Chapter 5

Credit risk mitigation

5

5.4 Financial collateral

Eligibility

5.4.1 R

(1) Where the *credit risk mitigation* used relies on the right of a *firm* to liquidate or retain assets, eligibility depends upon whether *risk weighted exposure amounts*, and, as relevant, *expected loss* amounts, are calculated under the *standardised approach* or the *IRB approach*.

(2) Eligibility further depends upon whether the *financial collateral simple method* is used or the *financial collateral comprehensive method*.

(3) In relation to *repurchase transactions* and *securities or commodities lending or borrowing transactions*, eligibility also depends upon whether the transaction is booked in the *non-trading book* or the *trading book*.

[**Note:** *BCD* Annex VIII Part 1 point 6]

5.4.2 R

The following financial items may be recognised as eligible collateral under all approaches and methods:

(1) cash on deposit with, or *cash assimilated instruments* held by, the *lending firm*;

(2) *debt securities* issued by central governments or *central banks* which *securities* have a credit assessment by an *eligible ECAI* or export credit agency recognised as eligible for the purposes of the *standardised approach*, which is associated with *credit quality step* 4 or above under the *rules* for the *risk weighting* of *exposures* to central governments and *central banks* under the *standardised approach*;

(3) *debt securities* issued by *institutions* which *securities* have a credit assessment by an *eligible ECAI* associated with *credit quality step* 3 or above under the *rules* for the *risk weighting* of *exposures* to a *credit institution* under the *standardised approach*;

(4) *debt securities* issued by other entities which *securities* have a credit assessment by an *eligible ECAI* associated with *credit quality step* 3 or above under the *rules* for the *risk weighting* of *exposures* to *corporates* under the *standardised approach*;

(5) *debt securities* with a short-term credit assessment by an *eligible ECAI* associated with *credit quality step* 3 or above under the *rules* for the *risk weighting* of short term exposures under the *standardised approach*;

(6) equities or *convertible* bonds that are included in a main index; and

(7) gold.

[**Note:** *BCD* Annex VIII Part 1 point 7 (part)]

5.4.3 R For the purposes of BIPRU 5.4.2 R (2), '*debt securities* issued by central governments or *central banks*' include –

(1) *debt securities* issued by regional governments or local authorities *exposures* to which are treated as *exposures* to the central government in whose jurisdiction they are established under the *standardised approach*;

(2) *debt securities* issued by *public sector entities* which are treated as *exposures* to central governments in accordance with BIPRU 3.4.24 R;

(3) *debt securities* issued by *multilateral development banks* to which a 0% *risk weight* is assigned under the *standardised approach*; and

(4) *debt securities* issued by *international organisations* which are assigned a 0% *risk weight* under the *standardised approach*.

[**Note:** *BCD* Annex VIII Part 1 point 7 (part)]

5.4.4 R For the purposes of BIPRU 5.4.2 R (3), '*debt securities* issued by *institutions*' include:

(1) *debt securities* issued by regional governments or local authorities other than those *exposures* to which are treated as *exposures* to the central government in whose jurisdiction they are established under the *standardised approach*;

(2) *debt securities* issued by *public sector entities*, *exposures* to which are treated as *exposures* to a *credit institution* under the *standardised approach*;

(3) *debt securities* issued by *multilateral development banks* other than those to which a 0% *risk weight* is assigned under the *standardised approach*.

[**Note:** *BCD* Annex VIII Part 1 point 7 (part)]

5.4.5 R *Debt securities* issued by *institutions* which *securities* do not have a credit assessment by an *eligible ECAI* may be recognised as eligible collateral if they fulfil the following criteria:

(1) they are listed on a *recognised investment exchange* or a *designated investment exchange*;

(2) they qualify as senior debt;

(3) all other rated issues by the issuing *institution* of the same seniority have a credit assessment by an *eligible ECAI* associated with *credit quality step* 3 or above under the *rules* for the *risk weight* of

exposures to *institutions* or short term *exposures* under the *standardised approach*;

(4) the *lending firm* has no information to suggest that the issue would justify a credit assessment below that indicated in (3); and

(5) the *firm* can demonstrate to the *appropriate regulator* that the market liquidity of the instrument is sufficient for these purposes.

[**Note:** *BCD* Annex VIII Part 1 point 8]

5.4.6 R

(1) Units in *CIUs* may be recognised as eligible collateral if the following conditions are satisfied:

(a) they have a daily public price quote;

(b) the *CIU* is limited to investing in instruments that are eligible for recognition under BIPRU 5.4.2 R to BIPRU 5.4.5 R; and

(c) if the *CIU* is not limited to investing in instruments that are eligible for recognition under BIPRU 5.4.2 R to BIPRU 5.4.5 R, units may be recognised with the value of the eligible assets as collateral under the assumption that the *CIU* has invested to the maximum extent allowed under its mandate in non-eligible assets. In cases where non-eligible assets can have a negative value due to liabilities or contingent liabilities resulting from ownership, the *firm* must calculate the total value of the non-eligible assets and must reduce the value of the eligible assets by that of the non-eligible assets in case the latter is negative in total.

(2) The use (or potential use) by a *CIU* of derivative instruments to hedge permitted investments shall not prevent units in that *CIU* from being eligible.

[**Note:** *BCD* Annex VIII Part 1 point 9]

5.4.7 R

In relation to BIPRU 5.4.2 R (2) to (5):

(1) where a *security* has two credit assessments by *eligible ECAIs*, the less favourable assessment must be deemed to apply;

(2) in cases where a *security* has more than two credit assessments by *eligible ECAIs*:

(a) the two most favourable assessments must be deemed to apply; or

(b) if the two most favourable credit assessments are different, the less favourable of the two must be deemed to apply.

[**Note:** *BCD* Annex VIII Part 1 point 10]

5.4.8 R

(1) In addition to the collateral set out in BIPRU 5.4.2 R to BIPRU 5.4.7 R, where a *firm* uses the *financial collateral comprehensive method*, the following financial items may be recognised as eligible collateral:

(a) equities or *convertible* bonds not included in a main index but traded on a *recognised investment exchange* or a *designated investment exchange*;

(b) units in *CIUs* if the following conditions are met:

(i) they have a daily public price quote; and

(ii) the *CIU* is limited to investing in instruments that are eligible for recognition under BIPRU 5.4.2 R to BIPRU 5.4.5 R and the items mentioned in (a); and

(c) if the *CIU* is not limited to investing in instruments that are eligible for recognition under BIPRU 5.4.2 R to BIPRU 5.4.5 R and the items mentioned in (a) of this *rule*, units may be recognised with the value of the eligible assets as collateral under the assumption that the *CIU* has invested to the maximum extent allowed under its mandate in non-eligible assets. In cases where non-eligible assets can have a negative value due to liabilities or contingent liabilities resulting from ownership, the *firm* must calculate the total value of the non-eligible assets and must reduce the value of the eligible assets by that of the non-eligible assets, in case the latter is negative in total.

(2) The use (or potential use) by a *CIU* of derivative instruments to hedge permitted investments shall not prevent units in that *CIU* from being eligible.

[**Note:** *BCD* Annex VIII Part 1 point 11]

Minimum requirements

5.4.9 R For the recognition of financial collateral and gold, the following conditions must be met:

(1) the low correlation conditions in BIPRU 5.4.10 R;

(2) the legal certainty conditions in BIPRU 5.4.11 R; and

(3) the operational requirements in BIPRU 5.4.12 R.

[**Note:** *BCD* Annex VIII Part 2 point 6]

5.4.10 R The low correlation conditions referred to in BIPRU 5.4.9 R (1) are as follows:

(1) (a) the credit quality of the obligor and the value of the collateral must not have a material positive correlation; and

(b) *securities* issued by the obligor, or any related *group* entity are not eligible.

(2) notwithstanding (1)(b), the obligor's own issues of *covered bonds* falling within the terms of BIPRU 3.4.107 R to BIPRU 3.4.109 R may be recognised as collateral for *repurchase transactions*, provided that (1)(a) is complied with.

[**Note:** *BCD* Annex VIII Part 2 point 6(a)]

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5.4.11 R The legal certainty conditions referred to in BIPRU 5.4.9 R (2) are as follows:

(1) a *firm* must fulfil any contractual and statutory requirements in respect of, and take all steps necessary to ensure, the enforceability of the collateral arrangements under the law applicable to its interest in the collateral;

(2) in accordance with the general principle in BIPRU 5.2.2 R, a *firm* must have conducted sufficient legal review confirming the enforceability of the collateral arrangements in all relevant jurisdictions; and

(3) a *firm* must re-conduct such review as necessary to ensure continuing enforceability.

[**Note:** *BCD* Annex VIII Part 2 point 6(b)]

5.4.12 R The operational requirements referred to in BIPRU 5.4.9 R (3) are as follows:

(1) the collateral arrangements must be properly documented, with a clear and robust procedure for the timely liquidation of collateral;

(2) a *firm* must employ robust procedures and processes to control risks arising from the use of collateral – including risks of failed or reduced credit protection, valuation risks, risks associated with the termination of the credit protection, concentration risk arising from the use of collateral and the interaction with the *firm*'s overall risk profile;

(3) a *firm* must have documented policies and practices concerning the types and amounts of collateral accepted;

(4) a *firm* must calculate the market value of the collateral, and revalue it accordingly, with a minimum frequency of once every six months and whenever the *firm* has reason to believe that there has occurred a significant decrease in its market value; and

(5) where the collateral is held by a third party, a *firm* must take reasonable steps to ensure that the third party segregates the collateral from its own assets.

[**Note:** *BCD* Annex VIII Part 2 point 6(c)]

5.4.13 R In addition to the requirements set out in BIPRU 5.4.9 R, for the recognition of financial collateral under the *financial collateral simple method* the residual maturity of the protection must be at least as long as the residual maturity of the *exposure*.

[**Note:** *BCD* Annex VIII Part 2 point 7]

The financial collateral simple method: General

5.4.14 R BIPRU 5.4.17 R – BIPRU 5.4.22 R set out the calculation of the effects of *credit risk mitigation* under the *financial collateral simple method*.

5.4.15 R The *financial collateral simple method* is available only where *risk weighted exposure amounts* are calculated under the *standardised approach* to credit risk.

[**Note:** *BCD* Annex VIII Part 3 point 24 (part)]

5.4.16 R A *firm* must not use both the *financial collateral simple method* and the *financial collateral comprehensive method*, unless such use is for the purposes of BIPRU 4.2.17 R to BIPRU 4.2.19 R and BIPRU 4.2.26 R, and such use is provided for by the *firm's IRB permission*. A *firm* must demonstrate to the *appropriate regulator* that this exceptional application of both methods is not used selectively with the purpose of achieving reduced minimum capital requirements and does not lead to regulatory arbitrage.

[**Note:** *BCD* Annex VIII Part 3 point 24 (part)]

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The financial collateral simple method: Valuation

5.4.17 R Under the *financial collateral simple method*, recognised financial collateral is assigned a value equal to its market value as determined in accordance with BIPRU 5.4.12 R.

[**Note:** *BCD* Annex VIII Part 3 point 25]

The financial collateral simple method: Calculating risk-weighted exposure amounts

5.4.18 R The *risk weight* that would be assigned under the *standardised approach* to credit risk if the *lending firm* had a direct *exposure* to the collateral instrument must be assigned to those portions of *exposure* values collateralised by the market value of recognised collateral. For this purpose, the *exposure* value of an off-balance sheet item listed in BIPRU 3.7.2 R must be 100% of its value rather than the *exposure* value indicated in BIPRU 3.2.1 R. The *risk weight* of the collateralised portion must be a minimum of 20% except as specified in BIPRU 5.4.19 R to BIPRU 5.4.21 R. The remainder of the *exposure*value receives the *risk weight* that would be applied to an unsecured *exposure* to the counterparty under the *standardised approach*.

[**Note:** *BCD* Annex VIII Part 3 point 26]

The financial collateral simple method: Repurchase transactions and securities lending or borrowing transactions

5.4.19 R A *risk weight* of 0% must be assigned to the collateralised portion of the *exposure* arising from transactions which fulfil the criteria enumerated in BIPRU 5.4.62 R. If the counterparty to the transaction is not a *core market participant* a *risk weight* of 10% must be assigned.

[**Note:** *BCD* Annex VIII Part 3 point 27]

The financial collateral simple method: financial derivative instruments subject to daily mark-to-market

5.4.20 R A *risk weight* of 0% must, to the extent of the collateralisation, be assigned to the *exposure* values determined under BIPRU 13 for *financial derivative instruments* and subject to daily marking-to-market, collateralised by cash or *cash assimilated instruments* where there is no currency mismatch. A *risk weight* of 10% must be assigned to the extent of the collateralisation to the *exposure* values of such transactions collateralised by *debt securities* issued by central governments or *central banks* which are assigned a 0% *risk weight* under the *standardised approach*.

[**Note:** *BCD* Annex VIII Part 3 point 28 (part)]

5.4.21 R A 0% *risk weight* may be assigned where the *exposure* and the collateral are denominated in the same currency, and either:

(1) the collateral is cash on deposit or a *cash assimilated instrument*; or

(2) the collateral is in the form of *debt securities* issued by central governments or *central banks* eligible for a 0% *risk weight* under the *standardised approach*, and its market value has been discounted by 20%.

[**Note:** *BCD* Annex VIII Part 3 point 29]

5.4.22 R For the purposes of BIPRU 5.4.20 R and BIPRU 5.4.21 R '*debt securities* issued by central governments or *central banks*' must include:

(1) *debt securities* issued by regional governments or local authorities *exposures* to which are treated as *exposures* to the central government in whose jurisdiction they are established under the *standardised approach*;

(2) *debt securities* issued by *multilateral development banks* to which a 0% *risk weight* is assigned under or by virtue of the *standardised approach*; and

(3) *debt securities* issued by *international organisations* which are assigned a 0% *risk weight* under the *standardised approach*.

[**Note:** *BCD* Annex VIII Part 3 point 28 (part)]

The financial collateral comprehensive method: General

5.4.23 R BIPRU 5.4.24 R – BIPRU 5.4.66 R set out the calculation of the effects of *credit risk mitigation* under the *financial collateral comprehensive method*.

5.4.24 R In valuing financial collateral for the purposes of the *financial collateral comprehensive method*, volatility adjustments must be applied to the market value of collateral, as set out in BIPRU 5.4.30 R to BIPRU 5.4.64R, in order to take account of price volatility.

[**Note:** *BCD* Annex VIII Part 3 point 30]

5.4.25 R Subject to the treatment for currency mismatches in the case of *financial derivative instrument* set out in BIPRU 5.4.26 R, where collateral is denominated in a currency that differs from that in which the underlying *exposure* is denominated, an adjustment reflecting currency volatility must be added to the volatility adjustment appropriate to the collateral as set out in BIPRU 5.4.30 R to BIPRU 5.4.64R.

[**Note:** *BCD* Annex VIII Part 3 point 31]

5.4.26 R In the case of *financial derivative instrument* covered by netting agreements recognised under BIPRU 13, a volatility adjustment reflecting currency volatility must be applied when there is a mismatch between the collateral currency and the settlement currency. Even in the case where multiple currencies are involved in the transactions covered by the netting agreement, only a single volatility adjustment may be applied.

[**Note:** *BCD* Annex VIII Part 3 point 32]

5.4.27 R In the case of a *firm* using the *financial collateral comprehensive method*, where an *exposure* takes the form of securities or *commodities* sold, posted or lent under a *repurchase transaction* or under a *securities or commodities lending or borrowing transaction*, and *margin lending transactions* the *exposure* value must be increased by the volatility adjustment appropriate to such securities or *commodities* as prescribed in BIPRU 5.4.30 R to BIPRU 5.4.64R.

[**Note**: *BCD* Article 78(1), third sentence]

The financial collateral comprehensive method: Calculating adjusted values

5.4.28 R

(1) The volatility-adjusted value of the collateral to be taken into account is calculated as follows in the case of all transactions except those transactions subject to recognised master netting agreements to which the provisions set out in BIPRU 5.6.5 R to BIPRU 5.6.29 R are to be applied:

$C_{VA} = C \times (1-H_C-H_{FX})$

(2) The volatility-adjusted value of the *exposure* to be taken into account is calculated as follows:

$E_{VA} = E \times (1+H_E)$, and in the case of *financial derivative instruments* $E_{VA} = E$.

(3) The fully adjusted value of the *exposure*, taking into account both volatility and the risk-mitigating effects of collateral is calculated as follows:

$E^* = \max \{0, [E_{VA} - C_{VAM}]\}$

Where:

(a) E is the *exposure* value as would be determined under the *standardised approach* if the *exposure* was not collateralised.

(b) E_{VA} is the volatility-adjusted *exposure* amount.

(c) C_{VA} is the volatility-adjusted value of the collateral.

(d) C_{VAM} is C_{VA} further adjusted for any maturity mismatch in accordance with the provisions of BIPRU 5.8.

(e) H_E is the volatility adjustment appropriate to the *exposure* (E), as calculated under BIPRU 5.4.30 R to BIPRU 5.4.64R.

(f) H_C is the volatility adjustment appropriate for the collateral, as calculated under ■ BIPRU 5.4.30 R to ■ BIPRU 5.4.64R.

(g) H_{FX} is the volatility adjustment appropriate for currency mismatch, as calculated under ■ BIPRU 5.4.30 R to ■ BIPRU 5.4.64R.

(h) E^* is the fully adjusted *exposure* value taking into account volatility and the risk-mitigating effects of the collateral.

(4) For the purpose of (3)(a), for a *firm* calculating *risk weighted exposure amounts* under the *standardised approach* the *exposure* value of an off-balance sheet items listed in ■ BIPRU 3.7 must be 100% of its value rather than the *exposure* value indicated in ■ BIPRU 3.2.1 R and ■ BIPRU 3.7.2 R.

[**Note:** *BCD* Annex VIII Part 3 point 33]

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The financial collateral comprehensive method: Calculation of volatility adjustments to be applied: General

5.4.29 R ■ BIPRU 5.4.30 R – ■ BIPRU 5.4.64R set out the calculation of volatility adjustments under the *financial collateral comprehensive method*.

5.4.30 R Volatility adjustments may be calculated in two ways: the *supervisory volatility adjustments approach* and the *own estimates of volatility adjustments approach*.

[**Note:** *BCD* Annex VIII Part 3 point 34]

5.4.31 R A *firm* may choose to use the *supervisory volatility adjustments approach* or the *own estimates of volatility adjustments approach* independently of the choice it has made between the *standardised approach* and the *IRB approach* for the calculation of *risk weighted exposure amounts*. However, if a *firm* seeks to use the *own estimates of volatility adjustments approach*, it must do so for the full range of instrument types, excluding immaterial portfolios where it may use the *supervisory volatility adjustments approach*.

[**Note:** *BCD* Annex VIII Part 3 point 35 (part)]

5.4.32 R Where the collateral consists of a number of recognised items, the volatility adjustment must be

($H = \sum_i \alpha_i H_i$)

where:

(1) a_i is the proportion of an item to the collateral as a whole; and

(2) H_i is the volatility adjustment applicable to that item.

[**Note:** *BCD* Annex VIII Part 3 point 35 (part)]

The financial collateral comprehensive method: Supervisory volatility adjustments approach

5.4.33 R ■ BIPRU 5.4.34 R – ■ BIPRU 5.4.43 R set out the calculation of volatility adjustments under the *supervisory volatility adjustments approach*.

5.4.34 R The volatility adjustments to be applied under the *supervisory volatility adjustments approach* (assuming daily revaluation) are those set out in the tables in BIPRU 5.4.35 R – BIPRU 5.4.38 R.

[**Note:** *BCD* Annex VIII Part 3 point 36]

Table: Volatility adjustments for debt securities described in BIPRU 5.4.2R(2) and (3) – (4)

5.4.35 R This table belongs to BIPRU 5.4.34 R.

Credit quality step with which the credit assessment of the *debt security* is associated	Residual Maturity	Volatility adjustments for *debt securities* issued by entities described in BIPRU 5.4.2 R (2)			Volatility adjustments for *debt securities* issued by entities described in BIPRU 5.4.2 R (3) and (4)		
		20 day liquidation period (%)	10 day liquidation period (%)	5 day liquidation period (%)	20 day liquidation period (%)	10 day liquidation period (%)	5 day liquidation period (%)
1	≤ 1 year	0.707	0.5	0.354	1.414	1	0.707
	> 1 ≤ 5 years	2.828	2	1.414	5.657	4	2.828
	> 5 years	5.657	4	2.828	11.314	8	5.657
2–3	≤ 1 year	1.414	1	0.707	2.828	2	1.414
	> 1 ≤ 5 years	4.243	3	2.121	8.485	6	4.243
	> 5 years	8.485	6	4.243	16.971	12	8.485
4	≤ 1 year	21.213	15	10.607	N/A	N/A	N/A
	> 1 ≤ 5 years	21.213	15	10.607	N/A	N/A	N/A
	> 5 years	21.213	15	10.607	N/A	N/A	N/A

Table: Volatility adjustments for debt securities described in BIPRU 5.4.2R(5)

5.4.36 R This table belongs to BIPRU 5.4.34 R.

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Credit quality step with which the credit assessment of a short term debt security is associated	Volatility adjustments for *debt securities* issued by entities described in BIPRU 5.4.2 R (2) with short-term credit assessments			Volatility adjustments for *debt securities* issued by entities described in BIPRU 5.4.2 R (3) and (4) with short-term credit assessments		
	20 day liquidation period (%)	10 day liquidation period (%)	5 day liquidation period (%)	20 day liquidation period (%)	10 day liquidation period (%)	5 day liquidation period (%)
1	0.707	0.5	0.354	1.414	1	0.707
2–3	1.414	1	0.707	2.828	2	1.414

Table: Volatility adjustments for other collateral or exposure types

5.4.37 R This table belongs to BIPRU 5.4.34 R.

	Other collateral or *exposure* types		
	20 day liquidation period (%)	10 day liquidation period (%)	5 day liquidation period (%)
Main index equities, main index *convertible* bonds	21.213	15	10.607
Other equities or *convertible* bonds listed on a *recognised investment exchange* or *designated investment exchange*	35.355	25	17.678
Cash	0	0	0
Gold	21.213	15	10.607

Table: Volatility adjustments for currency mismatch

5.4.38 R This table belongs to BIPRU 5.4.34 R.

Volatility adjustment for currency mismatch		
20 day liquidation period (%)	10 day liquidation period (%)	5 day liquidation period (%)
11.314	8	5.657

5.4.39 R

(1) For *secured lending transactions* the liquidation period is 20 business days.

(2) For *repurchase transactions* (except insofar as such transactions involve the transfer of *commodities* or guaranteed rights relating to title to *commodities*) and securities lending or borrowing transactions the liquidation period is 5 business days.

(3) For other *capital market-driven transactions*, the liquidation period is 10 business days.

[**Note:** *BCD* Annex VIII Part 3 point 37]

5.4.40 R

In the tables in BIPRU 5.4.35 R – BIPRU 5.4.38 R and in BIPRU 5.4.41 R to BIPRU 5.4.43 R, the *credit quality step* with which a credit assessment of the *debt security* is associated is the *credit quality step* with which the external credit assessment is associated under the *standardised approach*. For the purposes of this *rule*, BIPRU 5.4.7 R also applies.

[**Note:** *BCD* Annex VIII Part 3 point 38]

5.4.41 R

For non-eligible *securities* or for *commodities* lent or sold under *repurchase transactions* or *securities or commodities lending or borrowing transactions*, the volatility adjustment is the same as for non-main index equities listed on a *recognised investment exchange* or a *designated investment exchange*.

[**Note:** *BCD* Annex VIII Part 3 point 39]

5.4.42 R

For eligible units in *CIUs* the volatility adjustment is the weighted average volatility adjustments that would apply, having regard to the liquidation period of the transaction as specified in BIPRU 5.4.39 R, to the assets in which the fund has invested. If the assets in which the fund has invested are not known to the *firm*, the volatility adjustment is the highest volatility adjustment that would apply to any of the assets in which the fund has the right to invest.

[**Note:** *BCD* Annex VIII Part 3 point 40]

5.4.43 R

For unrated *debt securities* issued by *institutions* and satisfying the eligibility criteria in BIPRU 5.4.5 R the volatility adjustments are the same as for *securities* issued by *institutions* or *corporates* with an external credit assessment associated with *credit quality steps* 2 or 3.

[**Note:** *BCD* Annex VIII Part 3 point 41]

The financial collateral comprehensive method: Own estimates of volatility adjustments approach: General

5.4.44 R

BIPRU 5.4.45 R – BIPRU 5.4.60 R deal with the calculation of volatility adjustments under the *own estimates of volatility adjustments approach*.

5.4.45 R

A *firm* complying with the requirements set out in BIPRU 5.4.50 R to BIPRU 5.4.60 R may use the *own estimates of volatility adjustments approach* for calculating the volatility adjustments to be applied to collateral and *exposures*.

[**Note:** *BCD* Annex VIII Part 3 point 42]

5.4.46 R When *debt securities* have a credit assessment from an *eligible ECAI* equivalent to investment grade or better, a *firm* may calculate a volatility estimate for each category of *security*.

[**Note:** *BCD* Annex VIII Part 3 point 43]

5.4.47 R In determining relevant categories, a *firm* must take into account the type of issuer of the *security* the external credit assessment of the *securities*, their residual maturity, and their modified duration. Volatility estimates must be representative of the *securities* included in the category by the *firm*.

[**Note:** *BCD* Annex VIII Part 3 point 44]

5.4.48 R For *debt securities* having a credit assessment from an *eligible ECAI* equivalent to below investment grade and for other eligible collateral the volatility adjustments must be calculated for each individual item.

[**Note:** *BCD* Annex VIII Part 3 point 45]

5.4.49 R A *firm* using the *own estimates of volatility adjustments approach* must estimate volatility of the collateral or foreign exchange mismatch without taking into account any correlations between the unsecured *exposure*, collateral and/or exchange rates.

[**Note:** *BCD* Annex VIII Part 3 point 46]

The financial collateral comprehensive method: Own estimates of volatility adjustments approach: Quantitative Criteria

5.4.50 R In calculating the volatility adjustments, a 99th percentile one-tailed confidence interval must be used.

[**Note:** *BCD* Annex VIII Part 3 point 47]

5.4.51 R The liquidation period is 20 *business days* for *secured lending transactions*; 5 *business days* for *repurchase transactions* except insofar as such transactions involve the transfer of *commodities* or guaranteed rights relating to title to commodities and *securities lending or borrowing transaction*s; and 10 *business days* for other *capital market-driven transactions*.

[**Note:** *BCD* Annex VIII Part 3 point 48]

5.4.52 R A *firm* may use volatility adjustment numbers calculated according to shorter or longer liquidation periods, scaled up or down to the liquidation period set out in BIPRU 5.4.51 R for the type of transaction in question, using the square root of time formula:

(HM = HN)$\sqrt{T_M/T_N}$)

where:

(1) T_M is the relevant liquidation period;

(2) H_M is the volatility adjustment under T_M ; and

(3) H_N is the volatility adjustment based on the liquidation period T_N.

[**Note:** *BCD* Annex VIII Part 3 point 49]

5.4.53 R A *firm* must take into account the illiquidity of lower-quality assets. The liquidation period must be adjusted upwards in cases where there is doubt concerning the liquidity of the collateral. A *firm* must also identify where historical data may understate potential volatility, e.g. a pegged currency. Such cases must be dealt with by means of stress scenario assessments.

[**Note:** *BCD* Annex VIII Part 3 point 50]

5.4.54 R The historical observation period (sample period) for calculating volatility adjustments must be a minimum length of one year. For a *firm* that uses 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 must not be less than 6 months).

[**Note:** *BCD* Annex VIII Part 3 point 51]

5.4.55 G The *appropriate regulator* may also require a *firm* to calculate its volatility adjustments using a shorter observation period if, in the *appropriate regulator's* judgement, this is justified by a significant upsurge in price volatility.

5.4.56 R A *firm* must update its data sets at least once every three months and must also reassess them whenever market prices are subject to material changes. This implies that volatility adjustments must be computed at least every three months.

[**Note:** *BCD* Annex VIII Part 3 point 52]

The financial collateral comprehensive method: Own estimates of volatility adjustments approach: Qualitative Criteria

5.4.57 R The volatility estimates must be used in the day-to-day risk management process of a *firm* including in relation to its internal *exposure* limits.

[**Note:** *BCD* Annex VIII Part 3 point 53]

5.4.58 R If the liquidation period used by a *firm* in its day-to-day risk management process is longer than that set out in BIPRU 5.4 for the type of transaction in question, the *firm's* volatility adjustments must be scaled up in accordance with the square root of time formula set out in BIPRU 5.4.52 R.

[**Note:** BCD Annex VIII Part 3 point 54]

5.4.59 R A *firm* must have established procedures for monitoring and ensuring compliance with a documented set of policies and controls for the operation of its system for the estimation of volatility adjustments and for the integration of such estimations into its risk management process.

[**Note:** *BCD* Annex VIII Part 3 point 55]

5.4.60 R An independent review of a *firm's* system for the estimation of volatility adjustments must be carried out regularly in the *firm*'s own internal auditing process. A review of the overall system for the estimation of volatility adjustments and for integration of those adjustments into the *firm's* risk management process must take place at least once a year and must specifically address, at a minimum:

(1) the integration of estimated volatility adjustments into daily risk management;

(2) the validation of any significant change in the process for the estimation of volatility adjustments;

(3) the verification of the consistency, timeliness and reliability of data sources used to run the system for the estimation of volatility adjustments, including the independence of such data sources; and

(4) the accuracy and appropriateness of the volatility assumptions.

[**Note:** *BCD* Annex VIII Part 3 point 56]

The financial collateral comprehensive method: Scaling up of volatility adjustments

5.4.61 R The volatility adjustments set out in BIPRU 5.4.34 R to BIPRU 5.4.43 R are the volatility adjustments to be applied where there is daily revaluation. Similarly, where a *firm* uses its own estimates of the volatility adjustments in accordance with BIPRU 5.4.45 R to BIPRU 5.4.60 R, these must be calculated in the first instance on the basis of daily revaluation. If the frequency of revaluation is less than daily, larger volatility adjustments must be applied. These must be calculated by scaling up the daily revaluation volatility adjustments, using the following 'square root of time' formula:

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

where:

(1) H is the volatility adjustment to be applied;

(2) H_M is the volatility adjustment where there is daily revaluation;

(3) N_R is the actual number of business days between revaluations; and

(4) T_M is the liquidation period for the type of transaction in question.

[**Note:** *BCD* Annex VIII Part 3 point 57]

The financial collateral comprehensive method: Conditions for applying a 0% volatility adjustment

5.4.62 R In relation to *repurchase transaction* and *securities lending or borrowing transactions*, where a *firm* uses the *supervisory volatility adjustments approach* or the *own estimates of volatility adjustments approach* and where the conditions set out in (1) – (8) are satisfied, a *firm* may, instead of applying the volatility adjustments calculated under BIPRU 5.4.30 R to BIPRU 5.4.61 R, apply a 0% volatility adjustment:

(1) both the *exposure* and the collateral are cash or *debt securities* issued by central governments or *central banks* within the meaning of BIPRU 5.4.2 R (2) and eligible for a 0% *risk weight* under the *standardised approach*;

(2) both the *exposure* and the collateral are denominated in the same currency;

(3) either the maturity of the transaction is no more than one day or both the *exposure* and the collateral are subject to daily marking-to-market or daily remargining;

(4) it is considered that the time between the last marking-to-market before a failure to remargin by the counterparty and the liquidation of the collateral is 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 *repurchase transactions* or securities lending or borrowing 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; and

(8) the counterparty is a *core market participant*.

[**Note:** *BCD* Annex VIII Part 3 point 58 (part)]

5.4.63 R The option in BIPRU 5.4.62 R is not available in respect of a *firm* using the *master netting agreement internal models approach*.

[**Note:** *BCD* Annex VIII Part 3 point 58 (part)]

5.4.64 R *Core market participant* means the following entities:

(1) the entities mentioned in BIPRU 5.4.2 R (2) *exposures* to which are assigned a 0% *risk weight* under the *standardised approach* to credit risk;

(2) institutions;

(3) other financial companies (including insurance companies) *exposures* which are assigned a 20% *risk weight* under the *standardised approach*;

(4) regulated *CIUs* that are subject to capital or leverage requirements;

(5) regulated pension funds; and

(6) a *recognised clearing house* or *designated clearing house*.

[**Note:** *BCD* Annex VIII Part 3 point 58 (part)]

5.4.65 R [deleted]

Financial collateral comprehensive method: Calculating risk-weighted exposure amounts

5.4.66 R Under the *standardised approach* E^* as calculated under BIPRU 5.4.28 R must be taken as the *exposure* value for the purposes of BIPRU 3.2.20 R to BIPRU 3.2.26 R. In the case of off-balance sheet items listed in BIPRU 3.7, E^* must be taken as the value to which the percentages indicated in BIPRU 3.2.1 R and BIPRU 3.7.2 R must be applied to arrive at the *exposure* value.

[**Note:** *BCD* Annex VIII Part 3 point 60]