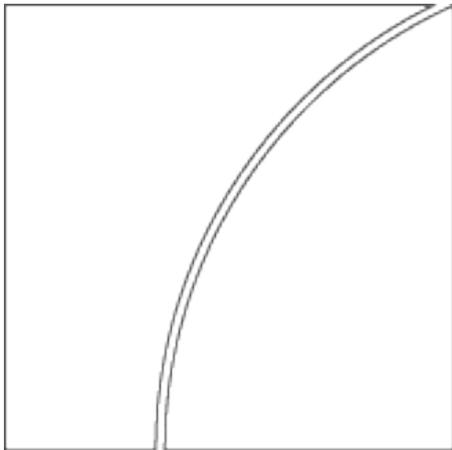Basel Committee on
Banking Supervision

CRE

Calculation of RWA for credit
risk

CRE22

Standardised approach: credit
risk mitigation

**Version effective as of
15 Dec 2019**

First version in the format of the consolidated
framework.

BANK FOR INTERNATIONAL SETTLEMENTS

Overarching issues

Introduction

22.1 Banks use a number of techniques to mitigate the credit risks to which they are exposed. For example, exposures may be collateralised by first priority claims, in whole or in part with cash or securities, a loan exposure may be guaranteed by a third party, or a bank may buy a credit derivative to offset various forms of credit risk. Additionally banks may agree to net loans owed to them against deposits from the same counterparty.

General remarks

22.2 The framework set out in this chapter is applicable to the banking book exposures in the standardised approach. For the treatment of credit risk mitigation (CRM) in the internal ratings-based (IRB) approach, see CRE32.

22.3 The comprehensive approach for the treatment of collateral (see CRE22.21 to CRE22.30 and CRE22.37 to CRE22.76) will also be applied to calculate the counterparty risk charges for repo-style transactions booked in the trading book.

22.4 No transaction in which CRM techniques are used should receive a higher capital requirement than an otherwise identical transaction where such techniques are not used.

22.5 The effects of CRM will not be double counted. Therefore, no additional supervisory recognition of CRM for regulatory capital purposes will be granted on claims for which an issue-specific rating is used that already reflects that CRM. As stated in CRE21.10, principal-only ratings will also not be allowed within the framework of CRM.

22.6 While the use of CRM techniques reduces or transfers credit risk, it simultaneously may increase other risks (residual risks). Residual risks include legal, operational, liquidity and market risks. Therefore, it is imperative that banks employ robust procedures and processes to control these risks, including strategy, consideration of the underlying credit, valuation, policies and procedures, systems, control of roll-off risks, and management of concentration risk arising from the bank's use of CRM techniques and its interaction with the bank's overall credit risk profile. Where these risks are not adequately controlled, supervisors may impose additional capital charges or take other supervisory actions as outlined in the supervisory review process standard (SRP).

22.7

Banks must ensure that sufficient resources are devoted to the orderly operation of margin agreements with over-the-counter (OTC) derivative and securities-financing counterparties, as measured by the timeliness and accuracy of its outgoing calls and response time to incoming calls. Banks must have collateral management policies in place to control, monitor and report:

(1) the risk to which margin agreements exposes them (such as the volatility and liquidity of the securities exchanged as collateral),

(2) the concentration risk to particular types of collateral,

(3) the reuse of collateral (both cash and non-cash) including the potential liquidity shortfalls resulting from the reuse of collateral received from counterparties, and

(4) the surrender of rights on collateral posted to counterparties.

22.8 The disclosure requirements (see DIS40) must also be observed for banks to obtain capital relief in respect of any CRM techniques.

Legal certainty

22.9 In order for banks to obtain capital relief for any use of CRM techniques, the following minimum standards for legal documentation must be met. All documentation used in collateralised transactions and for documenting on-balance sheet netting, guarantees and credit derivatives must be binding on all parties and legally enforceable in all relevant jurisdictions. Banks must have conducted sufficient legal review to verify this and have a well-founded legal basis to reach this conclusion, and undertake such further review as necessary to ensure continuing enforceability.

Overview of Credit Risk Mitigation Techniques

Collateralised transactions : introduction

22.10 A collateralised transaction is one in which:

(1) banks have a credit exposure or potential credit exposure; and

(2) that credit exposure or potential credit exposure is hedged in whole or in part by collateral posted by a counterparty[1] or by a third party on behalf of the counterparty.

In this section "counterparty" is used to denote a party to whom a bank has an on- or off-balance sheet credit exposure or a potential credit exposure. That exposure may, for example, take the form of a loan of cash or securities (where the counterparty would traditionally be called the borrower), of securities posted as collateral, of a commitment or of exposure under an OTC derivatives contract.

22.11 Where banks take eligible financial collateral (eg cash or securities, more specifically defined in CRE22.37 and CRE22.39 below), they are allowed to reduce their credit exposure to a counterparty when calculating their capital requirements to take account of the risk mitigating effect of the collateral.

Collateralised transactions: overall framework and minimum conditions

22.12 Banks may opt for either the simple approach, which substitutes the risk weighting of the collateral for the risk weighting of the counterparty for the collateralised portion of the exposure (generally subject to a 20% floor), or for the comprehensive approach, which allows a more precise offset of collateral against exposures, by effectively reducing the exposure amount by the value ascribed to the collateral. Banks may operate under either, but not both, approaches in the banking book, but only under the comprehensive approach in the trading book. Partial collateralisation is recognised in both approaches. Mismatches in the maturity of the underlying exposure and the collateral will only be allowed under the comprehensive approach.

22.13 However, before capital relief will be granted in respect of any form of collateral, the standards set out below in CRE22.14 to CRE22.17 must be met under either approach.

22.14 In addition to the general requirements for legal certainty set out in CRE22.9, the legal mechanism by which collateral is pledged or transferred must ensure that the bank has the right to liquidate or take legal possession of it, in a timely manner, in the event of the default, insolvency or bankruptcy (or one or more otherwise-defined credit events set out in the transaction documentation) of the counterparty (and, where applicable, of the custodian holding the collateral). Furthermore banks must take all steps necessary to fulfil those requirements under the law applicable to the bank's interest in the collateral for obtaining and maintaining an enforceable security interest, eg by registering it with a registrar, or for exercising a right to net or set off in relation to title transfer collateral.

22.15 In order for collateral to provide protection, the credit quality of the counterparty and the value of the collateral must not have a material positive correlation. For example, securities issued by the counterparty – or by any related group entity – would provide little protection and so would be ineligible.

22.16 Banks must have clear and robust procedures for the timely liquidation of collateral to ensure that any legal conditions required for declaring the default of the counterparty and liquidating the collateral are observed, and that collateral can be liquidated promptly.

22.17 Where the collateral is held by a custodian, banks must take reasonable steps to ensure that the custodian segregates the collateral from its own assets.

22.18 A capital requirement will be applied to a bank on either side of the collateralised transaction: for example, both repos and reverse repos will be subject to capital requirements. Likewise, both sides of a securities lending and borrowing transaction will be subject to explicit capital charges, as will the posting of securities in connection with a derivative exposure or other borrowing.

22.19 Where a bank, acting as an agent, arranges a repo-style transaction (ie repurchase /reverse repurchase and securities lending/borrowing transactions) between a customer and a third party and provides a guarantee to the customer that the third party will perform on its obligations, then the risk to the bank is the same as if the bank had entered into the transaction as a principal. In such circumstances, a bank will be required to calculate capital requirements as if it were itself the principal.

Collateralised transactions: overall framework and minimum conditions under the simple approach

22.20 In the simple approach the risk weighting of the collateral instrument collateralising or partially collateralising the exposure is substituted for the risk weighting of the counterparty. Details of this framework are provided in CRE22.78 to CRE22.80.

Collateralised transactions: overall framework and minimum conditions under the comprehensive approach

22.21 In the comprehensive approach, when taking collateral, banks will need to calculate their adjusted exposure to a counterparty for capital adequacy purposes in order to take account of the effects of that collateral. Using haircuts, banks are required to adjust both the amount of the exposure to the counterparty and the value of any collateral received in support of that counterparty to take account of possible future fluctuations in the value of either,[2] occasioned by market movements. This will produce volatility-adjusted amounts for both exposure and collateral. Unless either side of the transaction is cash, the volatility-adjusted amount for the exposure will be higher than the exposure and for the collateral it will be lower.

Footnotes

[2]   *Exposure amounts may vary where, for example, securities are being lent.*

22.22 Additionally where the exposure and collateral are held in different currencies an additional downwards adjustment must be made to the volatility-adjusted collateral amount to take account of possible future fluctuations in exchange rates.

22.23 Where the volatility-adjusted exposure amount is greater than the volatility-adjusted collateral amount (including any further adjustment for foreign exchange risk), banks shall calculate their risk-weighted assets as the difference between the two multiplied by the risk weight of the counterparty. The framework for performing these calculations is set out in CRE22.40 to CRE22.43.

22.24 In principle, banks have two ways of calculating the haircuts: (i) standard supervisory haircuts, using parameters set by the Committee, and (ii) own-estimate haircuts, using banks' own internal estimates of market price volatility. Supervisors will allow banks to use own-estimate haircuts only when they fulfil certain qualitative and quantitative criteria.

22.25 A bank may choose to use standard or own-estimate haircuts independently of the choice it has made between the standardised approach and the foundation IRB approach to credit risk. However, if banks seek to use their own-estimate haircuts, they must do so for the full range of instrument types for which they would be eligible to use own-estimates, the exception being immaterial portfolios where they may use the standard supervisory haircuts.

22.26 The size of the haircuts that banks must use depends on the prescribed holding period for the transaction. The holding period is the period of time over which exposure or collateral values are assumed to move before the bank can close out the transaction. Banks that use own-estimate haircuts must either use the

supervisory prescribed minimum holding period, or must scale-up or scale-down their estimated haircuts if they have used a holding period that is different to the supervisory prescribed minimum. The supervisory prescribed minimum holding period is used as the basis for the calculation of the standard supervisory haircuts.

22.27 The holding period, and thus the size of the individual haircuts, will depend on the type of instrument, type of transaction and the frequency of marking-to-market and remargining. For example, repo-style transactions subject to daily marking-to-market and to daily remargining will receive a haircut based on a 5-business day holding period and secured lending transactions with daily mark-to-market and no remargining clauses will receive a haircut based on a 20-business day holding period. These haircut numbers will be scaled up using the square root of time formula depending on the actual frequency of remargining or marking-to-market.

22.28 For certain types of repo-style transactions (broadly speaking government bond repos as defined in CRE22.66 and CRE22.67) supervisors may allow banks using standard supervisory haircuts or own-estimate haircuts not to apply these in calculating the exposure amount after risk mitigation.

22.29 The effect of master netting agreements covering repo-style transactions can be recognised for the calculation of capital requirements subject to the conditions in CRE22.69. Where repo-style transactions are subject to a master netting agreement whether they are held in the banking book or trading book, a bank may choose not to recognise the netting effects in calculating capital. In that case, each transaction will be subject to a capital charge as if there were no master netting agreement.

22.30 As a further alternative to standard supervisory haircuts and own-estimate haircuts banks may use value-at-risk (VaR) models for calculating potential price volatility for repo-style transactions and other similar securities financing transactions (SFTs), as set out in CRE22.74 to CRE22.77 below. Alternatively, subject to supervisory approval, they may also calculate, for these transactions, an expected positive exposure, as set forth in the internal models method for counterparty credit risk (CRE53).

On-balance sheet netting

22.31

Where banks have legally enforceable netting arrangements for loans and deposits they may calculate capital requirements on the basis of net credit exposures subject to the conditions in CRE22.82 and CRE22.83.

Guarantees and credit derivatives

22.32 Where guarantees or credit derivatives are direct, explicit, irrevocable and unconditional, and supervisors are satisfied that banks fulfil certain minimum operational conditions relating to risk management processes they may allow banks to take account of such credit protection in calculating capital requirements.

22.33 A range of guarantors and protection providers are recognised, and a substitution approach will be applied. Thus only guarantees issued by or protection provided by entities with a lower risk weight than the counterparty will lead to reduced capital charges since the protected portion of the counterparty exposure is assigned the risk weight of the guarantor or protection provider, whereas the uncovered portion retains the risk weight of the underlying counterparty.

22.34 Detailed operational requirements are given below in CRE22.84 to CRE22.89.

Maturity mismatch

22.35 Where the residual maturity of the CRM is less than that of the underlying credit exposure a maturity mismatch occurs. Where there is a maturity mismatch and the CRM has an original maturity of less than one year, the CRM is not recognised for capital purposes. In other cases where there is a maturity mismatch, partial recognition is given to the CRM for regulatory capital purposes as detailed below in CRE22.97 to CRE22.100. Under the simple approach for collateral, maturity mismatches are not allowed.

Miscellaneous

22.36 Treatments for pools of credit risk mitigants and first- and second-to-default credit derivatives are given in CRE22.101 to CRE22.105 below.

Collateral

Eligible financial collateral

22.37 The following collateral instruments are eligible for recognition in the simple approach:

    (1)   Cash (as well as certificates of deposit or comparable instruments issued by the lending bank) on deposit with the bank which is incurring the counterparty exposure.[3] [4]

    (2)   Gold.

    (3)   Debt securities rated[5] by a recognised external credit assessment institution where these are either:

        (a)   at least BB- when issued by sovereigns or public sector entities (PSEs) that are treated as sovereigns by the national supervisor; or

        (b)   at least BBB- when issued by other entities (including banks and securities firms); or

        (c)   at least A-3/P-3 for short-term debt instruments.

    (4)   Debt securities not rated by a recognised external credit assessment institution where these are:

        (a)   issued by a bank; and

        (b)   listed on a recognised exchange; and

        (c)   classified as senior debt; and

        (d)   all rated issues of the same seniority by the issuing bank must be rated at least BBB- or A-3/P-3 by a recognised external credit assessment institution; and

        (e)   the bank holding the securities as collateral has no information to suggest that the issue justifies a rating below BBB- or A-3/P-3 (as applicable); and

        (f)   the supervisor is sufficiently confident about the market liquidity of the security.

    (5)   Equities (including convertible bonds) that are included in a main index.

(6) Undertakings for Collective Investments in Transferable Securities (UCITS) and mutual funds where:

(a) a price for the units is publicly quoted daily; and

(b) the UCITS/mutual fund is limited to investing in the instruments listed in this paragraph.[6]

Footnotes

[3]   *Cash funded credit linked notes issued by the bank against exposures in the banking book which fulfil the criteria for credit derivatives will be treated as cash collateralised transactions.*

[4]   *When cash on deposit, certificates of deposit or comparable instruments issued by the lending bank are held as collateral at a third-party bank in a non-custodial arrangement, if they are openly pledged /assigned to the lending bank and if the pledge/assignment is unconditional and irrevocable, the exposure amount covered by the collateral (after any necessary haircuts for currency risk) will receive the risk weight of the third-party bank.*

[5]   *When debt securities that do not have an issue specific rating are issued by a rated sovereign, banks may treat the sovereign issuer rating as the rating of the debt security.*

[6]   *However, the use or potential use by a UCITS/mutual fund of derivative instruments solely to hedge investments listed in this paragraph and CRE22.39 shall not prevent units in that UCITS/mutual fund from being eligible financial collateral.*

22.38 Re-securitisations (as defined in the securitisation framework), irrespective of any credit ratings, are not eligible financial collateral. This prohibition applies whether the bank is using the supervisory haircuts method, the own estimates of haircuts method, the repo VaR method or the internal models method. It also applies whether the transaction is in the banking book or trading book.

22.39 The following collateral instruments are eligible for recognition in the comprehensive approach:

(1) All of the instruments in CRE22.37;

(2) Equities (including convertible bonds) which are not included in a main index but which are listed on a recognised exchange; and

(3) UCITS/mutual funds which include such equities.

The comprehensive approach : calculation of capital requirement

22.40 For a collateralised transaction, the exposure amount after risk mitigation is calculated using the formula that follows, where:

(1) E^* = the exposure value after risk mitigation

(2) E = current value of the exposure

(3) H_e = haircut appropriate to the exposure

(4) C = the current value of the collateral received

(5) H_c = haircut appropriate to the collateral

(6) H_{fx} = haircut appropriate for currency mismatch between the collateral and exposure

$$E^* = max\left\{0, E \cdot \left(1 + H_e\right) - C \cdot \left(1 - H_c - H_{fx}\right)\right\}$$

22.41 The exposure amount after risk mitigation will be multiplied by the risk weight of the counterparty to obtain the risk-weighted asset amount for the collateralised transaction.

22.42 The treatment for transactions where there is a mismatch between the maturity of the counterparty exposure and the collateral is given in CRE22.97 to CRE22.100.

22.43 Where the collateral is a basket of assets, the haircut on the basket will be calculated using the formula that follows, where:

(1) a_i is the weight of the asset (as measured by units of currency) in the basket; and

(2) H_i the haircut applicable to that asset.

$$H = \sum_i a_i H_i$$

The comprehensive approach: standard supervisory haircuts

22.44 These are the standard supervisory haircuts (assuming daily mark-to-market, daily remargining and a 10-business day holding period), expressed as percentages:

Issue rating for debt securities	Residual Maturity	Sovereigns	Other issuers	Securitisation Exposures
AAA to AA-/A-1	≤ 1 year	0.5	1	2
	>1 year ≤ 5 years	2	4	8
	> 5 years	4	8	16
A+ to BBB-/ A-2/A-3/P-3 and unrated bank securities per para. CRE22.37(4)	≤ 1 year	1	2	4
	>1 year ≤ 5 years	3	6	12
	> 5 years	6	12	24
BB+ to BB-	All	15	Not Eligible	Not Eligible
Main index equities and gold	15			
Other equities (including convertible bonds) listed on a recognised exchange	25			
UCITS/Mutual funds	Highest haircut applicable to any security in fund			
Cash in the same currency	0			

22.45 In the table in CRE22.44:

(1)   "Sovereigns" includes: PSEs that are treated as sovereigns by the national supervisor, as well as multilateral development banks (MDBs) receiving a 0% risk weight.

(2) "Other issuers" includes: PSEs that are not treated as sovereigns by the national supervisor.

(3) "Securitisation exposures" refers to exposures that meet the definition set forth in the securitisation framework (see CRE40).

(4) "Cash in the same currency" refers to eligible cash collateral specified in CRE22.37(1).

22.46 The standard supervisory haircut for currency risk where exposure and collateral are denominated in different currencies is 8% (also based on a 10-business day holding period and daily mark-to-market).

22.47 For transactions in which the bank lends non-eligible instruments (eg non-investment grade corporate debt securities), the haircut to be applied on the exposure should be the same as the one for equity traded on a recognised exchange that is not part of a main index (ie the haircut is 25%).

The comprehensive approach: own estimates for haircuts

22.48 Supervisors may permit banks to calculate haircuts using their own internal estimates of market price volatility and foreign exchange volatility. Permission to do so will be conditional on the satisfaction of minimum qualitative and quantitative standards stated in CRE22.50 to CRE22.59. When debt securities are rated BBB-/A-3 or higher, supervisors may allow banks to calculate a volatility estimate for each category of security. In determining relevant categories, institutions must take into account (a) the type of issuer of the security, (b) its rating, (c) its residual maturity, and (d) its modified duration. Volatility estimates must be representative of the securities actually included in the category for that bank. For eligible debt securities rated below BBB-/A-3 or for equities eligible as collateral, the haircuts must be calculated for each individual security.

22.49 Banks must estimate the volatility of the collateral instrument or foreign exchange mismatch individually: estimated volatilities for each transaction must not take into account the correlations between unsecured exposure, collateral and exchange rates (see CRE22.97 to CRE22.100 for the approach to maturity mismatches).

The comprehensive approach: own estimates for haircuts - quantitative criteria

22.50 In calculating the haircuts, a 99th percentile, one-tailed confidence interval is to be used.

22.51 The minimum holding period will be dependent on the type of transaction and the frequency of remargining or marking to market. The minimum holding periods for different types of transactions are presented in [CRE22.61](). Banks may use haircut numbers calculated according to shorter holding periods, scaled up to the appropriate holding period by the square root of time formula.

22.52 Banks must take into account the illiquidity of lower-quality assets. The holding period should be adjusted upwards in cases where such a holding period would be inappropriate given the liquidity of the collateral. They should also identify where historical data may understate potential volatility, eg a pegged currency. Such cases must be dealt with by subjecting the data to stress testing.

22.53 The choice of historical observation period (sample period) for calculating haircuts shall be a minimum of one year. For banks that use a weighting scheme or other methods for the historical observation period, the "effective" observation period must be at least one year (that is, the weighted average time lag of the individual observations cannot be less than 6 months).

22.54 Banks should update their data sets no less frequently than once every three months and should also reassess them whenever market prices are subject to material changes. This implies that haircuts must be computed at least every three months. The supervisor may also require a bank to calculate its haircuts using a shorter observation period if, in the supervisor's judgement, this is justified by a significant upsurge in price volatility.

22.55 No particular type of model is prescribed. So long as each model used captures all the material risks run by the bank, banks will be free to use models based on, for example, historical simulations and Monte Carlo simulations.

The comprehensive approach: own estimates for haircuts - qualitative criteria

22.56 The estimated volatility data (and holding period) must be used in the day-to-day risk management process of the bank.

22.57 Banks should have robust processes in place for ensuring compliance with a documented set of internal policies, controls and procedures concerning the operation of the risk measurement system.

22.58 The risk measurement system should be used in conjunction with internal exposure limits.

22.59 An independent review of the risk measurement system should be carried out regularly in the bank's own internal auditing process. A review of the overall risk management process should take place at regular intervals (ideally not less than once a year) and should specifically address, at a minimum:

(1) the integration of risk measures into daily risk management;

(2) the validation of any significant change in the risk measurement process;

(3) the accuracy and completeness of position data;

(4) the verification of the consistency, timeliness and reliability of data sources used to run internal models, including the independence of such data sources; and

(5) the accuracy and appropriateness of volatility assumptions.

The comprehensive approach: adjustment for different holding periods and non-daily mark-to-market or remargining

22.60 For some transactions, depending on the nature and frequency of the revaluation and remargining provisions, different holding periods are appropriate. The framework for collateral haircuts distinguishes between repo-style transactions (ie repo/reverse repos and securities lending/borrowing), "other capital-market-driven transactions" (ie OTC derivatives transactions and margin lending) and secured lending. In capital-market-driven transactions and repo-style transactions, the documentation contains remargining clauses; in secured lending transactions, it generally does not.

22.61 The minimum holding period for various products is summarised in the following table:

Transaction type	Minimum holding period	Minimum remargining/ revaluation period
Repo-style transaction	five business days	daily remargining
Other capital market transactions	ten business days	daily remargining
Secured lending	twenty business days	daily revaluation

22.62 Regarding the minimum holding periods set out in CRE22.61, if a netting set includes both repo-style and other capital market transactions, the minimum

holding period of ten business days must be used. Furthermore, a higher minimum holding period must be used in the following cases:

(1)   For all netting sets where the number of trades exceeds 5000 at any point during a quarter, a 20 business day minimum holding period for the following quarter must be used.

(2)   For netting sets containing one or more trades involving illiquid collateral, a minimum holding period of 20 business days must be used. "Illiquid collateral" must be determined in the context of stressed market conditions and will be characterised by the absence of continuously active markets where a counterparty would, within two or fewer days, obtain multiple price quotations that would not move the market or represent a price reflecting a market discount. Examples of situations where trades are deemed illiquid for this purpose include, but are not limited to, trades that are not marked daily and trades that are subject to specific accounting treatment for valuation purposes (eg repo-style transactions referencing securities whose fair value is determined by models with inputs that are not observed in the market).

(3)   If a bank has experienced more than two margin call disputes on a particular netting set over the previous two quarters that have lasted longer than the bank's estimate of the margin period of risk (as defined in CRE50.19), then for the subsequent two quarters the bank must use a minimum holding period that is twice the level that would apply excluding the application of this sub-paragraph.

22.63 When the frequency of remargining or revaluation is longer than the minimum, the minimum haircut numbers will be scaled up depending on the actual number of business days between remargining or revaluation using the square root of time formula below, where:

(1)   H = haircut

(2) H_M = haircut under the minimum holding period

(3) T_M = minimum holding period for the type of transaction

(4) N_R = actual number of business days between remargining for capital market transactions or revaluation for secured transactions

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

22.64 For example, for banks using the standard supervisory haircuts, the 10-business day haircuts provided in CRE22.44 will be the basis and this haircut will be scaled up or down depending on the type of transaction and the frequency of remargining or revaluation using the formula below, where:

(1) H = haircut

(2) H_{10} = 10-business day standard supervisory haircut for instrument

(3) N_R = actual number of business days between remargining for capital market transactions or revaluation for secured transactions.

(4) T_M = minimum holding period for the type of transaction

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

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

(1) T_N = holding period used by the bank for deriving H_N

(2) H_N = haircut based on the holding period T_N

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

The comprehensive approach: conditions for zero H

22.66 For repo-style transactions where the following conditions are satisfied, and the counterparty is a core market participant, supervisors may choose not to apply the haircuts specified in the comprehensive approach and may instead apply a haircut of zero. This carve-out will not be available for banks using the modelling approaches as described in CRE22.74 to CRE22.77.

(1) Both the exposure and the collateral are cash or a sovereign security or PSE security qualifying for a 0% risk weight in the standardised approach.[7]

(2) Both the exposure and the collateral are denominated in the same currency.

(3) Either the transaction is overnight or both the exposure and the collateral are marked-to-market daily and are subject to daily remargining.

(4) Following a counterparty's failure to remargin, the time that is required between the last mark-to-market before the failure to remargin and the liquidation[8] of the collateral is considered to be no more than four business days.

(5) The transaction is settled across a settlement system proven for that type of transaction.

(6) The documentation covering the agreement is standard market documentation for repo-style transactions in the securities concerned.

(7) The transaction is governed by documentation specifying that if the counterparty fails to satisfy an obligation to deliver cash or securities or to deliver margin or otherwise defaults, then the transaction is immediately terminable.

(8) Upon any default event, regardless of whether the counterparty is insolvent or bankrupt, the bank has the unfettered, legally enforceable right to immediately seize and liquidate the collateral for its benefit.

Footnotes

[7]   *Note that where a supervisor has designated domestic-currency claims on its sovereign or central bank to be eligible for a 0% risk weight in the standardised approach, such claims will satisfy this condition.*

[8]   *This does not require the bank to always liquidate the collateral but rather to have the capability to do so within the given time frame.*

22.67 Core market participants may include, at the discretion of the national supervisor, the following entities:

(1) Sovereigns, central banks and PSEs;

(2) Banks and securities firms;

(3) Other financial companies (including insurance companies) eligible for a 20% risk weight in the standardised approach;

(4) Regulated mutual funds that are subject to capital or leverage requirements;

(5) Regulated pension funds; and

(6) Recognised clearing organisations.

22.68 Where a supervisor applies a specific carve-out to repo-style transactions in securities issued by its domestic government, then other supervisors may choose to allow banks incorporated in their jurisdiction to adopt the same approach to the same transactions.

The comprehensive approach: treatment of repo-style transactions covered under master netting agreements

22.69 The effects of bilateral netting agreements covering repo-style transactions will be recognised on a counterparty-by-counterparty basis if the agreements are legally enforceable in each relevant jurisdiction upon the occurrence of an event of default and regardless of whether the counterparty is insolvent or bankrupt. In addition, netting agreements must:

(1) provide the non-defaulting party the right to terminate and close-out in a timely manner all transactions under the agreement upon an event of default, including in the event of insolvency or bankruptcy of the counterparty;

(2) provide for the netting of gains and losses on transactions (including the value of any collateral) terminated and closed out under it so that a single net amount is owed by one party to the other;

(3) allow for the prompt liquidation or setoff of collateral upon the event of default; and

(4) be, together with the rights arising from the provisions required in (1) to (3) above, legally enforceable in each relevant jurisdiction upon the occurrence of an event of default and regardless of the counterparty's insolvency or bankruptcy.

22.70 Netting across positions in the banking and trading book will only be recognised when the netted transactions fulfil the following conditions:

(1) All transactions are marked to market daily;[9] and

(2)   The collateral instruments used in the transactions are recognised as eligible financial collateral in the banking book.

Footnotes

9
     The holding period for the haircuts will depend as in other repo-style transactions on the frequency of margining.

22.71 The formula in CRE22.40 will be adapted to calculate the capital requirements for transactions with netting agreements.

22.72 For banks using the standard supervisory haircuts or own-estimate haircuts, the formula[10] below will apply to take into account the impact of master netting agreements, where:

(1) E^* = the exposure value after risk mitigation

(2) E = current value of the exposure

(3) C = the value of the collateral received

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

(5) H_s = haircut appropriate to E_s

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

(7) H_{fx} = haircut appropriate for currency mismatch

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

Footnotes

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     The starting point for this formula is the formula in CRE22.40 which can also be presented as the following:

     = max {0, [(E − C) + (E x H_e) + (C x H_c) + (C x H_{fx})]}

22.73 The intention here is to obtain a net exposure amount after netting of the exposures and collateral and have an add-on amount reflecting possible price changes for the securities involved in the transactions and for foreign exchange

risk if any. The net long or short position of each security included in the netting agreement will be multiplied by the appropriate haircut. All other rules regarding the calculation of haircuts stated in CRE22.40 to CRE22.68 equivalently apply for banks using bilateral netting agreements for repo-style transactions.

The comprehensive approach: use of models

22.74 As an alternative to the use of standard or own-estimate haircuts, banks may be permitted to use a VaR models approach to reflect the price volatility of the exposure and collateral for repo-style transactions, taking into account correlation effects between security positions. This approach would apply to repo-style transactions covered by bilateral netting agreements on a counterparty-by-counterparty basis. At the discretion of the national supervisor, firms are also eligible to use the VaR model approach for margin lending transactions, if the transactions are covered under a bilateral master netting agreement that meets the requirements of CRE22.69 and CRE22.70. The VaR models approach is available to banks that have received supervisory recognition for an internal market risk model according to MAR30.2. Banks which have not received supervisory recognition for use of models according to MAR30.2 can separately apply for supervisory recognition to use their internal VaR models for calculation of potential price volatility for repo-style transactions. Internal models will only be accepted when a bank can prove the quality of its model to the supervisor through the backtesting of its output using one year of historical data. Banks must meet the model validation requirement of CRE53.29 to use VaR for repo-style and other SFTs. In addition, other transactions similar to repo-style transactions (like prime brokerage) and that meet the requirements for repo-style transactions, are also eligible to use the VaR models approach provided the model used meets the operational requirements set forth in CRE53.34 to CRE53.61 .

22.75 The quantitative and qualitative criteria for recognition of internal market risk models for repo-style transactions and other similar transactions are in principle the same as in MAR30.5 to MAR30.18. With regard to the holding period, the minimum will be 5-business days for repo-style transactions, rather than the 10-business days in MAR30.14(3). For other transactions eligible for the VaR models approach, the 10-business day holding period will be retained. The minimum holding period should be adjusted upwards for market instruments where such a holding period would be inappropriate given the liquidity of the instrument concerned. At a minimum, where a bank has a repo-style or similar transaction or netting set which meets the criteria outlined in CRE53.24 or CRE53.25, the

minimum holding period should be the margin period of risk that would apply under those paragraphs, in combination with CRE53.26.

22.76 For banks using a VaR model to calculate capital requirements, the previous business day's VaR number will be used and the exposure E* will be calculated using the following formula:

$$E^* = \max\left\{0, \left[\left(\sum E - \sum C\right) + VaR\,output\,from\,internal\,model\right]\right\}$$

22.77 Subject to supervisory approval, instead of using the VaR approach, banks may also calculate an expected positive exposure for repo-style and other similar SFTs, in accordance with the internal models method to counterparty credit risk set out in CRE53.

The simple approach: minimum conditions

22.78 For collateral to be recognised in the simple approach, the collateral must be pledged for at least the life of the exposure and it must be marked to market and revalued with a minimum frequency of six months. Those portions of claims collateralised by the market value of recognised collateral receive the risk weight applicable to the collateral instrument. The risk weight on the collateralised portion will be subject to a floor of 20% except under the conditions specified in CRE22.79 to CRE22.80. The remainder of the claim should be assigned to the risk weight appropriate to the counterparty. A capital requirement will be applied to banks on either side of the collateralised transaction: for example, both repos and reverse repos will be subject to capital requirements.

The simple approach: exceptions to the risk weight floor

22.79 Transactions which fulfil the criteria outlined in CRE22.66 and are with a core market participant, as defined in CRE22.67, receive a risk weight of 0%. If the counterparty to the transactions is not a core market participant the transaction should receive a risk weight of 10%.

22.80 The 20% floor for the risk weight on a collateralised transaction will not be applied and a 0% risk weight can be applied where the exposure and the collateral are denominated in the same currency, and either:

(1)   the collateral is cash on deposit as defined in CRE22.37(1); or

(2)   the collateral is in the form of sovereign/PSE securities eligible for a 0% risk weight, and its market value has been discounted by 20%.

Collateralised OTC derivatives transactions

22.81 Under the standardised approach for counterparty credit risk (CRE52), the calculation of the counterparty credit risk charge for an individual contact will be calculated using the following formula, where:

(1)   Alpha = 1.4

(2)   RC = the replacement cost calculated according to CRE52.3 to CRE52.20

(3)   PFE = the amount for potential future exposure calculated according to CRE52.21 to CRE52.73

$$Exposure\ amount = alpha \cdot \left(RC + PFE \right)$$

On-balance sheet netting

22.82 A bank may use the net exposure of loans and deposits as the basis for its capital adequacy calculation in accordance with the formula in CRE22.40, when the bank:

(1)   has a well-founded legal basis for concluding that the netting or offsetting agreement is enforceable in each relevant jurisdiction regardless of whether the counterparty is insolvent or bankrupt;

(2)   is able at any time to determine those assets and liabilities with the same counterparty that are subject to the netting agreement;

(3)   monitors and controls its roll-off risks; and

(4)   monitors and controls the relevant exposures on a net basis.

22.83

When calculating the net exposure described in the paragraph above, assets (loans) are treated as exposure and liabilities (deposits) as collateral. The haircuts will be zero except when a currency mismatch exists. A 10-business day holding period will apply when daily mark-to-market is conducted and all the requirements contained in CRE22.44, CRE22.45, CRE22.64 and CRE22.97 to CRE22.100 will apply.

Guarantees and credit derivatives

Operational requirements common to guarantees and credit derivatives

22.84 A guarantee (counter-guarantee) or credit derivative must represent a direct claim on the protection provider and must be explicitly referenced to specific exposures or a pool of exposures, so that the extent of the cover is clearly defined and incontrovertible. Other than non-payment by a protection purchaser of money due in respect of the credit protection contract it must be irrevocable; there must be no clause in the contract that would allow the protection provider unilaterally to cancel the credit cover or that would increase the effective cost of cover as a result of deteriorating credit quality in the hedged exposure.[11] It must also be unconditional; there should be no clause in the protection contract outside the direct control of the bank that could prevent the protection provider from being obliged to pay out in a timely manner in the event that the original counterparty fails to make the payment(s) due.

Footnotes

[11]   *Note that the irrevocability condition does not require that the credit protection and the exposure be maturity matched; rather that the maturity agreed ex ante may not be reduced ex post by the protection provider. CRE22.98 sets out the treatment of call options in determining remaining maturity for credit protection.*

Additional operational requirements for guarantees

22.85 In addition to the legal certainty requirements in CRE22.9 above, in order for a guarantee to be recognised, the following conditions must be satisfied:

(1) On the qualifying default/non-payment of the counterparty, the bank may in a timely manner pursue the guarantor for any monies outstanding under the documentation governing the transaction. The guarantor may make one lump sum payment of all monies under such documentation to the bank, or the guarantor may assume the future payment obligations of the counterparty covered by the guarantee. The bank must have the right to receive any such payments from the guarantor without first having to take legal actions in order to pursue the counterparty for payment.

(2) The guarantee is an explicitly documented obligation assumed by the guarantor.

(3) Except as noted in the following sentence, the guarantee covers all types of payments the underlying obligor is expected to make under the documentation governing the transaction, for example notional amount, margin payments etc. Where a guarantee covers payment of principal only, interests and other uncovered payments should be treated as an unsecured amount in accordance with CRE22.92.

Additional operational requirements for credit derivatives

22.86 In order for a credit derivative contract to be recognised, the following conditions must be satisfied:

(1) The credit events specified by the contracting parties must at a minimum cover:

(a) failure to pay the amounts due under terms of the underlying obligation that are in effect at the time of such failure (with a grace period that is closely in line with the grace period in the underlying obligation);

(b) bankruptcy, insolvency or inability of the obligor to pay its debts, or its failure or admission in writing of its inability generally to pay its debts as they become due, and analogous events; and

(c) restructuring of the underlying obligation involving forgiveness or postponement of principal, interest or fees that results in a credit loss event (ie charge-off, specific provision or other similar debit to the profit and loss account). When restructuring is not specified as a credit event, refer to CRE22.87.

(2) If the credit derivative covers obligations that do not include the underlying obligation, bullet point 7 below governs whether the asset mismatch is permissible.

(3) The credit derivative shall not terminate prior to expiration of any grace period required for a default on the underlying obligation to occur as a result of a failure to pay, subject to the provisions of CRE22.98.

(4) Credit derivatives allowing for cash settlement are recognised for capital purposes insofar as a robust valuation process is in place in order to estimate loss reliably. There must be a clearly specified period for obtaining post-credit-event valuations of the underlying obligation. If the reference obligation specified in the credit derivative for purposes of cash settlement is different than the underlying obligation, bullet point 7 below governs whether the asset mismatch is permissible.

(5) If the protection purchaser's right/ability to transfer the underlying obligation to the protection provider is required for settlement, the terms of the underlying obligation must provide that any required consent to such transfer may not be unreasonably withheld.

(6) The identity of the parties responsible for determining whether a credit event has occurred must be clearly defined. This determination must not be the sole responsibility of the protection seller. The protection buyer must have the right/ability to inform the protection provider of the occurrence of a credit event.

(7) A mismatch between the underlying obligation and the reference obligation under the credit derivative (ie the obligation used for purposes of determining cash settlement value or the deliverable obligation) is permissible if:

(a) the reference obligation ranks pari passu with or is junior to the underlying obligation; and

(b) the underlying obligation and reference obligation share the same obligor (ie the same legal entity) and legally enforceable cross-default or cross-acceleration clauses are in place.

(8) A mismatch between the underlying obligation and the obligation used for purposes of determining whether a credit event has occurred is permissible if:

(a) the latter obligation ranks pari passu with or is junior to the underlying obligation; and

(b) the underlying obligation and reference obligation share the same obligor (ie the same legal entity) and legally enforceable cross-default or cross-acceleration clauses are in place.

FAQ

FAQ1   The conditions outlined in CRE22.86(6) indicates that, in order for a credit derivative contract to be recognised, the identity of the parties responsible for determining whether a credit event has occurred must be clearly defined (the so-called "Determinations Committee"); this determination must not be the sole responsibility of the protection seller; the protection buyer must have the right/ability to inform the protection provider of the occurrence of a credit event. Given the recently developed market practice of the Big Bang Protocol, which all in the credit derivatives industry have signed, how does this protocol affect the recognition of credit derivatives?

Credit derivatives under the Big Bang Protocol can still be recognised. CRE22.86 is still satisfied by: (1) the protection buyer having the right /ability to request a ruling from the Determinations Committee, so the buyer is not powerless; and (2) the Determinations Committee being independent of the protection seller. This means that the roles and identities are clearly defined in the protocol, and the determination of a credit event is not the sole responsibility of the protection seller.

22.87 When the restructuring of the underlying obligation is not covered by the credit derivative, but the other requirements in CRE22.86 are met, partial recognition of the credit derivative will be allowed. If the amount of the credit derivative is less than or equal to the amount of the underlying obligation, 60% of the amount of the hedge can be recognised as covered. If the amount of the credit derivative is larger than that of the underlying obligation, then the amount of eligible hedge is capped at 60% of the amount of the underlying obligation.

22.88 Only credit default swaps and total return swaps that provide credit protection equivalent to guarantees will be eligible for recognition. The following exception applies. Where a bank buys credit protection through a total return swap and records the net payments received on the swap as net income, but does not record offsetting deterioration in the value of the asset that is protected (either through reductions in fair value or by an addition to reserves), the credit protection will not be recognised. The treatment of first-to-default and second-to-default products is covered separately in CRE22.102 to CRE22.105.

22.89 Other types of credit derivatives will not be eligible for recognition at this time. Cash funded credit linked notes issued by the bank against exposures in the banking book which fulfil the criteria for credit derivatives will be treated as cash collateralised transactions.

Range of eligible guarantors (counter-guarantors)/protection providers

22.90 Credit protection given by the following entities will be recognised:

(1) sovereign entities,[12] PSEs, banks[13] and securities firms and other prudentially regulated financial institutions with a lower risk weight than the counterparty;[14]

(2) other entities that are externally rated except when credit protection is provided to a securitisation exposure. This would include credit protection provided by parent, subsidiary and affiliate companies when they have a lower risk weight than the obligor.

(3) when credit protection is provided to a securitisation exposure, other entities that currently are externally rated BBB- or better and that were externally rated A- or better at the time the credit protection was provided. This would include credit protection provided by parent, subsidiary and affiliate companies when they have a lower risk weight than the obligor.

Footnotes

[12] *This includes the Bank for International Settlements, the International Monetary Fund, the European Central Bank, the European Union, the European Stability Mechanism (and the European Financial Stability Facility, as well as those MDBs referred to in the footnote to CRE20.10.*

[13] *This includes other MDBs.*

[14] *A prudentially regulated financial institution is defined as: a legal entity supervised by a regulator that imposes prudential requirements consistent with international norms or a legal entity (parent company or subsidiary) included in a consolidated group where any substantial legal entity in the consolidated group is supervised by a regulator that imposes prudential requirements consistent with international norms. These include, but are not limited to, prudentially regulated insurance companies, broker/dealers, thrifts and futures commission merchants, and qualifying central counterparties as defined in CRE54.*

Risk-weight treatment of transactions in which eligible credit protection is provided

22.91 The general risk-weight treatment for transactions in which eligible credit protection is provided is as follows:

(1) The protected portion is assigned the risk weight of the protection provider. The uncovered portion of the exposure is assigned the risk weight of the underlying counterparty.

(2) Materiality thresholds on payments below which no payment is made in the event of loss are equivalent to retained first loss positions and must be deducted in full from the capital of the bank purchasing the credit protection.

22.92 Where the amount guaranteed, or against which credit protection is held, is less than the amount of the exposure, and the secured and unsecured portions are of equal seniority, ie the bank and the guarantor share losses on a pro-rata basis, capital relief will be afforded on a proportional basis. That is, the protected portion of the exposure will receive the treatment applicable to eligible guarantees/credit derivatives, with the remainder treated as unsecured.

22.93 Where the bank transfers a portion of the risk of an exposure in one or more tranches to a protection seller or sellers and retains some level of risk of the loan and the risk transferred and the risk retained are of different seniority, banks may obtain credit protection for either the senior tranches (eg second loss portion) or the junior tranche (eg first loss portion). In this case the rules as set out in the securitisation chapters of the credit risk standard will apply.

Currency mismatches

22.94 Where the credit protection is denominated in a currency different from that in which the exposure is denominated — ie there is a currency mismatch — the amount of the exposure deemed to be protected will be reduced by the application of a haircut H_{FX}, using the formula that follows, where:

(1) G = nominal amount of the credit protection

(2) H_{FX} = haircut appropriate for currency mismatch between the credit protection and underlying obligation

$$G_A = G \cdot \left(1 - H_{FX}\right)$$

22.95 The appropriate haircut based on a 10-business day holding period (assuming daily marking-to-market) will be applied in the calculation of the formula in the paragraph above. If a bank uses the supervisory haircuts it will be 8%. The haircuts must be scaled up using the square root of time formula, depending on the frequency of revaluation of the credit protection as described in CRE22.63 and CRE22.65.

Sovereign guarantees and counter-guarantees

22.96 As specified in CRE20.5, a lower risk weight may be applied at national discretion to a bank's exposures to the sovereign (or central bank) where the bank is incorporated and where the exposure is denominated in domestic currency and funded in that currency. National authorities may extend this treatment to portions of claims guaranteed by the sovereign (or central bank), where the guarantee is denominated in the domestic currency and the exposure is funded in that currency. A claim may be covered by a guarantee that is indirectly counter-guaranteed by a sovereign. Such a claim may be treated as covered by a sovereign guarantee provided that:

(1) the sovereign counter-guarantee covers all credit risk elements of the claim;

(2) both the original guarantee and the counter-guarantee meet all operational requirements for guarantees, except that the counter-guarantee need not be direct and explicit to the original claim; and

(3) the supervisor is satisfied that the cover is robust and that no historical evidence suggests that the coverage of the counter-guarantee is less than effectively equivalent to that of a direct sovereign guarantee.

Maturity mismatches

22.97 For the purposes of calculating risk-weighted assets, a maturity mismatch occurs when the residual maturity of a hedge is less than that of the underlying exposure.

Definition of maturity

22.98 The maturity of the underlying exposure and the maturity of the hedge should both be defined conservatively. The effective maturity of the underlying should be gauged as the longest possible remaining time before the counterparty is scheduled to fulfil its obligation, taking into account any applicable grace period. For the hedge, embedded options which may reduce the term of the hedge should be taken into account so that the shortest possible effective maturity is used. Where a call is at the discretion of the protection seller, the maturity will always be at the first call date. If the call is at the discretion of the protection buying bank but the terms of the arrangement at origination of the hedge contain a positive incentive for the bank to call the transaction before contractual maturity, the remaining time to the first call date will be deemed to be the effective maturity. For example, where there is a step-up in cost in conjunction with a call feature or where the effective cost of cover increases over time even if credit quality remains the same or increases, the effective maturity will be the remaining time to the first call.

Risk weights for maturity mismatches

22.99 As outlined in CRE22.35, hedges with maturity mismatches are only recognised when their original maturities are greater than or equal to one year. As a result, the maturity of hedges for exposures with original maturities of less than one year must be matched to be recognised. In all cases, hedges with maturity mismatches will no longer be recognised when they have a residual maturity of three months or less.

22.100 When there is a maturity mismatch with recognised credit risk mitigants (collateral, on-balance sheet netting, guarantees and credit derivatives) the following adjustment applies, where:

(1) P_a = value of the credit protection adjusted for maturity mismatch

(2)   P = credit protection (eg collateral amount, guarantee amount) adjusted for any haircuts

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

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

$$P_a = P \cdot \frac{t - 0.25}{T - 0.25}$$

Other items related to the treatment of CRM techniques

Treatment of pools of CRM techniques

22.101 In the case where a bank has multiple CRM techniques covering a single exposure (eg a bank has both collateral and guarantee partially covering an exposure), the bank will be required to subdivide the exposure into portions covered by each type of CRM technique (eg portion covered by collateral, portion covered by guarantee) and the risk-weighted assets of each portion must be calculated separately. When credit protection provided by a single protection provider has differing maturities, they must be subdivided into separate protection as well.

First-to-default credit derivatives

22.102 There are cases where a bank obtains credit protection for a basket of reference names and where the first default among the reference names triggers the credit protection and the credit event also terminates the contract. In this case, the bank may recognise regulatory capital relief for the asset within the basket with the lowest risk-weighted amount, but only if the notional amount is less than or equal to the notional amount of the credit derivative.

22.103 With regard to the bank providing credit protection through such an instrument, the risk weights of the assets included in the basket will be aggregated up to a maximum of 1250% and multiplied by the nominal amount of the protection provided by the credit derivative to obtain the risk-weighted asset amount.

Second-to-default credit derivatives

22.104 In the case where the second default among the assets within the basket triggers the credit protection, the bank obtaining credit protection through such a product will only be able to recognise any capital relief if first-default-protection has also be obtained or when one of the assets within the basket has already defaulted.

22.105 For banks providing credit protection through such a product, the capital treatment is the same as in CRE22.103 above with one exception. The exception is that, in aggregating the risk weights, the asset with the lowest risk weighted amount can be excluded from the calculation.