased corporate receivables pool in respect of which risk weighted exposure amount of default risk for receivables is calculated at pool level and the bank is not able to estimate the pool's PD in a reliable manner: 45%

ç) Subordinated claims on purchased corporate receivables pool in respect of which risk weighted exposure amount of default risk for receivables is calculated at pool level and the bank is not able to estimate the pool's PD in a reliable manner: 100%

d) For dilution risk of purchased corporate receivables regardless of whether dilution risk is calculated at individual receivable level or pool level: %100.

8. For Advanced IRB Approach the bank's estimate of LGD is used. For this approach default risk of purchased corporate receivables is calculated at pool level and the bank's estimate of LGD is used provided that this estimate can be made in a reliable manner. If it cannot be made in a reliable manner then LGD must be the bank's estimate of EL divided by bank's estimate of PD.

9. For Advanced IRB Approach dilution risk of purchased corporate receivables is 100% regardless of whether dilution risk is calculated at individual receivable level or pool level.

10. For Advanced IRB Approach banks may recognise unfunded credit protection for credit risk (including default risk and dilution risk for purchased corporate receivables) by adjusting LGDs (or PDs) provided that the minimum requirements stated between paragraphs 45 and 47 of Annex 2 are met. This adjustment must be applied consistently across credit protection types. This adjustment cannot be applied for receivables hedged by a guarantee such that the adjusted risk weight would be lower than that of a comparable, direct exposure to the guarantor.

1.3 Maturity

11. Banks that are using Foundation IRB Approach must assign to exposures arising from repurchase transactions or securities or commodities lending or borrowing transactions a maturity value of 0,5 years and to all other exposures a maturity value of 2,5 years. Maturity may be determined for all exposures according to paragraph 12 subject to the Agency's permission.

12. Banks that are using Advanced IRB Approach must determine the maturity for an instrument subject to a cash flow schedule according to the effective maturity formula given below. Without prejudice to the provisions stated in paragraphs between 13 and 15 if the maturity calculated according to this paragraph is less than 1 year or more than 5 years then 1 year or 5 years respectively will be used as maturity. If a bank is not able to calculate the maturity of the contracted payments as noted above then maturity equals the maximum remaining time that the borrower is permitted to take to fully discharge its contractual obligation (principal, interest, and fees) under the terms of loan agreement. For derivatives subject to a master netting agreement, maturity must be the weighted average remaining maturity of the exposure, and the notional amount of each exposure must be used for weighting the maturity.

$$M = \frac{\sum_t t \times CF_t}{\sum_t CF_t}$$

CF_t stands for the principal, interest payments and fees contractually payable by the obligor in period t (in years).

13. Where the documentation requires daily re-margining and daily revaluation and includes provisions that allow for the prompt liquidation or set off of collateral in the event of default or failure to remargin with an original maturity of less than one year, then 1 day must be used as minimum maturity instead of 1 year for:

- a) fully or nearly-fully collateralised derivative instruments;
- b) fully or nearly-fully collateralised margin lending transactions;
- c) repurchase transactions, securities or commodities lending or borrowing transactions.

14. For exposures arising from fully or nearly-fully collateralised derivative instruments and fully or nearly-fully collateralised margin lending transactions listed in paragraph 13, which are subject to a master netting agreement, maturity must be the weighted average remaining maturity of the transactions where maturity must be at least 10 days. For repurchase transactions or securities or commodities lending or borrowing transactions which are subject to a master netting agreement, maturity must be the weighted average remaining maturity of the transactions where maturity must be at least 5 days.

15. 1 day is used as minimum maturity for short-term exposures listed below provided that they are not extended to the obligor in a continuous basis.

- a) Exposures to banks arising from foreign exchange settlements that settlements will occur within 5 days.
- b) Import and export letters with remaining maturity less than 1 year.
- c) Exposures arising from settling securities purchases and sales that settlements will occur within 2 days or general delivery period.
- ç) Some exposures arising from cash settlements by wire transfer.

16. Maturity must be the weighted average maturity of the purchased receivables where the bank calculates the risk weight regarding the default risk of purchased corporate receivables at pool level according to the paragraph 8 of Part One. However maturity must be longer than 1 year. This same value of maturity will also be used for undrawn amounts under a committed purchase facility provided the facility contains effective covenants, early amortisation triggers, or other features that protect the purchasing bank against a significant deterioration in the quality of the future receivables it is required to purchase over the facility's term. Absent such effective protections, the maturity for undrawn amounts will be calculated as the sum of the longest-dated potential receivable under the purchase agreement and the remaining maturity of the purchase facility

17. For banks using the Internal Model Method set out in Part Three, Section Two, Annex 2 of the Regulation to calculate the exposure values, maturity must be calculated for exposures to which they apply this method and for which the maturity of the longest-dated contract contained in the netting set is greater than one year according to the following formula. A bank that uses Advanced CVA Method to calculate a one-sided CVA can use the effective credit duration estimated by such a model in place of the following formula with prior approval of the Agency.

$$V = \min \left(\frac{\sum_k \text{Effective}EE_{t_k} \times \Delta t_k \times df_{t_k} \times s_{t_k} + \sum_k EE_{t_k} \times \Delta t_k \times df_{t_k} \times (1 - s_{t_k})}{\sum_k \text{Effective}EE_{t_k} \times \Delta t_k \times df_{t_k} \times s_{t_k}}; 5 \right)$$

where,

s_{t_k} : a dummy variable whose value at future period t_k is equal to 0 if $t_k > 1$ year and to 1 if $t_k \leq 1$.

df_{t_k} : the risk-free discount factor for future time period t_k .

EE_{t_k} : the expected exposure at the future period t_k defined in Part One, Section One, Annex 2 of the Regulation

$\text{Effective}EE_{t_k}$: the effective expected exposure at the future period defined in Part One, Section One, Annex 2 of the Regulation.

Δt_k : $t_k - t_{k-1}$.

18. For banks using the Internal Model Method set out in Part Three, Section Two, Annex 2 of the Regulation to calculate the exposure values, maturity must be calculated for exposures to which they apply this method and for which the maturity of the longest-dated contract contained in the netting set is less than one year according to the following formula stated in paragraph 12. Furthermore without prejudice to the provisions of paragraphs between 13 and 15 minimum maturity is 1 year. For banks using the Internal Model Method set out in Part Three, Section Two, Annex 2 of the Regulation to calculate the exposure values and having an internal model permission for specific risk associated with traded debt positions maturity must be set to 1 year, provided that the internal model for specific risk associated with traded debt positions contains effects of rating migrations.

19. Maturity is the effective maturity of the credit protection for the double default treatment set out in paragraph 4 of Part One provided that it is not less than 1 year.

2. RETAIL EXPOSURES

2.1 Probability of Default

20. PD of an exposure must be at least 0,03%.

21. The PD of obligors or, where an obligation approach is used, of exposures in default must be 100%.

22. For dilution risk of purchased receivables PD must be set equal to EL estimates for dilution risk.

23. Either in support of an individual obligation or a pool of exposures, unfunded credit protection may be taken into account by adjusting PDs (or LDGs) for credit risk (including default and dilution risk for purchased retail receivables) subject to provisions of paragraph 5.

2.2 Loss Given Default

24. Banks provide own estimates of LGDs. For dilution risk of purchased receivables, an LGD value of 100% must be used.

25. Either in support of an individual obligation or a pool of exposures unfunded credit protection may be taken into account by adjusting LGDs (PDs) for credit risk (including default and dilution risk for purchased retail receivables) subject to provisions of paragraph 10.

26. LGD of each pool comprised of retail exposures secured by residential property and not benefiting from guarantees from central governments cannot be lower than 10%. LGD of each pool comprised of retail exposures secured by commercial real estate and not benefiting from guarantees from central governments cannot be lower than 15%. In case exposures are secured by property located in a foreign country, which determines higher LGD values, these higher LGD values must be taken into account as a minimum when setting LGDs.

3. EQUITY EXPOSURES SUBJECT TO THE PD/LGD METHOD

3.1 Probability of Default

27. PDs for equity exposures subject to the PD/LGD Method must be determined according to the methods used for corporate exposures.

3.2 Loss Given Default

28. Equity exposures must be assigned an LGD of 90%.

3.3 Maturity

29. Maturity assigned to equity exposures must be five years.

PART THREE Exposure Value

1. CORPORATE EXPOSURES, EXPOSURES TO BANKS AND INVESTMENT FIRMS, EXPOSURES TO CENTRAL GOVERNMENTS AND CENTRAL BANKS AND RETAIL EXPOSURES

1. For calculating risk weighted exposure, amounts before deducting the reserved provisions must be recognised as exposure value according to Regulation on Procedures and Principles for Determination of Qualifications of Loans and Other Receivables by Banks and Provisions to be Set Aside.

2. For Foundation IRB Approach non-cash loans and commitments excluding the ones given in points between (a) and (c) are classified according to Article 5 of the Regulation and the exposure value of those instruments are calculated by applying the CCFs stated in that Article. Where a non-cash loan or commitment is obtained on another non-cash loan or commitment, banks must apply the lower of the applicable CCFs.

a) For credit lines that are unconditionally cancellable at any time by the bank without prior notice, or that effectively provide for automatic cancellation due to deterioration in a borrower's credit quality, a conversion factor of 0% must apply. To apply a conversion factor of 0%, banks must actively monitor the financial condition of the obligor, and their internal control systems must enable them to immediately detect deterioration in the credit quality of the obligor. Undrawn credit lines may be considered as unconditionally cancellable if the contract terms permit the bank to cancel the commitments to the full extent provided that bank also takes into account the consumer protection and related legislation.

b) For undrawn purchase commitments for revolving purchased receivables that are able to be unconditionally cancelled or that effectively provide for automatic cancellation at any time by the bank without prior notice, a conversion factor of 0% must apply. To apply a conversion factor of 0%, banks must actively monitor the financial condition of the obligor, and their internal control systems should enable them to immediately detect a deterioration in the credit quality of the obligor.

c) For other credit lines, note issuance facilities, and undrawn parts of revolving underwriting facilities (irrevocable credit facilities, overdraft account commitments, and credit card commitments), a conversion factor of 75% must apply.

3. For Advanced IRB Approaches exposure value for non-cash loans and commitments is the multiplication of undrawn amount of commitment by the internal estimate of conversion factors. For this Approach, except for retail exposures a ratio of 100% instead of internal conversion rate must apply to non-cash loans and commitments for which 100% conversion rate applies according to paragraph 2. To the extent that foreign exchange and interest rate commitments exist within a bank's retail portfolio for IRB purposes, banks are not permitted to provide their internal assessments of credit equivalent amounts. Instead, these claims are classified in accordance with the Article 5 of the Regulation. The calculation of the exposure value for these claims are calculated in accordance with the Article 5 of the Regulation as well.

4. Exposure value for derivatives must be determined in accordance with Annex 2 of the Regulation.

5. For Foundation IRB Approach, where an exposure takes the form of repurchase transactions, securities or commodities lending or borrowing transactions, long settlement transactions and margin lending transactions, the exposure value must be determined in accordance with Annex 2 of the Regulation or Communique on Credit Risk Mitigation Techniques. For Advance IRB approach, the exposure amount of the transactions mentioned above is determined with the similar procedures and principles as Foundation IRB Approach.

6. Where an exposure takes the form of repurchase transactions, securities or commodities lending or borrowing transactions, long settlement transactions and margin lending transactions for which securities or commodities are being sold, transferred or borrowed, the exposure value of these securities or commodities must be increased by the volatility adjustment appropriate to such securities or commodities as set out in Communique on Credit Risk Mitigation Techniques.

7. In order to calculate the exposure value for on-balance sheet netting of loans and deposits, banks must apply the methods set out in Communique on Credit Risk Mitigation Techniques.

8. The exposure value for leases must be the discounted minimum lease payments. If a party other than the lessee is required to make a payment related to the residual value of a leased asset and payment obligation and the guarantor fulfil the set of conditions set out in Articles 13, 26 and 27 of Communiqué on Credit Risk Mitigation Techniques, the payment obligation is taken into account as unfunded credit protection.

9. The exposure value of purchased receivables is the exposure value determined in accordance with paragraph 1 minus the capital requirements for dilution risk prior to credit risk mitigation. Regardless of whether the bank's own conversion factor estimate is used or not, exposure value for a revolving purchase facility is the sum of the current amount of receivables purchased plus 75% of any undrawn purchase commitments minus capital requirement for dilution risk prior to credit risk mitigation.

10. When only the drawn balances of retail facilities have been securitised, banks must ensure that they continue to hold required capital against their share of undrawn balances related to the securitised exposures. For determining bank's interest, the undrawn balances of securitised exposures would be allocated based on the proportions of the bank's and investors' shares of the securitised drawn balances.

2. EQUITY EXPOSURES

11. Exposure value of equity exposures is the revalued amount of the asset determined in accordance with Turkish Accounting.

12. Exposure value of off-balance sheet equity exposures is its nominal value.

3. OTHER ASSETS

13. Exposure value of other assets is the revalued amount of the asset determined in accordance with Turkish Accounting Standards.

ANNEX-2

MINIMUM REQUIREMENTS

1. RATING SYSTEMS

1. Where an institution uses multiple rating systems, the rationale for assigning an obligor or a transaction to a rating system shall be documented and applied in a manner that appropriately reflects the level of risk.

2. To assure the criteria and processes used for choosing rating systems stay compatible with the existing portfolio structure and external factors, forementioned criteria and processes should be reviewed periodically.

3. Where a bank uses its own predictions for risk parameters for each borrower or transaction, those predictions should be accepted as estimations for ratings assigned to a rating scale.

1.1 Structure of rating systems

4. Rating systems used for corporate, sovereign, and bank exposures should have following qualifications.

a) A rating system shall take into account obligor and transaction risk characteristics. The risk structure of the transaction should reflect the transaction-specific factors such as the collateral, the seniority of the claim, type of the product etc. Under foundation IRB, the requirement for capturing the risk structure could be fulfilled by a single dimension reflecting risk structure of both the borrower and the transaction.

b) There is a separate obligor rating scale which reflects exclusively quantification of the risk of obligor default. Under this scale there should be at least seven grades for non-defaulted obligors and one for defaulted obligors.

c) A bank must document the relationship between obligor grades in terms of the level of risk each grade implies and the criteria used to distinguish that level of default risk. Perceived and measured risk must increase as credit quality declines from one grade to the next.

ç) Banks with portfolios concentrated in a particular market segment and range of default risk shall have enough obligor grades within that range to avoid undue concentrations of obligors in a particular grade. Significant concentrations within a single grade shall be supported by convincing empirical evidence that the obligor grade covers a reasonably narrow PD band and that the default risk posed by all obligors in the grade falls within that band.

d) For banks using the advanced approach, facility ratings must exclusively reflect LGD. These ratings can reflect any and all factors that can influence LGD including, but not limited to, the type of collateral, product, industry, and purpose. Borrower characteristics may be included as LGD rating criteria only to the extent they are predictive of LGD. The definition of transaction grade shall include both a description of how exposures are assigned to the grade and of the criteria used to distinguish the level of risk across grades. Banks may alter the factors that influence transaction grades across sub-segments of the

portfolio as long as they can satisfy the Agency that it improves the relevance and precision of their estimates.

e) When there are significant concentrations within a single facility grade shall be supported by convincing empirical evidence that the facility grade covers a reasonably narrow LGD band, respectively, and that the risk posed by all exposures in the grade falls within that band.

5. Banks using the method described in Part One, paragraph seven of Annex-1 for assigning risk weights for specialised lending exposures should have a specific rating scale quantifying credit risk. Under this scale there should at least four rating for non-defaulted obligors and at least one grade for defaulted obligors.

6. Rating systems used for retail exposures should have following qualifications.

a) Systems must reflect risk levels of both obligor and transaction, and must capture all relevant obligor and transaction characteristics.

b) The level of risk differentiation shall ensure that the number of exposures in a given grade or pool is sufficient to allow for meaningful quantification and validation of the loss characteristics at the grade or pool level. The distribution of exposures and obligors across grades or pools shall be such as to avoid excessive concentrations.

c) The process of assigning exposures to grades or pools shall provide for a meaningful differentiation of risk, for a grouping of sufficiently homogenous exposures, and shall allow for accurate and consistent estimation of loss characteristics at grade or pool level. For purchased receivables the grouping shall reflect the seller's underwriting practices and the heterogeneity of its customers.

7. Following risk drivers should be considered when assigning exposures to a pool.

a) Obligor risk characteristics,

b) Transaction risk characteristics, including product and/or collateral types, cases where several exposures benefit from the same collateral

c) Delinquency of exposure

1.2 Assignment to grades or pools

8. Banks should have specific definitions, processes and criteria for assigning exposures to grades or pools within a rating system that comply with the following requirements. The rating definitions and criteria must both be plausible and intuitive and must result in a meaningful differentiation of risk.

a) The grade or pool definitions and criteria shall be sufficiently detailed to allow those charged with assigning ratings to consistently assign obligors or facilities posing similar risk to the same grade or pool. This consistency should exist across lines of business, departments and geographic locations.

b) Written rating definitions must be clear and detailed enough to allow third parties to understand the assignment of ratings to replicate rating assignments and evaluate the appropriateness of the grade/pool assignments.

c) The criteria must also be consistent with the bank's internal lending standards and its policies for handling troubled borrowers and facilities.

9. All relevant and important information should be considered when assigning exposures to grades or pools. Information must be current. The less information a bank has, the more conservative must be its assignments of exposures to obligor and facility grades or pools. When an external rating is used as the primary factor determining an internal rating assignment, all other relevant information should be considered. When assigning grades a time horizon longer than a year is expected to be used. Ratings must represent the bank's assessment of the borrower's ability and willingness to contractually perform despite adverse economic conditions or the occurrence of unexpected events. In this regard a bank may base rating assignments on specific, appropriate stress scenarios. Alternatively, a bank may take into account borrower characteristics that are reflective of the borrower's vulnerability to adverse economic conditions or unexpected events, without explicitly specifying a stress scenario. The range of economic conditions that are considered when making assessments must be consistent with current conditions and those that are likely to occur over a business cycle within the respective industry/geographic region. Given the difficulties in forecasting future events and the influence they will have on a particular borrower's financial condition, a bank must take a conservative view of projected information. Furthermore, where limited data are available, a bank must adopt a conservative bias to its analysis.

10. Assignment of corporate, sovereign, and bank exposures and equity holdings under PD/LGD approach should be carried out in a way that is compatible with the criteria below.

a) Each obligor should be assigned to a obligor grade as a part of credit approval process.

b) When advanced IRB approach is used, each transaction should be assigned to a facility grade as a part of credit approval process.

c) Banks using the method described in Part One, paragraph seven of Annex-1 for specialized lending must assign exposures to their internal rating grades based on their own criteria, systems and processes, subject to compliance with the requisite minimum requirements under paragraph five. The mapping process outlined in paragraph seven of Annex-1 should result in an alignment of grades which is consistent with the preponderance of the characteristics of risk categories. Banks should take special care to ensure that any overrides of their internal criteria do not render the mapping process ineffective.

ç) Each corporate entity should be rated separately. Banks should have policies regarding assignment of individual obligors and risk groups (connected clients). These policies should include processes regarding specific wrong way risk for each corporate entity. Exposures with wrong way risk should be separated when calculating risk weights.

d) Exposures to the same obligor should be assigned to the same obligor grade, irrespective of any differences in the nature of each specific transaction. However multiple grades for the same obligor is allowed;

1) citations whether the exposures are denominated in local or foreign currency,

2) the treatment of associated guarantees to an exposure may be reflected in an adjusted assignment to an obligor grade.

11. Each retail exposure should be assigned to a pool as a part of credit approval process.

12. For grade and pool assignments banks shall document the situations in which human judgement may override the inputs or outputs of the assignment process including

how and to what extent such overrides can be used and by whom and the personnel responsible for approving these overrides. Banks shall document and follow up on these overrides and note down the personnel responsible. Institutions shall analyse the performance of the exposures whose assignments have been overridden. This analysis shall include an assessment of the performance of exposures whose rating has been overridden by a particular person, accounting for all the responsible personnel. Banks should have guides and processes regarding such cases like overriding the model outcomes, changing inputs and subtracting variables etc. When there is such an override, relevant exposures should be subjected to performance analysis.

1.3 Reliability of Assignment Process

13. Assignment processes for all corporate, sovereign, and bank exposures including specialized lendings under the method described in Part One, paragraph seven of Annex-1 and equity holdings under PD/LGD approach should meet the following requirements.

a) Assignments and periodic reviews of assignments shall be completed or approved by an independent party that does not directly benefit from decisions to extend the credit. These operational processes for assignment and reviews must be documented in the bank's procedures and incorporated into bank's policies. Credit policies and underwriting procedures must reinforce and foster the independence of the rating process.

b) Rating assignments should be reviewed at least annually and adjusted when there is a discrepancy. High-risk obligors and problem exposures should be subject to more frequent review. When there is new and relevant information regarding to the obligor or exposure a review should be made immediately (without waiting for periodic review).

c) The bank must have an effective process to obtain and update relevant and material information on the obligor's financial condition, and on facility characteristics that affect LGDs and LGDs (such as the condition of collateral). A procedure should be in place for adjusting obligor's assignment in a timely fashion following the acquisition of new information.

14. Obligor and facility grade assignments for retail exposures should be reviewed at least annually and adjusted when there is a discrepancy. Loss characteristics and delinquency status of each identified risk pool should be reviewed. Banks should also review in a representative sample the status of individual exposures within each pool as a means of ensuring that exposures continue to be assigned to the correct pool, and adjust the assignment where the result of the review does not justify carrying forward the current assignment.

1.4 Use of Models

15. To use statistical models to assigning exposures to obligor or facility grades or estimation of PDs, LGDs and conversion factors following criteria should be met.

a) The model or procedure should have good predictive power and the regulatory capital requirements will not be distorted as a result of its use. The variables that are input to the model must form a reasonable set of predictors. There must be no known material biases in the model.

b) A process should be in place for vetting data inputs which includes an assessment of the accuracy, completeness and appropriateness of the data.

c) The data used to build the model should be representative of the population of the bank's actual obligors or exposures covered by the model.

ç) The bank must have a regular cycle of model validation that includes monitoring of model performance and stability; review of model relationships; and testing of model outputs against outcomes.

d) Banks should complement the statistical model by expert judgement and expert oversight to review model-based assignments and to ensure that the models are used appropriately. The aim of the judgement is to finding and limiting errors associated with known model weaknesses. The judgement must take into account all relevant and material information not considered by the model. Banks should have written a guidance describing how human judgement and model results are to be combined.

1.5 Documentation of Rating Systems

16. The design and operational details of a bank's rating system must be documented. The documentation should evidence banks' compliance with the minimum standards outlined in this section, and must address topics such as portfolio differentiation, rating criteria, responsibilities of parties that rate borrowers and facilities, definition of what constitutes a rating exception, parties that have authority to approve exceptions, frequency of rating reviews, and management oversight of the rating process.

17. The rationale for bank's choice of internal rating criteria and supporting analyses regarding to the choice and all material changes in the rating process must be documented. Rating assignment process including relevant internal control systems must be documented as well.

18. Loss and default definitions used internally should be documented. Those definitions should be consistent with the definitions of the Regulation and relevant sub-regulations.

19. When the statistical models are employed in the rating process, the bank must document their methodologies. This documentation should:

a) Provide a detailed outline of the theory, assumptions and/or mathematical and empirical basis of the assignment of estimates to grades, individual obligors, exposures, or pools, and the data sources used to estimate the model;

b) Establish a rigorous statistical process including out-of-time and out-of-sample performance tests for validating the model

c) Indicate any circumstances under which the model does not work effectively.

20. Use of a rating system or a model obtained from a third-party vendor is not a justification for exemption from paragraphs sixteen to nineteen.

Derecelendirme sisteminin veya derecelendirme sistemi içinde kullanılan herhangi bir modelin üçüncü taraflardan temin edilmesi on altı ila on dokuzuncu fıkralarda belirtilen hükümlerin uygulanmasında muafiyet sağlamaz.

1.6 Data Maintenance

21. A bank must collect and store data to provide effective support to its internal risk measurement and management process. These data should be sufficiently detailed to allow retrospective reallocation of obligors and transaction to grades. Data on internal rating system that are published according to the Communiqué on Disclosures About Risk Management to be Announced to Public by Banks should be maintained and kept ready to be shown when requested.

22. For corporate, sovereign, and bank exposures including claims on security firms and equity holdings under PD/LGD approach following data should be kept ready to be shown when requested.

- a) Rating history of the obligor and guarantor,
- b) The dates the ratings were assigned,
- c) Data and methodology the ratings are based on,
- ç) Person responsible for rating,
- d) Identity of the obligors and exposures that are defaulted,
- e) Date and circumstances of defaults
- f) Migration among PD for ratings and realized default rate and ratings.

23. To the extent possible when foundation IRB is used the comparative data realized LGDs and the values put forth in Second Part, paragraph two of the Annex-1 should be stored and kept ready to be shown when requested. The information on realised LGDs and on conversion factors should form part of the bank's assessment of economic capital.

24. When Advanced IRB is used the following data should be stored and kept ready to be shown when requested.

- a) Complete histories of data on the facility ratings and LGD and conversion factor estimates associated with each rating scale,
- b) The dates the ratings were assigned and the estimates were done,
- c) The key data and methodology used to derive the facility ratings and LGD and conversion factor estimates LGD and conversion factor estimates,
- ç) The person who assigned the facility rating and the person who provided LGD and conversion factor estimates,
- d) Data on the estimated and realised LGDs and conversion factors associated with each defaulted exposure,
- e) Data on the LGD of the exposure before and after evaluation of the effects of a guarantee/or credit derivative, for those institutions that reflect the credit risk mitigating effects of guarantees or credit derivatives through LGD,
- f) Data on the components of loss for each defaulted exposure,

25. For retail exposures the following data should be stored and kept ready to be shown when requested.

- a) Data used in the process of allocating exposures to pools,
- b) Data on the estimated PDs, LGDs and conversion factors associated with pools of exposures,

- c) The identity of obligors and exposures that defaulted,
- ç) For defaulted exposures, data on the pools to which the exposure was assigned over the year prior to default and the realised outcomes on LGD and conversion factor,
- d) Data on loss rates for qualifying revolving retail exposures.

1.7 Stress tests used in assessment of capital adequacy

26. An IRB bank must have in place sound stress testing processes for use in the assessment of capital adequacy. Stress testing must involve identifying possible events or future changes in economic conditions that could have unfavourable effects on a bank's credit exposures and assessment of the bank's ability to withstand such changes. When scenarios are defined economic or industry downturns; market-risk events; and liquidity conditions can be taken into consideration.

27. In addition to the stress tests described in paragraph 26, the bank must perform a credit risk stress test to assess the effect of certain specific conditions on its regulatory capital requirements. The test to be employed must be meaningful and reasonably conservative. Individual banks may develop different approaches to undertaking this stress test requirement, It is not necessary to require banks to consider worst-case scenarios. The bank's stress test should consider at least the effect of mild recession scenarios. Bank's data at least for some exposures should be able to predict migration in ratings. Banks should consider information about the impact of smaller deterioration in the credit environment on a bank's ratings, giving some information on the likely effect of bigger, stress circumstances. Evidence regarding rating mitigations in external ratings should be considered. In this context, bank's risk categories and those of external ratings' should generally map. When the bank is active in multiple markets, the portion of the portfolios subjected to the stress test should account for greater portion of the bank's total exposures.

28. Banks using the approach described in Part One, paragraph four of the Annex-1 to reflect the effect of double default must consider as part of their stress testing framework the impact of a deterioration in the credit quality of protection providers, in particular the impact of protection providers falling outside the eligibility criteria due to rating changes. Banks should also consider the impact of the default of one but not both of the obligor and protection provider, and the consequent increase in risk and capital requirements at the time of that default.

2. RISK QUANTIFICATION

2.1 Default of an obligor

29. A default is considered to have occurred with regard to a particular obligor when either or both of the two following events have taken place.

- a) The bank considers that the obligor is unlikely to pay its credit obligations to the banking group in full, without recourse by the bank to actions such as realising security.

b) The obligor is past due more than 90 days on any material credit obligation to the banking group.

30. For retail exposures, the definition of default can be applied at the level of a individual facility, rather than at the level of the obligor. As such, default by a borrower on one obligation does not require a bank to treat all other obligations to the banking group as defaulted

31. Days past due commence for overdrafts once an obligor has breached an advised limit, has been failed to make a payment for current outstandings, or has drawn credit without authorisation and days past due for credit cards commence on the minimum payment due date. Banks must have in place rigorous internal policies for assessing the creditworthiness of customers who are offered overdraft accounts.

32. The bank must have clearly articulated and documented policies in respect of the counting of days past due, in particular in respect of the re-ageing of the exposures and the granting of extensions, deferrals, renewals and rewrites to existing accounts. At a minimum, the re-ageing policy must include: authorization and reporting requirements, minimum age of an exposure before it is eligible for re-ageing, days past due, maximum number of re-ageings per exposure; and a reassessment of the borrower's capacity to repay. These policies must be applied consistently over time, and must be compatible with the risk management and decision making processes of the bank and the Regulation on Procedures and Principles for Determination of Qualifications of Loans and Other Receivables by Banks and Provisions to be Set Aside.

33. For the implementation of the paragraph 29/(a), following elements will be taken as indications of unlikelihood for total payment.

- a) The bank puts the credit obligation on non-accrued status
- b) Allocation of account-specific provision resulting from a significant perceived decline in credit quality subsequent to the bank taking on the exposure
- c) The bank sells the credit obligation at a material credit-related economic loss
- d) Restructuring of the credit obligation which results in a diminished financial obligation or postponement, of principal, interest or fees and restructuring of equity holdings under PD/LGD approach
- e) The bank has filed for the obligor's bankruptcy in respect of the obligor's credit obligation to the bank or the banking group.
- f) The obligor has been declared bankrupt or in possession of a certificate of bankruptcy, or has an approved application for restructuring through reconciliation or has been issued a decision for postponement of bankruptcy n where this would avoid or delay repayment of the credit obligation to the banking group

34. A bank must record actual defaults with reference to the definition of default under paragraph 29. A bank must also use the reference definition for its estimation of PDs, LGDs and exposure amounts. A bank may use external data available to it that is not itself consistent with that definition, any internal data prior to 01/01/2015 and jointly pooled data

on the grounds that appropriate adjustments to the data have been made to achieve broad equivalence with the reference definition.

35. If the bank considers that a previously defaulted exposure's status is such that no trigger of the reference definition any longer applies under the paragraph 29, the bank should rate the borrower as it would for a non-defaulted facility. Should the borrower subsequently defaulted, a second default would be deemed to have occurred.

2.2 General requirements for internal estimations

36. The following criteria should be met when determining the risk parameters to be associated with rating grades and pools.

a) For internal estimation for PD/LGD, conversion factors and EL; all data, information and methods should be considered. Estimates should be based on historical data and empirical evidence and should not be based solely on expert judgement. Estimates should be realistic, reasonable and be rendered considering material factors for the respective risk parameters. The lesser the data owned, the more conservative a bank should be.

b) A bank should be able to provide a breakdown of its loss experience in terms of default frequency, LGD, conversion factor, or loss where EL estimates are used, by the factors it sees as the drivers of the respective risk parameters. The bank's estimates shall be representative of long run experience.

c) Amendmends in observation period under paragraphs 38/(g), 39/(d), 40/(h), 41, 43 and 44, should be taken in to account under lending practices and processes for pursuing recoveries. Estimations should reflect the effects of any new data, other information, and technical advancements. Estimations should reviewed when a new data are acquired and at least annually.

ç) The population of exposures represented in the data used for estimation, the lending standards used when the data was generated and other relevant characteristics shall be comparable with those of the bank's exposures and standards. The economic or market conditions that underlie the data shall be relevant to current and foreseeable conditions. The number of exposures in the sample and the data period used for quantification shall be sufficient to provide the bank with confidence in the accuracy and robustness of its estimates; a fact that could be verified by testing different control samples. Estimations for purchased receivables should reflect all data on assets' quality including the data provided by the seller or external sources regarding to similar asset pools. Data provided by the seller should be evaluated in terms of consistency with type, amount and quality of the purchased receivable. When there is a lack of consistency the bank should collect more appropriate data

e) A margin of conservatism that is related to the expected range of estimation errors should be added to estimations. Where methods and data are considered to be less satisfactory, the expected range of errors is larger, the margin of conservatism shall be larger.

f) The estimations used for risk weight calculations and internal processes should be the same unless it is necessary. When there is such a difference it should be documented in with the reasons for thereof.

37. Banks can avail of joint data pools provided that the following criteria are met and the responsibility for the reliability and accuracy of the rating systems with the bank.

- a) Other banks in the pool have similar rating systems and criteria,
- b) The pool is representative of the portfolio for which the pooled data is used by the bank,
- c) The pool data is used consistently over time for internal purposes
- ç) Bank's internal processes are sufficient and effective enough to monitor and audit the rating system.

2.3 Requirements specific to PD estimation

38. The following requirements should apply in quantifying use of internal PD estimations to exposures to corporates, institutions and central governments and central banks and for equity exposures where an institution uses the PD/LGD approach

a) PDs by obligor grade from long run averages of one-year default rates. PD estimates for obligors that are highly leveraged or for obligors whose assets are predominantly traded assets shall reflect the performance of the underlying assets based on periods of stressed volatilities,

b) Banks may estimate the EL by obligor grade from long run averages of one-year realised default rates for purchased corporate receivables,

c) If a bank derives long run average estimates of PDs and LGDs for purchased corporate receivables from an estimate of EL, and an appropriate estimate of PD or LGD, the process for estimating total losses shall meet the overall standards for estimation of PD and LGD set out in this part, and the outcome shall be consistent with the concept of LGD as set out in paragraph 40/(a).

ç) Methods used for PD estimations should be supported by various analyses. Banks should recognise the importance of judgmental considerations in combining results of techniques and in making adjustments for limitations of techniques and information.

d) When the bank uses data on internal default experience for the estimation of PD, it must demonstrate in its analysis that the estimates are reflective of underwriting standards and of any differences in the rating system that generated the data and the current rating system. Where underwriting standards or rating systems have changed, the bank must add a greater margin of conservatism in its estimate of PD.

e) Banks may associate or map their internal grades to the scale used by an external credit assessment institution or similar institution and then attribute the default rate observed for the external institution's grades to the bank's grades. Mappings must be based on a comparison of internal rating criteria to the criteria used by the external institution and on a comparison of the internal and external ratings of any common borrowers. Biases or inconsistencies in the mapping approach or underlying data must be avoided. The external

institution's criteria underlying the data used for quantification must be oriented to the risk of the borrower and not reflect transaction characteristics. The bank's analysis must include a comparison of the default definitions used, subject to the requirements in paragraphs 29 to and the basis for the mapping must be documented.

f) When such estimates are drawn from statistical default prediction models, a bank is allowed to use a simple average of default-probability estimates for individual borrowers in a given grade. The bank's use of default probability models for this purpose must meet the standards specified in paragraph 15.

g) Irrespective of whether a bank is using external, internal, or pooled data sources, or a combination of the three, for its PD estimation, the length of the underlying historical observation period used must be at least five years for at least one source. If the available observation period spans a longer period for any source, and this data are relevant and material, this longer period must be used. This paragraph also applies to equity holdings under PD/LGD approach.

39. PD estimations for retail exposures are subjected to following criteria.

a) PDs should be calculated using long term averages of pool based yearly default rates,

b) PD estimations can also be based on total EL and LGD estimates.

c) Internal data is regarded as the primary source of information for estimating loss characteristics. Banks are permitted to use external data or statistical models for quantification provided a strong link can be demonstrated between the bank's process of assigning exposures to a pool and the process used by the external data source, and between the bank's internal risk profile and the composition of the external data. In all cases banks must use all relevant and material data sources as points of comparison.

ç) If a bank derives long run average estimates of PDs and LGDs for retail exposures from an estimate of EL, and an appropriate estimate of PD or LGD, the process for estimating total losses shall meet the overall standards for estimation of PD and LGD set out in this part, and the outcome shall be consistent with the concept of LGD as set out in paragraph 40/(a).

d) Irrespective of whether banks are using external, internal, pooled data sources, or a combination of the three, for their estimation of loss characteristics, the length of the underlying historical observation period used must be at least five years. If the available observation spans a longer period for any source, and these data are relevant, this longer period must be used. When more recent data are a better predictor of loss rates, a bank need not give equal importance to historic data.

e) Banks should identify and analyse expected changes of risk parameters over the life of credit exposures. Under this analysis, implications of rapid exposure growth and when its material seasoning effects should be considered.

f) For purchased retail receivables internal and external data can be used. All relevant data are taken into consideration for comparison. For purchased retail receivables use external and internal reference data to estimate LGDs. Estimations for purchased retail receivables should be based on the assumption that bank has not the right to recourse to the seller or to a third party and of they do not have any guarantee.

2.4 Specific requirements for own-LGD estimations

40. The following criteria should be met for own-LGD estimations.

a) Banks shall estimate LGDs by facility grade or pool on the basis of the average realised LGDs by facility grade or pool using the default weighted average of all observed defaults within the data sources.

b) Banks should use LGD estimates that are appropriate for an economic downturn if those are more conservative than the long-run average. If recent losses are significantly higher than the long-run averages, this should be taken into consideration via the use of either internal and/or external data.

c) A bank should be conservative when obligor's risk and that of the protection or protection provider closely correlates.

ç) Any currency mismatch between the underlying obligation and the collateral must also be considered and treated conservatively in the bank's assessment of LGD.

d) LGD estimates shall take into account the effect of the potential inability of bank to expeditiously gain control of the protection and liquidate it and conservative predictions regarding to the market value of protection.

e) To the extent that LGD estimates take into account the existence of collaterals, banks shall establish internal requirements for collateral management, legal certainty and risk management that are consistent with those set out in articles 21 and 62 of the Communiqué on Credit Risk Mitigation Techniques

f) To the extent that a bank recognises collateral for determining the exposure value for counterparty credit risk in accordance with the Part 3, paragraph 5 of Annex 1; any amount expected to be recovered from the collateral shall not be taken into account in the LGD estimates

g) For the exposures already in default, the bank shall use the sum of its estimate of expected loss for each exposure given current economic circumstances and exposure status and its estimate of the increase of loss rate caused by possible additional unexpected losses during the recovery period. Instances where the best estimate of expected loss on a defaulted asset is less than the sum of specific provisions and partial charge-offs on that asset must be justified by the bank. Any accrued but unpaid income (outstanding exposure) should also be added to losses.

h) For exposures to corporates, institutions and central governments and central banks, estimates of LGD shall be based on data over a minimum seven years covering for a whole economic cycle for at least one data source. If the available observation period spans a longer period for any source, and the data is relevant, this longer period shall be used. If the available observation period spans a longer period for any source, and the data is relevant, this longer period shall be used.

41. For retail exposures, estimates of LGD shall be based on data over a minimum of five years. A bank needs not give equal importance to historic data if more recent data is a better predictor of loss rates. With regards to LGD estimations the following would apply.

a) LGD estimations are based on realized losses and appropriate PD estimations,

b) Future drawings should be reflected either in their conversion factors or in their LGD estimates,

c) External and internal reference data should be used to estimate LGDs for purchased retail receivables. Estimations for purchased retail receivables should be based on the assumption of bank has not the right to recourse to the seller or to a third party and of they do not have any guarantees.

2.5 Requirements specific to own-conversion factor estimates

42. In quantifying the risk parameters to be associated with rating grades or pools, banks shall apply the following requirements specific to own-conversion factor estimates.

a) Banks shall estimate conversion factors by facility grade or pool on the basis of the average realised conversion factors by facility grade or pool using the default weighted average resulting from all observed defaults within the data sources.

b) Banks shall use conversion factor estimates that are appropriate for an economic downturn if those are more conservative than the long-run average. Banks can consider cyclical nature (if there is any) of the factors in their model or if it is the case can use their sufficient internal data to examine the impact of previous recessions. However, some banks may only have the option of making conservative use of external data. Dönüştürme oranı tahmini olarak, uzun dönemdeki ortalama ile ekonomik gerileme dönemlerini yansıtan dönüştürme oranı tahminlerinden yüksek olanı kullanılır.

c) Estimates of conversion factors reflect the possibility of additional drawings by the obligor up to and after the time a default event is triggered. The conversion factor estimate shall incorporate a larger margin of conservatism where a stronger positive correlation is present between the default frequency and the magnitude of conversion factor

ç) Where estimates of EAD differ by facility type, the delineation of these facilities must be clear and unambiguous.

d) The criteria by which estimates of EAD are derived must be plausible and intuitive, and represent what the bank believes to be the material drivers of EAD. The choices must be supported by credible internal analysis by the bank. The bank must be able to provide a breakdown of its information on its EAD experience by the factors it sees as the drivers of EAD. A bank must use all relevant and material information in its derivation of EAD estimates.

e) In arriving at estimates of conversion factors, specific policies and strategies adopted in respect of account monitoring and payment processing should be considered. Banks shall also consider their ability and willingness to prevent further drawings in circumstances short of payment default, such as covenant violations or other technical default events.

f) Banks shall have adequate systems and procedures in place to monitor facility amounts, current outstandings against committed lines and changes in outstandings per obligor and per grade. The bank shall be able to monitor outstanding balances on a daily basis.

43. Estimates of conversion factors must be based on a time period that must ideally cover a complete economic cycle but must in any case be no shorter than a period of seven years. If the available observation period spans a longer period for any source, and the data are relevant, this longer period must be used.

44. For retail exposures, future drawings can either be reflected in their conversion factors or in their LGD estimates. Estimates of conversion factors shall be based on data over a minimum of five years. Banks need not give equal importance to historic data if more recent data is a better predictor of drawings.

2.6 Requirements for assessing the effect of guarantees and credit derivatives for exposures to corporates, institutions and central governments and central banks

45. The following requirements shall apply in relation to eligible guarantors and guarantees.

a) Banks shall have clearly specified criteria for the types of guarantors they recognise for the calculation of risk weighted exposure amounts,

b) For recognised guarantors the same rules as for obligors as set out in paragraphs 8 to 14. Even if the guarantee is taken into consideration, said paragraphs apply to the borrower. Consistent with the requirements in paragraphs 21 to 25, a bank must retain all relevant information on the borrower absent the guarantee and the guarantor. In the case of retail guarantees, this paragraph and paragraphs 46 and 47 also apply to the assignment of an exposure to a pool, and the estimation of PD.

c) The guarantee shall be evidenced in writing, non-cancellable, in force until the obligation is satisfied in full and legally enforceable against the guarantor in his jurisdiction. Conditional guarantees prescribing conditions under which the guarantor may not be obliged to perform are subject to permission of the Agency. When such guarantees are authorised any potential reduction in the risk mitigation effect should be taken into account.

46. A bank shall have clearly specified criteria for adjusting grades, pools or LGD estimates, and, in the case of retail and eligible purchased receivables, the process of allocating exposures to grades or pools, to reflect the impact of guarantees for the calculation of risk weighted exposure amounts. These criteria shall comply with the requirements set out in paragraphs 8 to 14. The criteria shall be plausible and intuitive. They shall address the guarantor's ability and willingness to perform under the guarantee, the likely timing of any payments from the guarantor, the degree to which the guarantor's ability to perform under the guarantee is correlated with the obligor's ability to repay, and residual risks such as the currency mismatch between exposure and guarantee. In adjusting borrower grades or LGD estimates or in the case of retail and eligible purchased receivables, the process of allocating exposures to pools, banks must take all relevant available information into account.

47. The requirements for guarantees in paragraphs 45 and 46 shall apply also for single-name credit derivatives. A mismatch between the underlying obligation and the reference obligation of the credit derivative or the obligation used for determining whether a credit event has occurred is permitted only if the requirements set out under Article 30/3 of the Communiqué on Credit Risk Mitigation Techniques. Said Article also applies to the process of allocating exposures to grades or pools for retail exposures and purchased receivables. The criteria shall address the payout structure of the credit derivative and conservatively assess the impact this has on the level and timing of recoveries. The bank shall consider the extent to which other forms of residual risk remain.

48. The requirements set out in paragraphs 45 to 47 shall not apply for guarantees provided by institutions, central governments and central banks, and corporate entities which meet the requirements laid down in Articles 5 and 9 of the Communiqué to receive permission to apply the Standardised Approach. In this case the requirements of the Communiqué on Credit Risk Mitigation Techniques shall apply.

49. For foundation IRB, in addition to the Communiqué on Credit Risk Mitigation Techniques, paragraphs 45 to 47 shall apply.

2.7 Requirements for purchased receivables

50. In quantifying the risk parameters to be associated with rating grades or pools for purchased receivables, banks shall ensure the conditions laid down in paragraphs 51 to 55 are met.

51. The structure of the purchase agreement shall ensure that under all foreseeable circumstances the bank has effective ownership and control of all cash remittances from the receivables. When the obligor makes payments directly to a seller or servicer, the bank shall verify regularly that payments are forwarded completely and within the contractually agreed terms. Banks shall have procedures to ensure that ownership over the receivables and cash receipts is protected against bankruptcy stays or legal challenges that could materially delay the lender's ability to liquidate or assign the receivables or retain control over cash receipts.

52. The banks shall monitor both the quality of the purchased receivables and the financial condition of the seller and servicer. In this context the following shall apply:

a) The correlation among the quality of the purchased receivables and the financial condition of both the seller and servicer should be assessed. Banks should have in place internal policies and procedures that provide adequate safeguards to protect against any contingencies, including the assignment of an internal risk rating for each seller and servicer; Devralınan alacakların kalitesi ve devreden taraf ile aracının mali durumu izlenmelidir.

b) The bank shall have clear and effective policies and procedures for determining seller and servicer eligibility. The bank or its agent shall conduct periodic reviews of sellers and servicers in order to verify the accuracy of reports from the seller or servicer, detect fraud or operational weaknesses, and verify the quality of the seller's credit policies and servicer's collection policies and procedures. The findings of these reviews shall be documented.

c) The characteristics of the purchased receivables pools, including over-advances; history of the seller's arrears, bad debts, and bad debt allowances and payment terms should be assessed.

ç) There should be effective policies and procedures for monitoring on an aggregate basis single-obligor concentrations both within and across purchased receivables pools.

d) The bank shall receive from the servicer timely and sufficiently detailed reports of receivables ageings and dilutions to ensure compliance with the bank's eligibility criteria and advancing policies governing purchased receivables, and provide an effective means with which to monitor and confirm the seller's terms of sale and dilution.

53. There should be systems and procedures for detecting deteriorations in the seller's financial condition and purchased receivables quality at an early stage, and for addressing emerging problems pro-actively. In this context, the the banks should particularly have clear and effective policies, procedures, and information systems to monitor covenant violations, and clear and effective policies and procedures for initiating legal actions and dealing with problem purchased receivables.

54. The banks should have clear and effective policies and procedures governing the control of purchased receivables and payments for purchased receivables. There should be written internal policies that specify all material elements of the receivables purchase programme, including the advancing rates, eligible collateral, necessary documentation, concentration limits, and payment collections. These elements should take appropriate account of all relevant and material factors, including the seller and servicer's financial condition, risk concentrations, and trends in the quality of the purchased receivables and the seller's customer base; and funds should be advanced only against specified supporting collateral and documentation.

55. There should be an effective internal process for assessing compliance with all internal policies and procedures. This process should be aimed at assessing compliance to the policy and procedures including the following;

- a) Regular audits of all critical phases of the bank's receivables purchase programme,
- b) Clarification of the separation of duties between the assessment of the seller and servicer and the assessment of the obligor and between the assessment of the seller and servicer and the field audit of the seller and servicer,
- c) Evaluations of back office operations, with particular focus on qualifications, experience, staffing levels, and supporting automation systems.

3. VALIDATION

56. Validation should be carried out at least once a year by a unit independent from credit risk control and operational units or by an independent third party and be compatible with the following qualifications.

a) There should be robust systems in place to validate the accuracy and consistency of rating systems, processes, and the estimation of all relevant risk parameters. The internal validation process should enable the bank to assess the performance of internal rating and risk estimation systems consistently and meaningfully.

b) Banks should regularly compare realised default rates with estimated PDs for each grade and, where realised default rates are outside the expected range for that grade, banks should analyse the reasons for the deviation. Banks using own estimates of LGDs and conversion factors should also perform analogous analysis for these estimates. Such comparisons shall make use of historical data that cover as long a period as possible. The banks should document the methods and data used in such comparisons and update this analysis and documentation at least annually.

c) Banks should use other quantitative validation tools and comparisons with relevant external data sources. The analysis shall be based on appropriate data that are updated regularly, and cover a relevant observation period. Internal assessments of the performance of the rating systems shall be based on as long a period as possible. Covering one or more complete business cycles attest to sufficiency regarding to length of observation period.

ç) The methods and data used for quantitative validation shall be consistent through time. Changes in estimation and validation methods and data including data sources and periods covered shall be documented.

d) Banks shall have sound internal standards for situations where deviations in realised PDs, LGDs, conversion factors and where EL is used total losses, from expectations, become significant enough to call the validity of the estimates into question. These standards shall take account of business cycles and similar systematic variability in default experience. Where realised values continue to be higher than expected values, banks shall revise estimates upward to reflect their default and loss experience.

4. Requirements for Equity Exposures Under the Internal Models Approach

4.1 Own funds requirement and risk quantification

57. For the purpose of calculating own funds requirements; the following standards should be met.

a) The estimate of potential loss shall be consistent with adverse market movements relevant to the long-term risk profile of the specific holdings. The data used to represent return distributions shall reflect the longest sample period for which data is available and meaningful in representing the risk profile of the bank's specific equity exposures. The data used shall be sufficient to provide conservative, statistically reliable and robust loss estimates that are not based purely on subjective or judgmental considerations. The shock employed shall provide a conservative estimate of potential losses over a relevant long-term market or business cycle. The bank shall combine empirical analysis of available data with adjustments based on a variety of factors in order to attain model outputs that achieve appropriate realism and conservatism. In constructing VaR models estimating potential quarterly losses, banks may use quarterly data. To use shorter horizon, data should be converted to quarterly equivalent using an analytically appropriate method supported by empirical evidence. This conversion should be carried out through well-developed and documented thought process and analysis. Such an approach shall be applied conservatively and consistently over time. Where only limited relevant data is available the banks shall add appropriate margins of conservatism

b) The models used shall capture adequately all of the material risks embodied in equity returns including both the general market risk and specific risk exposure of the equity portfolio. The internal models shall adequately explain historical price variation, capture both the magnitude and changes in the composition of potential concentrations, and be robust to adverse market environments. The population of risk exposures represented in the data used for estimation shall be closely matched to or at least comparable with those of the bank's equity exposures;

c) The internal model shall be appropriate for the risk profile and complexity of the bank's equity portfolio. Where a bank has material holdings with values that are highly non-linear in nature the internal models shall be designed to capture appropriately the risks associated with such instruments;

ç) Correlations can be used for risk measurement of equity holdings as long as the way that correlations put into use is documented and robustness of the correlations are supported with empirical analysis.

d) Mapping of individual positions to proxies, market indices, and risk factors shall be plausible, intuitive, and conceptually sound. Mapping processes should be well-

documented and be evident to be robust through supporting theoretic and empirical analysis. Where the quantitative techniques are supported by expert judgement for estimating the return volatility of equity exposures, expert judgement should incorporate relevant and material data dismissed by such techniques, available data, information, and methods.

e) Banks shall demonstrate through empirical analyses the appropriateness of risk factors, including their ability to cover both general and specific risk.

f) Independently reviewed internal data or data from external sources including pooled data shall be used.

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

4.2. Risk management process and controls

58. With regard to the development and use of internal models for own funds requirement purposes, banks shall establish policies, procedures, and controls to ensure the integrity of the model and modelling process. These policies, procedures, and controls shall include the following:

a) Full integration of the internal model into the overall management information systems of the bank and in the management of the non-trading book equity portfolio. Internal models shall be fully integrated into the bank's risk management infrastructure if they are particularly used in measuring and assessing equity portfolio performance including the risk-adjusted performance, allocating economic capital to equity exposures and evaluating overall capital adequacy and the investment management process.

b) Established management systems, procedures, and control functions for ensuring the periodic and independent review of all elements of the internal modelling process, including approval of model revisions, vetting of model inputs, and review of model results, such as direct verification of risk computations. These reviews shall assess the accuracy, completeness, and appropriateness of model inputs and results and focus on both finding and limiting potential errors associated with known weaknesses and identifying unknown model weaknesses. Such reviews may be conducted by an internal independent unit, or by an independent external third party;

c) Adequate systems and procedures for monitoring investment limits and the risk exposures of equity exposures;

ç) The units responsible for the design and application of the model shall be functionally independent from the units responsible for managing investments;

d) Parties responsible for any aspect of the modelling process shall be adequately qualified. Management shall allocate sufficient skilled and competent resources to the modelling function.

4.3. Validation and documentation

59. Robust systems should be in place to validate the accuracy and consistency of the internal models and modelling processes. All material elements of the internal models and the modelling process and validation shall be documented. The validation and documentation of institutions' internal models and modelling processes shall be subject to the following requirements:

a) Internal validation processes are used to assess the performance of internal models and processes in a consistent and meaningful way;

b) The methods and data used for quantitative validation shall be consistent through time. Changes in estimation and validation methods and data including data sources and periods covered shall be documented;

c) Banks shall regularly compare actual equity returns computed using realised and unrealised gains and losses with modelled estimates. These comparisons shall make use of historical data that cover as long a period as possible. The banks shall document the methods and data used in such comparisons. This analysis and documentation shall be updated at least annually

ç) Banks shall make use of other quantitative validation tools and comparisons with external data sources. The analysis shall be based on data that are appropriate to the portfolio, are updated regularly, and cover a relevant observation period. Internal assessments of the performance of their models shall be based on as long a period as possible.

d) Banks shall have sound internal standards for addressing situations where comparison of actual equity returns with the models estimates calls the validity of the estimates or of the models as such into question. These standards shall take account of business cycles and similar systematic variability in equity returns. All adjustments made to internal models in response to model reviews shall be documented and consistent with the bank's model review standards

e) To carry out backtesting on an ongoing basis, banks using the internal model approach must construct and maintain appropriate databases on the actual quarterly performance of their equity investments as well on the estimates derived using their internal models. Institutions should also backtest the volatility estimates and the appropriateness of the proxies. The data base should be sufficient to conduct forecasts for shorter time horizons; to store results of these forecasts and to use backtesting.

f) The internal model and the modelling process shall be documented, including the responsibilities of parties involved in the modelling, and the model approval and model review processes. The documentation should demonstrate banks' compliance with the minimum standards, and should address topics such as the application of the model to different segments of the portfolio, estimation methodologies. The documentation should address the following points:

i) A bank must document the rationale for its choice of internal modelling methodology and must be able to provide analyses demonstrating that the model and modelling procedures are likely to result in estimates that meaningfully identify the risk of the bank's equity holdings. Internal models and procedures must be

periodically reviewed to determine whether they remain fully applicable to the current portfolio and to external conditions.

ii) A bank should provide a detailed outline of the theory, assumptions and/or mathematical and empirical basis of the parameters, variables, and data sources used to estimate the model and establish a rigorous statistical process including out-of-time and out-of-sample performance tests for validating the selection of explanatory variables; and indicate circumstances under which the model does not work effectively.

iii) Where proxies and mapping are employed, banks must have performed and documented rigorous analysis demonstrating that all chosen proxies and mappings are sufficiently representative of the risk of the equity holdings to which they correspond. The documentation should show relevant and material factors including business lines, balance sheet characteristics, geographic location, company age, industry sector and subsector, operating characteristics used in mapping individual investments into proxies. The documentation should show the proxies and mappings employed are adequately comparable to the underlying holding or portfolio; derived using historical economic and market conditions that are relevant and material to the underlying holdings or, where not, that an appropriate adjustment has been made and are robust estimates of the potential risk of the underlying holding.

5. INTERNAL GOVERNANCE AND OVERSIGHT

5.1. Corporate Governance

60. All material aspects of the rating and estimation processes shall be approved by the bank's management body or a designated committee thereof and senior management. These parties shall possess a general understanding of the rating systems of the institution and detailed comprehension of its associated management reports.

61. Senior management shall have a good understanding of the rating systems designs and operations. Senior management shall be regularly informed by the credit risk control units about the performance of the rating process, areas needing improvement, and the status of efforts to improve previously identified deficiencies. Senior management shall provide notice to the management body or a designated committee thereof of material changes or exceptions from established policies that will materially impact the operations of the institution's rating systems and shall ensure, on an ongoing basis that the rating systems are operating properly.

62. Internal ratings-based analysis of the institution's credit risk profile shall be an essential part of the management reporting to these parties. Reporting shall include at least risk profile by grade, migration across grades, estimation of the relevant parameters per grade, and comparison of realised default rates, and to the extent that own estimates are used of realised LGDs and realised conversion factors against expectations and stress-test results. Reporting frequencies shall depend on the significance and type of information and the level of the recipient.

5.2. Management of Rating System

63. The credit risk control unit is responsible for the design or selection, implementation, oversight and performance of the rating systems. Said responsibilities are carried out with cooperation of the relevant units of the bank. This unit regularly analyses the outputs of the rating systems and reports the result to the senior management at least twice a year.

64. The areas of responsibility for the credit risk control unit or units include the following.

- a) Testing and monitoring grades and pools,
- b) Production and analysis of summary reports from the bank's rating system, to include historical default data sorted by rating at the time of default and one year prior to default, grade migration analyses, and monitoring of trends in key rating criteria,
- c) Implementing procedures to verify that grade and pool definitions are consistently applied across departments and geographic areas,
- ç) Reviewing and documenting any changes to the rating process, including the reasons for the changes,
- d) Reviewing the rating criteria to evaluate if they remain predictive of risk. Changes to the rating process, criteria or individual rating parameters shall be documented and retained;
- e) Active participation in the design or selection, implementation and validation of models used in the rating process;
- f) Oversight and supervision of models used in the rating process and ongoing review and alterations to models used in the rating process.

65. Institutions using pooled data in accordance with paragraph 37 may outsource the following tasks according to the Regulation on Banks' Procurement of Support Services:

- a) Production of information relevant to testing and monitoring grades and pools,
- b) Production of summary reports from the bank's rating systems,
- c) Production of information relevant to review of the rating criteria to evaluate if they remain predictive of risk,
- ç) Documentation of changes to the rating process, criteria or individual rating parameters
- d) Production of information relevant to ongoing review and alterations to models used in the rating process.

5.3 Internal Audit

66. Internal audit unit shall review at least annually the bank's rating systems including the validation process. Areas of review shall include adherence to all applicable requirements.

ANNEX-3

SUPERVISORY SLOTTING APPROACH FOR SPECIALISED LENDING

Although banks are expected to map their internal ratings to the supervisory categories for specialised lending using the slotting criteria, each supervisory category broadly corresponds to a range of external credit assessments as outlined below.

Table 1

Category 1 (Strong)	Category 2 (Good)	Category 3 (Satisfactory)	Category 4 (Weak)
BBB- or better	BB+ or BB	BB- or B+	B to C-

Table 2 – Proje Finansmanı Kredilerine İlişkin Derecelendirme Düzeyleri

	Category 1 (Strong)	Category 2 (Good)	Category 3 (Satisfactory)	Category 4 (Weak)
1. Financial strength				
Market conditions	Few competing suppliers or substantial and durable advantage in location, cost, or technology. Demand is strong and growing	Few competing suppliers or better than average location, cost, or technology but this situation may not last. Demand is strong and stable	Project has no advantage in location, cost, or technology. Demand is adequate and stable	Project has worse than average location, cost, or technology. Demand is weak and declining
Financial ratios (eg debt service coverage ratio (DSCR), loan life coverage ratio, project life coverage ratio, and debt-to-equity ratio)	Strong financial ratios considering the level of project risk; very robust economic assumptions	Strong to acceptable financial ratios considering the level of project risk; robust project economic assumptions	Standard financial ratios considering the level of project risk	Aggressive financial ratios considering the level of project risk
Stress analysis	The project can meet its financial obligations under sustained, severely stressed economic or sectoral conditions	The project can meet its financial obligations under normal stressed economic or sectoral conditions. The project is only likely to default under severe economic conditions	The project is vulnerable to stresses that are not uncommon through an economic cycle, and may default in a normal downturn	The project is likely to default unless conditions improve soon
Financial structure				
Duration of the credit compared to the duration of the project	Useful life of the project significantly exceeds tenor of the loan	Useful life of the project exceeds tenor of the loan	Useful life of the project exceeds tenor of the loan	Useful life of the project may not exceed tenor of the loan
Amortisation schedule	Amortising debt	Amortising debt	Amortising debt repayments with limited bullet payment	Bullet repayment or amortising debt repayments with high bullet repayment
2. Political and				

	Category 1 (Strong)	Category 2 (Good)	Category 3 (Satisfactory)	Category 4 (Weak)
legal environment				
Political risk, including transfer risk, considering project type and mitigants	Very low exposure; strong mitigation instruments, if needed	Low exposure; satisfactory mitigation instruments, if needed	Moderate exposure; fair mitigation instruments	High exposure; no or weak mitigation instruments
Force majeure risk (war, civil unrest, etc),	Low exposure	Acceptable exposure	Standard protection	Significant risks, not fully mitigated
Government support and project's importance for the country over the long term	Project of strategic importance for the country (preferably export-oriented). Strong support from Government	Project considered important for the country. Good level of support from Government	Project may not be strategic but brings unquestionable benefits for the country. Support from Government may not be explicit	Project not key to the country. No or weak support from Government
Stability of legal and regulatory environment (risk of change in law)	Favourable and stable regulatory environment over the long term	Favourable and stable regulatory environment over the medium term	Regulatory changes can be predicted with a fair level of certainty	Current or future regulatory issues may affect the project
Acquisition of all necessary supports and approvals for such relief from local content laws	Strong	Satisfactory	Fair	Weak
Enforceability of contracts, collateral and security	Contracts, collateral and security are enforceable	Contracts, collateral and security are enforceable	Contracts, collateral and security are considered enforceable even if certain non-key issues may exist	There are unresolved key issues in respect if actual enforcement of contracts, collateral and security
3. Transaction characteristics				
<i>Design and technology risk</i>	Fully proven technology and design	Fully proven technology and design	Proven technology and design — start-up issues are mitigated by a strong completion package	Unproven technology and design; technology issues exist and/or complex design
<i>Construction risk</i> Permitting and siting	All permits have been obtained	Some permits are still outstanding but their receipt is considered very likely	Some permits are still outstanding but the permitting process is well defined and they are considered routine	Key permits still need to be obtained and are not considered routine. Significant conditions may be attached
Type of construction contract	Fixed-price date-certain turnkey construction engineering and procurement contract (EPC)	Fixed-price date-certain turnkey construction EPC	Fixed-price date-certain turnkey construction contract with one or several contractors	No or partial fixed-price turnkey contract and/or interfacing issues with multiple contractors

	Category 1 (Strong)	Category 2 (Good)	Category 3 (Satisfactory)	Category 4 (Weak)
<p>Completion guarantees</p> <p>Track record and financial strength of contractor in constructing similar projects.</p>	<p>Substantial liquidated damages supported by financial substance and/or strong completion guarantee from sponsors with excellent financial standing</p> <p>Strong</p>	<p>Significant liquidated damages supported by financial substance and/or completion guarantee from sponsors with good financial standing</p> <p>Good</p>	<p>Adequate liquidated damages supported by financial substance and/or completion guarantee from sponsors with good financial standing</p> <p>Satisfactory</p>	<p>Inadequate liquidated damages or not supported by financial substance or weak completion guarantees</p> <p>Weak</p>
<p><i>Operating risk</i></p> <p>Scope and nature of operations and maintenance (O & M) contracts</p> <p>Operator's expertise, track record, and financial strength</p>	<p>Strong long-term O&M contract, preferably with contractual performance incentives, and/or O&M reserve accounts</p> <p>Very strong, or committed technical assistance of the sponsors</p>	<p>Long-term O&M contract, and/or O&M reserve accounts</p> <p>Strong</p>	<p>Limited O&M contract or O&M reserve account</p> <p>Acceptable</p>	<p>No O&M contract: risk of high operational cost overruns beyond mitigants</p> <p>Limited/weak, or local operator dependent on local authorities</p>
<p><i>Off-take risk</i></p> <p>If there is a take-or-pay or fixed-price off-take contract:</p>	<p>Excellent creditworthiness of off-taker; strong termination clauses; tenor of contract comfortably exceeds the maturity of the debt</p>	<p>Good creditworthiness of off-taker; strong termination clauses; tenor of contract exceeds the maturity of the debt</p>	<p>Acceptable financial standing of off-taker; normal termination clauses; tenor of contract generally matches the maturity of the debt</p>	<p>Weak off-taker; weak termination clauses; tenor of contract does not exceed the maturity of the debt</p>
<p>If there is no take-or-pay or fixed-price off-take contract:</p>	<p>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</p>	<p>Project produces essential services or a commodity sold widely on a regional market that will absorb it at projected prices at historical growth rates</p>	<p>Commodity is sold on a limited market that may absorb it only at lower than projected prices</p>	<p>Project output is demanded by only one or a few buyers or is not generally sold on an organised market</p>
<i>Supply risk</i>				

	Category 1 (Strong)	Category 2 (Good)	Category 3 (Satisfactory)	Category 4 (Weak)
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 (e.g. natural resource development) <i>Design and technology risk</i>	Independently audited, proven and developed reserves well in excess of requirements over lifetime of the project Fully proven technology and design	Independently audited, proven and developed reserves in excess of requirements over lifetime of the project Fully proven technology and design	Proven reserves can supply the project adequately through the maturity of the debt Proven technology and design — start-up issues are mitigated by a strong completion package	Project relies to some extent on potential and undeveloped reserves Unproven technology and design; technology issues exist and/or complex design
4. 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 if 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
5. 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 (eg cash sweeps, independent escrow accounts)	Strong	Satisfactory	Fair	Weak

	Category 1 (Strong)	Category 2 (Good)	Category 3 (Satisfactory)	Category 4 (Weak)
Strength of the covenant package (mandatory prepayments, payment deferrals, payment cascade, 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, O&M, 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

Table 3 –Supervisory Rating Grades For Income Producing Real Estate Exposures and High-Volatility Commercial Real Estate Exposures Subject to the Supervisory Slotting Approach

	Category 1 (Strong)	Category 2 (Good)	Category 3 (Satisfactory)	Category 4 (Weak)
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 or lower than forecasted demand	The supply and demand for the project’s type and location are currently in equilibrium. The number of competitive properties coming to market is roughly equal to forecasted demand	Market conditions are roughly in equilibrium. Competitive properties are coming on the market and others are in the planning stages. The project’s design and capabilities may not be state of the art compared to new projects	Market conditions are weak. It is uncertain when conditions will improve and return to equilibrium. The project is losing tenants at lease expiration. New lease terms are less favourable compared to those expiring
Financial ratios and advance rate	The property’s DSCR is considered strong (DSCR is not relevant for the construction phase) and its loan-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 development 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	The property’s DSCR has deteriorated significantly and its LTV 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 (eg interest rates, economic growth)	The property can meet its financial obligations under a sustained period of financial stress (eg 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 r complete and stabilised property.	The property’s leases are long-term with creditworthy tenants and their maturity dates are scattered. The property has a track record of tenant retention upon lease	Most of the property’s leases are long-term, with tenants that range in creditworthiness. The property experiences a normal level of tenant turnover	Most of the property’s leases are medium rather than long-term with tenants that range in creditworthiness. The property experiences a moderate level of	The property’s leases are of various terms with tenants that range in creditworthiness. The property experiences a very high level of tenant turnover upon lease expiration. Its vacancy rate is high. Significant expenses are incurred preparing space for

	Category 1 (Strong)	Category 2 (Good)	Category 3 (Satisfactory)	Category 4 (Weak)
	expiration. Its vacancy rate is low. Expenses (maintenance, insurance, security, and property taxes) are predictable	upon lease expiration. Its vacancy rate is low. Expenses are predictable	tenant turnover upon lease expiration. Its vacancy rate is moderate. Expenses are relatively predictable but vary in relation to revenue	new tenants
or complete but not stabilised property	Leasing activity meets or exceeds projections. The project should achieve stabilisation in the near future	Leasing activity meets or exceeds projections. The project should achieve stabilisation in the near future	Most leasing activity is within projections; however, stabilisation will not occur for some time	Market rents do not meet expectations. Despite achieving target occupancy rate, cash flow coverage is tight due to disappointing revenue
(c) For construction phase	The property is entirely pre-leased through the tenor of the loan or pre-sold to an investment grade tenant or buyer, or the bank has a binding commitment for take-out financing from an investment grade lender	The property is entirely pre-leased or pre-sold to a creditworthy tenant or buyer, or the bank has a binding commitment for permanent financing from a creditworthy lender	Leasing activity is within projections but the building may not be pre-leased and 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	Property is located in highly desirable location that is convenient to services that tenants desire	Property is located in desirable location that is convenient to services that tenants desire	The property location lacks a competitive advantage	The property's location, configuration, design and maintenance have contributed to the property's difficulties
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 ordinarily qualified	Project is over budget or unrealistic given its technical hazards. Contractors may be under qualified
Strength of Sponsor/Developer				
Financial capacity and willingness to	The sponsor/developer	The sponsor/developer	The sponsor/developer's	The sponsor/developer lacks capacity or willingness to

	Category 1 (Strong)	Category 2 (Good)	Category 3 (Satisfactory)	Category 4 (Weak)
support the property.	made a substantial cash contribution to the construction or purchase of the property. The sponsor/developer has substantial resources and limited direct and contingent liabilities. The sponsor/developer's properties are diversified geographically and by property type	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	contribution may be immaterial or non-cash. The sponsor/developer is average to below average in financial resources	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 actors	Strong relationships with leading actors such as leasing agents	Proven relationships with leading actors such as leasing agents	Adequate relationships with leasing agents and other parties providing important real estate services	Poor relationships with leasing agents and/or other parties providing important real estate services
Security Package				
Nature of lien	Perfected first lien	Perfected first lien. Lenders in some markets extensively use loan structures that include junior liens. Junior liens may be indicative of this level of risk if the total LTV inclusive of all senior positions does not exceed a typical first loan LTV.	Perfected first lien. Lenders in some markets extensively use loan structures that include junior liens. Junior liens may be indicative of this level of risk if the total LTV inclusive of all senior positions does not exceed a typical first loan LTV.	Ability of lender to foreclose is constrained
Assignment of rents (for projects leased to long-term tenants)	The lender has obtained an assignment. They maintain current tenant information that would facilitate providing notice to remit rents directly to the lender, such as a current rent roll and copies of the project's leases	The lender has obtained an assignment. They maintain current tenant information that would facilitate providing notice to the tenants to remit rents directly to the lender, such as current rent roll and copies of the	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	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

	Category 1 (Strong)	Category 2 (Good)	Category 3 (Satisfactory)	Category 4 (Weak)
		project's leases	project's leases	
Quality of the insurance coverage	Appropriate	Appropriate	Appropriate	Substandard

Table 4 – Supervisory Rating Grades for Object Finance Exposures Subject to the Supervisory Slotting Approach

	Category 1 (Strong)	Category 2 (Good)	Category 3 (Satisfactory)	Category 4 (Weak)
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 (DSCR and LTV)	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
Political and legal environment				
Political risk, including transfer risk	Very low; strong mitigation instruments, if needed	Low; satisfactory mitigation instruments, if needed	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	Full payout profile/minimum balloon. No grace	Balloon more significant, but still at satisfactory	Important balloon with potentially grace periods	Repayment in fine or high balloon

	Category 1 (Strong)	Category 2 (Good)	Category 3 (Satisfactory)	Category 4 (Weak)
the asset	period	levels		
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 O & M contracts	Strong long-term O&M contract, preferably with contractual performance incentives, and/or O&M reserve accounts (if needed)	Long-term O&M contract, and/or O&M reserve accounts (if needed)	Limited O&M contract or O&M reserve account (if needed)	No O&M 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
Asset characteristics				
Configuration, size, design and maintenance (ie age, size for a plane) compared to other assets on 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 thus 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				
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
Security Package				

	Category 1 (Strong)	Category 2 (Good)	Category 3 (Satisfactory)	Category 4 (Weak)
Asset control	Legal documentation provides the lender effective control (e.g. a first perfected security interest, or a leasing structure including such security) on the asset, or on the company owning it	Legal documentation provides the lender effective control (e.g. a perfected security interest, or a leasing structure including such security) on the asset, or on the company owning it	Legal documentation provides the lender effective control (e.g. a perfected security interest, or a leasing structure including such security) on the asset, or on the company owning it	The contract provides little security to the lender and leaves room to some risk of losing control on the asset
Rights and means at the lender's disposal to monitor the location and condition of the asset	The lender is able to monitor the location and condition of the asset, at any time and place (regular reports, possibility to lead inspections)	The lender is able to monitor the location and condition of the asset, almost at any time and place	The lender is able to monitor the location and condition of the asset, almost at any time and place	The lender is able to monitor the location and condition of the asset are 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

Table 5- Supervisory Rating Grades For Commodities Finance Exposures Subject To The Supervisory Slotting Approach

	Category 1 (Strong)	Category 2 (Good)	Category 3 (Satisfactory)	Category 4 (Weak)
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 1 st 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 over-the-counter (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
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

	Category 1 (Strong)	Category 2 (Good)	Category 3 (Satisfactory)	Category 4 (Weak)
Security package				
Asset control	First perfected security interest provides the lender legal control of the assets at any time if needed	First perfected security interest provides the lender legal control of the assets at any time if needed	At some point in the process, there is a 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 could 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

