Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012 (Text with EEA relevance)

[X1PART THREE

CAPITAL REQUIREMENTS

[X1TITLE IV

OWN FUNDS REQUIREMENTS FOR MARKET RISK

[F1CHAPTER 1

General provisions

Article 325

Approaches for calculating the own funds requirements for market risk

1 An institution shall calculate the own funds requirements for market risk of all trading book positions and non-trading book positions that are subject to foreign exchange risk or commodity risk in accordance with the following approaches:

a the standardised approach referred to in paragraph 2;

b the internal model approach set out in Chapter 5 of this Title for those risk categories for which the institution has been granted permission in accordance with Article 363 to use that approach.

2 The own funds requirements for market risk calculated in accordance with the standardised approach referred to in point (a) of paragraph 1 shall mean the sum of the following own funds requirements, as applicable:

a the own funds requirements for position risk referred to in Chapter 2;

b the own funds requirements for foreign exchange risk referred to in Chapter 3;

c the own funds requirements for commodity risk referred to in Chapter 4.

3 An institution that is not exempted from the reporting requirements set out in Article 430b in accordance with Article 325a shall report the calculation in accordance with Article 430b for all trading book positions and non-trading book positions that are subject to foreign exchange risk or commodity risk in accordance with the following approaches:

a the alternative standardised approach set out in Chapter 1a;

b the alternative internal model approach set out in Chapter 1b.

4 An institution may use in combination the approaches set out in points (a) and (b) of paragraph 1 of this Article on a permanent basis within a group in accordance with Article 363.

5 Institutions shall not use the approach set out in point (b) of paragraph 3 for instruments in their trading book that are securitisation positions or positions included in the alternative correlation trading portfolio (ACTP) as set out in paragraphs 6, 7 and 8.

6 Securitisation positions and nth-to-default credit derivatives that meet all the following criteria shall be included in the ACTP:

a the positions are neither re-securitisation positions, nor options on a securitisation tranche, nor any other derivatives of securitisation exposures that do not provide a pro-rata share in the proceeds of a securitisation tranche;

b all their underlying instruments are:

(i) single-name instruments, including single-name credit derivatives, for which a liquid two-way market exists;

(ii) commonly-traded indices based on the instruments referred to in point (i).

A two-way market is considered to exist where there are independent bona fide offers to buy and sell, so that a price that is reasonably related to the last sales price or current bona fide competitive bid and offer quotations can be determined within one day and settled at that price within a relatively short time conforming to trade custom.

7 Positions with any of the following underlying instruments shall not be included in the ACTP:

a underlying instruments that are assigned to the exposure classes referred to in point (h) or (i) of Article 112;

b a claim on a special purpose entity, collateralised, directly or indirectly, by a position that, in accordance with paragraph 6, would itself not be eligible for inclusion in the ACTP.

8 Institutions may include in the ACTP positions that are neither securitisation positions nor nth-to-default credit derivatives but that hedge other positions in that portfolio, provided that a liquid two-way market as described in the second subparagraph of paragraph 6 exists for the instrument or its underlying instruments.

9 EBA shall develop draft regulatory technical standards to specify how institutions are to calculate the own funds requirements for market risk for non-trading book positions that are subject to foreign exchange risk or commodity risk in accordance with the approaches set out in points (a) and (b) of paragraph 3.

EBA shall submit those draft regulatory technical standards to the Commission by 28 September 2020.

Power is delegated to the Commission to supplement this Regulation by adopting the regulatory technical standards referred to in the first subparagraph in accordance with Articles 10 to 14 of Regulation (EU) No 1093/2010.

Article 325a

Exemptions from specific reporting requirements for market risk

1 An institution shall be exempted from the reporting requirement set out in Article 430b, provided that the size of the institution's on- and off-balance-sheet business that is subject to market risk is equal to or less than each of the following thresholds, on the basis of an assessment carried out on a monthly basis using data as of the last day of the month:

a 10 % of the institution's total assets;

b EUR 500 million.

2 Institutions shall calculate the size of their on- and off-balance-sheet business that is subject to market risk using data as of the last day of each month in accordance with the following requirements:

a all the positions assigned to the trading book shall be included, except credit derivatives that are recognised as internal hedges against non-trading book credit risk exposures and the credit derivative transactions that perfectly offset the market risk of the internal hedges as referred to in Article 106(3);

b all non-trading book positions that are subject to foreign exchange risk or commodity risk shall be included;

c all positions shall be valued at their market values on that date, except for positions referred to in point (b); where the market value of a position is not available on a given date, institutions shall take a fair value for the position on that date; where the fair value and market value of a position are not available on a given date, institutions shall take the most recent market value or fair value for that position;

d all non-trading book positions that are subject to foreign exchange risk shall be considered as an overall net foreign exchange position and valued in accordance with Article 352;

e all the non-trading book positions that are subject to commodity risk shall be valued in accordance with Articles 357 and 358;

f the absolute value of long positions shall be added to the absolute value of short positions.

3 Institutions shall notify the competent authorities when they calculate, or cease to calculate, their own funds requirements for market risk in accordance with this Article.

4 An institution that no longer meets one or more of the conditions set out in paragraph 1 shall immediately notify the competent authority thereof.

5 The exemption from the reporting requirements laid down in Article 430b shall cease to apply within three months of either of the following cases:

a the institution does not meet the condition set out in point (a) or (b) of paragraph 1 for three consecutive months; or

b the institution does not meet the condition set out in point (a) or (b) of paragraph 1 during more than 6 out of the last 12 months.

6 Where an institution has become subject to the reporting requirements laid down in Article 430b in accordance with paragraph 5 of this Article, the institution shall only be exempted from those reporting requirements where it demonstrates to the competent authority that all the conditions set out in paragraph 1 of this Article have been met for an uninterrupted full-year period.

7 Institutions shall not enter into, buy or sell a position only for the purpose of complying with any of the conditions set out in paragraph 1 during the monthly assessment.

8 An institution that is eligible for the treatment set out in Article 94 shall be exempted from the reporting requirement set out in Article 430b.

Article 325b

Permission for consolidated requirements

1 Subject to paragraph 2, and only for the purpose of calculating net positions and own funds requirements in accordance with this Title on a consolidated basis, institutions

may use positions in one institution or undertaking to offset positions in another institution or undertaking.

2 Institutions may apply paragraph 1 only with the permission of the competent authorities which shall be granted if all the following conditions are met:

a there is a satisfactory allocation of own funds within the group;

b the regulatory, legal or contractual framework in which the institutions operate guarantees mutual financial support within the group.

3 Where there are undertakings located in third countries, all the following conditions shall be met in addition to those set out in paragraph 2:

a such undertakings have been authorised in a third country and either satisfy the definition of a credit institution or are recognised third-country investment firms;

b on an individual basis, such undertakings comply with own funds requirements equivalent to those laid down in this Regulation;

c no regulations exist in the third countries in question which might significantly affect the transfer of funds within the group.**]**

Textual Amendments

F1 Substituted by Regulation (EU) 2019/876 of the European Parliament and of the Council of 20 May 2019 amending Regulation (EU) No 575/2013 as regards the leverage ratio, the net stable funding ratio, requirements for own funds and eligible liabilities, counterparty credit risk, market risk, exposures to central counterparties, exposures to collective investment undertakings, large exposures, reporting and disclosure requirements, and Regulation (EU) No 648/2012 (Text with EEA relevance).

[F2 CHAPTER 1a

Alternative standardised approach

Section 1

General provisions

Article 325c

Scope and structure of the alternative standardised approach

1 The alternative standardised approach as set out in this Chapter shall be used only for the purposes of the reporting requirement laid down in Article 430b(1).

2 Institutions shall calculate the own funds requirements for market risk in accordance with the alternative standardised approach for a portfolio of trading book positions or non-trading book positions that are subject to foreign exchange or commodity risk as the sum of the following three components:

a the own funds requirement under the sensitivities-based method set out in Section 2;

b the own funds requirement for the default risk set out in Section 5 which is only applicable to the trading book positions referred to in that Section;

c the own funds requirement for residual risks set out in Section 4 which is only applicable to the trading book positions referred to in that Section.

Section 2

Sensitivities-based method for calculating the own funds requirement

Article 325d

Definitions

For the purposes of this Chapter, the following definitions apply:

(1) 'risk class' means one of the following seven categories:

(i) general interest rate risk;

(ii) credit spread risk (CSR) for non-securitisation;

(iii) credit spread risk for securitisation not included in the alternative correlation trading portfolio (non-ACTP CSR);

(iv) credit spread risk for securitisation included in the alternative correlation trading portfolio (ACTP CSR);

(v) equity risk;

(vi) commodity risk;

(vii) foreign exchange risk;

(2) 'sensitivity' means the relative change in the value of a position, as a result of a change in the value of one of the relevant risk factors of the position, calculated with the institution's pricing model in accordance with Subsection 2 of Section 3;

(3) 'bucket' means a sub-category of positions within one risk class with a similar risk profile to which a risk weight as defined in Subsection 1 of Section 3 is assigned.

Article 325e

Components of the sensitivities-based method

1 Institutions shall calculate the own funds requirement for market risk under the sensitivities-based method by aggregating the following three own funds requirements in accordance with Article 325h:

a own funds requirements for delta risk which capture the risk of changes in the value of an instrument due to movements in its non-volatility related risk factors;

b own funds requirements for vega risk which capture the risk of changes in the value of an instrument due to movements in its volatility-related risk factors;

c own funds requirements for curvature risk which capture the risk of changes in the value of an instrument due to movements in the main non-volatility related risk factors not captured by the own funds requirements for delta risk.

2 For the purpose of the calculation referred to in paragraph 1,

a all the positions of instruments with optionality shall be subject to the own funds requirements referred to in points (a), (b) and (c) of paragraph 1;

b all the positions of instruments without optionality shall only be subject to the own funds requirements referred to in point (a) of paragraph 1.

For the purposes of this Chapter, instruments with optionality include, among others: calls, puts, caps, floors, swap options, barrier options and exotic options. Embedded options, such as prepayment or behavioural options, shall be considered to be stand-alone positions in options for the purpose of calculating the own funds requirements for market risk.

For the purposes of this Chapter, instruments whose cash flows can be written as a linear function of the underlying's notional amount shall be considered to be instruments without optionality.

Article 325f

Own funds requirements for delta and vega risks

1 Institutions shall apply the delta and vega risk factors described in Subsection 1 of Section 3 to calculate the own funds requirements for delta and vega risks.

2 Institutions shall apply the process set out in paragraphs 3 to 8 to calculate own funds requirements for delta and vega risks.

3 For each risk class, the sensitivity of all instruments in scope of the own funds requirements for delta or vega risks to each of the applicable delta or vega risk factors included in that risk class shall be calculated by using the corresponding formulas in Subsection 2 of Section 3. If the value of an instrument depends on several risk factors, the sensitivity shall be determined separately for each risk factor.

4 Sensitivities shall be assigned to one of the buckets ‘b’ within each risk class.

5 Within each bucket ‘b’, the positive and negative sensitivities to the same risk factor shall be netted, giving rise to net sensitivities (s_k) to each risk factor k within a bucket.

6 The net sensitivities to each risk factor within each bucket shall be multiplied by the corresponding risk weights set out in Section 6, giving rise to weighted sensitivities to each risk factor within that bucket in accordance with the following formula:

$$WS_k = RW_k \cdot s_k$$

where:

WS_k	=	the weighted sensitivities;
RW_k	=	the risk weights; and
s_k	=	the risk factor.

7 The weighted sensitivities to the different risk factors within each bucket shall be aggregated in accordance with the formula below, where the quantity within the square root function is floored at zero, giving rise to the bucket-specific sensitivity. The corresponding correlations for weighted sensitivities within the same bucket (ρ_{kl}), set out in Section 6, shall be used.

$$K_b = \sqrt{\sum_k \mathrm{WS}_2^k + \sum_k \sum_{k \neq l} \rho_{kl} \mathrm{WS}_k \mathrm{WS}_l}$$

where:

K_b	=	the bucket-specific sensitivity; and
WS	=	the weighted sensitivities.

8 The bucket-specific sensitivity shall be calculated for each bucket within a risk class in accordance with paragraphs 5, 6 and 7. Once the bucket-specific sensitivity has been calculated for all buckets, weighted sensitivities to all risk factors across buckets shall be aggregated in accordance with the formula below, using the corresponding correlations γbc for weighted sensitivities in different buckets set out in Section 6, giving rise to the risk-class specific own funds requirement for delta or vega risk:

$$\text{Risk} - \text{class specific own funds requirement for delta or vega risk} = \sqrt{\sum_b K_2^b + \sum_b \sum_{c \neq b} \gamma_{bc} S_b S_c}$$

where:

S_b	=	Σ_k WS_k for all risk factors in bucket b and $S_c = \Sigma_k$ WS_k in bucket c; where those values for S_b and S_c produce a negative number for the overall sum of $\sum_b K_2^b + \sum_b \sum_{c \neq b} \gamma_{bc} S_b S_c$, the institution shall calculate the risk-class specific own funds requirements for delta or vega risk using an alternative specification whereby
S_b	=	max [min (Σ_k WS_k, K_b), – K_b] for all risk factors in bucket b and
S_c	=	max [min (Σ_k WS_k, K_c), – K_c] for all risk factors in bucket c.

The risk-class specific own funds requirements for delta or vega risk shall be calculated for each risk class in accordance with paragraphs 1 to 8.

Article 325g

Own funds requirements for curvature risk

Institutions shall calculate the own funds requirements for curvature risk in accordance with the delegated act referred to in Article 461a.

Article 325h

Aggregation of risk-class specific own funds requirements for delta, vega and curvature risks

1 Institutions shall aggregate risk-class specific own funds requirements for delta, vega and curvature risks in accordance with the process set out in paragraphs 2, 3 and 4.

2 The process to calculate the risk-class specific own funds requirements for delta, vega and curvature risks described in Articles 325f and 325g shall be performed three times per risk class, each time using a different set of correlation parameters ρ_{kl} (correlation between risk factors within a bucket) and γ_{bc} (correlation between buckets within a risk class). Each of those three sets shall correspond to a different scenario, as follows:

a the medium correlations scenario, whereby the correlation parameters ρ_{kl} and γ_{bc} remain unchanged from those specified in Section 6;

b the high correlations scenario, whereby the correlation parameters ρ_{kl} and γ_{bc} that are specified in Section 6 shall be uniformly multiplied by 1,25, with ρ_{kl} and γ_{bc} subject to a cap at 100 %;

c the low correlations scenario shall be specified in the delegated act referred to in Article 461a.

3 Institutions shall calculate the sum of the delta, vega and curvature risk-class specific own funds requirements for each scenario to determine three scenario-specific, own funds requirements.

4 The own funds requirement under the sensitivities-based method shall be the highest of the three scenario-specific own funds requirements referred to in paragraph 3.

Article 325i

Treatment of index instruments and multi-underlying options

Institutions shall treat the index instruments and multi-underlying options in accordance with the delegated act referred to in Article 461a.

Article 325j

Treatment of collective investment undertakings

Institutions shall treat the collective investment undertakings in accordance with the delegated act referred to in Article 461a.

Article 325k

Underwriting positions

1 Institutions may use the process set out in this Article for calculating the own funds requirements for market risk of underwriting positions of debt or equity instruments.

2 Institutions shall apply one of the appropriate multiplying factors listed in Table 1 to the net sensitivities of all the underwriting positions in each individual issuer, excluding the underwriting positions which are subscribed or sub-underwritten by third parties on the basis of formal agreements, and calculate the own funds requirements for market risk in accordance with the approach set out in this Chapter on the basis of the adjusted net sensitivities.

TABLE 1

Business day 0	0 %
Business day 1	10 %
Business days 2 and 3	25 %
Business day 4	50 %
Business day 5	75 %
After business day 5	100 %

For the purposes of this Article, 'business day 0' means the business day on which the institution becomes unconditionally committed to accepting a known quantity of securities at an agreed price.

3 Institutions shall notify the competent authorities of the application of the process set out in this Article.

Section 3

Risk factor and sensitivity definitions

Subsection 1

Risk factor definitions

Article 325l

General interest rate risk factors

1 For all general interest rate risk factors, including inflation risk and cross-currency basis risk, there shall be one bucket per currency, each containing different types of risk factor.

The delta general interest rate risk factors applicable to interest rate-sensitive instruments shall be the relevant risk-free rates per currency and per each of the following maturities: 0,25 years, 0,5 years, 1 year, 2 years, 3 years, 5 years, 10 years, 15 years, 20 years, 30 years. Institutions shall assign risk factors to the specified vertices by linear interpolation or by using a method that is most consistent with the pricing functions used by the independent risk control function of the institution to report market risk or profits and losses to senior management.

2 Institutions shall obtain the risk-free rates per currency from money market instruments held in the trading book of the institution that have the lowest credit risk, such as overnight index swaps.

3 Where institutions cannot apply the approach referred to in paragraph 2, the risk-free rates shall be based on one or more market-implied swap curves used by the institution to mark positions to market, such as the interbank offered rate swap curves.

Where the data on market-implied swap curves described in paragraph 2 and the first subparagraph of this paragraph are insufficient, the risk-free rates may be derived from the most appropriate sovereign bond curve for a given currency.

Where institutions use the general interest rate risk factors derived in accordance with the procedure set out in the second subparagraph of this paragraph for sovereign debt instruments, the sovereign debt instrument shall not be exempted from the own funds requirements for credit spread risk. In those cases, where it is not possible to disentangle the risk-free rate from the credit spread component, the sensitivity to the risk factor shall be allocated both to the general interest rate risk and to credit spread risk classes.

4 In the case of general interest rate risk factors, each currency shall constitute a separate bucket. Institutions shall assign risk factors within the same bucket, but with different maturities, a different risk weight, in accordance with Section 6.

Institutions shall apply additional risk factors for inflation risk to debt instruments whose cash flows are functionally dependent on inflation rates. Those additional risk factors shall consist of one vector of market-implied inflation rates of different maturities per currency. For each instrument, the vector shall contain as many components as there are inflation rates used as variables by the institution's pricing model for that instrument.

5 Institutions shall calculate the sensitivity of the instrument to the additional risk factor for inflation risk referred to in paragraph 4 as the change in the value of the instrument, according to its pricing model, as a result of a 1 basis point shift in each of the components of the vector. Each currency shall constitute a separate bucket. Within each bucket, institutions shall treat inflation as a single risk factor, regardless of the number of components of each vector. Institutions shall offset all sensitivities to inflation within a bucket, calculated as described in this paragraph, in order to give rise to a single net sensitivity per bucket.

6 Debt instruments that involve payments in different currencies shall also be subject to cross-currency basis risk between those currencies. For the purposes of the sensitivities-based method, the risk factors to be applied by institutions shall be the cross-currency basis risk of each currency over either US dollar or euro. Institutions shall compute cross currency bases that do not relate to either basis over US dollar or basis over euro either on ‘basis over US dollar’ or ‘basis over euro’.

Each cross-currency basis risk factor shall consist of one vector of cross-currency basis of different maturities per currency. For each debt instrument, the vector shall contain as many components as there are cross-currency bases used as variables by the institution's pricing model for that instrument. Each currency shall constitute a different bucket.

Institutions shall calculate the sensitivity of the instrument to the cross-currency basis risk factor as the change in the value of the instrument, according to its pricing model, as a result of a 1 basis point shift in each of the components of the vector. Each currency shall constitute a separate bucket. Within each bucket there shall be two possible distinct risk factors: basis over euro and basis over US dollar, regardless of the number of components there are in each cross-currency basis vector. The maximum number of net sensitivities per bucket shall be two.

7 The vega general interest rate risk factors applicable to options with underlyings that are sensitive to general interest rate shall be the implied volatilities of the relevant risk-free rates as described in paragraphs 2 and 3, which shall be assigned to buckets depending on the currency and mapped to the following maturities within each bucket: 0,5 years, 1 year, 3 years, 5 years, 10 years. There shall be one bucket per currency.

For netting purposes, institutions shall consider implied volatilities linked to the same risk-free rates and mapped to the same maturities to constitute the same risk factor.

Where institutions map implied volatilities to the maturities as referred to in this paragraph, the following requirements shall apply:

a where the maturity of the option is aligned with the maturity of the underlying, a single risk factor shall be considered, which shall be mapped to that maturity;

b where the maturity of the option is shorter than the maturity of the underlying, the following risk factors shall be considered as follows:

(i) the first risk factor shall be mapped to the maturity of the option;

(ii) the second risk factor shall be mapped to the residual maturity of the underlying of the option at the expiry date of the option.

8 The curvature general interest rate risk factors to be applied by institutions shall consist of one vector of risk-free rates, representing a specific risk-free yield curve, per currency. Each currency shall constitute a different bucket. For each instrument, the vector shall contain as many components as there are different maturities of risk-free rates used as variables by the institution's pricing model for that instrument.

9 Institutions shall calculate the sensitivity of the instrument to each risk factor used in the curvature risk formula in accordance with Article 325g. For the purposes of the curvature risk, institutions shall consider vectors corresponding to different yield curves and with a different number of components as the same risk factor, provided that those vectors correspond to the same currency. Institutions shall offset sensitivities to the same risk factor. There shall be only one net sensitivity per bucket.

There shall be no curvature risk own funds requirements for inflation and cross currency basis risks.

Article 325m

Credit spread risk factors for non-securitisation

1 The delta credit spread risk factors to be applied by institutions to non-securitisation instruments that are sensitive to credit spread shall be the issuer credit spread rates of those instruments, inferred from the relevant debt instruments and credit default swaps, and mapped to each of the following maturities: 0,5 years, 1 year, 3 years, 5 years, 10 years. Institutions shall apply one risk factor per issuer and maturity, regardless of whether those issuer credit spread rates are inferred from debt instruments or credit default swaps. The buckets shall be sector buckets, as referred to in Section 6, and each bucket shall include all the risk factors allocated to the relevant sector.

2 The vega credit spread risk factors to be applied by institutions to options with non-securitisation underlyings that are sensitive to credit spread shall be the implied volatilities of the underlying's issuer credit spread rates inferred as laid down in paragraph 1, which shall be mapped to the following maturities in accordance with the maturity of the option subject to own funds requirements: 0,5 years, 1 year, 3 years, 5 years, 10 years. The same buckets shall be used as the buckets that were used for the delta credit spread risk for non-securitisation.

3 The curvature credit spread risk factors to be applied by institutions to non-securitisation instruments shall consist of one vector of credit spread rates, representing a credit spread curve specific to the issuer. For each instrument, the vector shall contain as many components as there are different maturities of credit spread rates used as variables in the institution's pricing model for that instrument. The same buckets shall be used as the buckets that were used for the delta credit spread risk for non-securitisation.

4 Institutions shall calculate the sensitivity of the instrument to each risk factor used in the curvature risk formula in accordance with Article 325g. For the purposes of the curvature risk, institutions shall consider vectors inferred from either relevant debt instruments or credit default swaps and with a different number of components as the same risk factor, provided that those vectors correspond to the same issuer.

Article 325n

Credit spread risk factors for securitisation

1 Institutions shall apply the credit spread risk factors referred to in paragraph 3 to securitisation positions that are included in the ACTP, as referred to in Article 325(6), (7) and (8),

Institutions shall apply the credit spread risk factors referred to in paragraph 5 to securitisation positions that are not included in the ACTP, as referred to in Article 325(6), (7) and (8).

2 The buckets applicable to the credit spread risk for securitisations that are included in the ACTP shall be the same as the buckets applicable to the credit spread risk for non-securitisations, as referred to in Section 6.

The buckets applicable to the credit spread risk for securitisations that are not included in the ACTP shall be specific to that risk-class category, as referred to in Section 6.

3 The credit spread risk factors to be applied by institutions to securitisation positions that are included in the ACTP are the following:

a the delta risk factors shall be all the relevant credit spread rates of the issuers of the underlying exposures of the securitisation position, inferred from the relevant debt instruments and credit default swaps, and for each of the following maturities: 0,5 years, 1 year, 3 years, 5 years, 10 years.

b the vega risk factors applicable to options with securitisation positions that are included in the ACTP as underlyings shall be the implied volatilities of the credit spreads of the issuers of the underlying exposures of the securitisation position, inferred as described in point (a) of this paragraph, which shall be mapped to the following maturities in accordance with the maturity of the corresponding option subject to own funds requirements: 0,5 years, 1 year, 3 years, 5 years, 10 years.

c the curvature risk factors shall be the relevant credit spread yield curves of the issuers of the underlying exposures of the securitisation position expressed as a vector of credit spread rates for different maturities, inferred as indicated in point (a) of this paragraph; for each instrument, the vector shall contain as many components as there are different maturities of credit spread rates that are used as variables by the institution's pricing model for that instrument.

4 Institutions shall calculate the sensitivity of the securitisation position to each risk factor used in the curvature risk formula as specified in Article 325g. For the purposes of the curvature risk, institutions shall consider vectors inferred either from relevant debt instruments or credit default swaps and with a different number of components as the same risk factor, provided that those vectors correspond to the same issuer.

5 The credit spread risk factors to be applied by institutions to securitisation positions that are not included in the ACTP shall refer to the spread of the tranche rather than the spread of the underlying instruments and shall be the following:

a the delta risk factors shall be the relevant tranche credit spread rates, mapped to the following maturities, in accordance with the maturity of the tranche: 0,5 years, 1 year, 3 years, 5 years, 10 years;

b the vega risk factors applicable to options with securitisation positions that are not included in the ACTP as underlyings shall be the implied volatilities of the credit

spreads of the tranches, each of them mapped to the following maturities in accordance with the maturity of the option subject to own funds requirements: 0,5 years, 1 year, 3 years, 5 years, 10 years;

c the curvature risk factors shall be the same as those described in point (a) of this paragraph; to all those risk factors, a common risk weight shall be applied, as referred to in Section 6.

Article 325o

Equity risk factors

1 The buckets for all equity risk factors shall be the sector buckets referred to in Section 6.

2 The equity delta risk factors to be applied by institutions shall be all the equity spot prices and all equity repo rates.

For the purposes of equity risk, a specific equity repo curve shall constitute a single risk factor, which is expressed as a vector of repo rates for different maturities. For each instrument, the vector shall contain as many components as there are different maturities of repo rates that are used as variables by the institution's pricing model for that instrument.

Institutions shall calculate the sensitivity of an instrument to an equity risk factor as the change in the value of the instrument, according to its pricing model, as a result of a 1 basis point shift in each of the components of the vector. Institutions shall offset sensitivities to the repo rate risk factor of the same equity security, regardless of the number of components of each vector.

3 The equity vega risk factors to be applied by institutions to options with underlyings that are sensitive to equity shall be the implied volatilities of equity spot prices which shall be mapped to the following maturities in accordance with the maturities of the corresponding options subject to own funds requirements: 0,5 years, 1 year, 3 years, 5 years, 10 years. There shall be no own funds requirements for vega risk for equity repo rates.

4 The equity curvature risk factors to be applied by institutions to options with underlyings that are sensitive to equity are all the equity spot prices, regardless of the maturity of the corresponding options. There shall be no curvature risk own funds requirements for equity repo rates.

Article 325p

Commodity risk factors

1 The buckets for all commodity risk factors shall be the sector buckets referred to in Section 6.

2 The commodity delta risk factors to be applied by institutions to commodity sensitive instruments shall be all the commodity spot prices per commodity type and per each of the following maturities: 0,25 years, 0,5 years, 1 year, 2 years, 3 years, 5 years, 10 years, 15 years, 20 years, 30 years. Institutions shall only consider two commodity prices of the same type of commodity, and with the same maturity to constitute the same risk factor where the set of legal terms regarding the delivery location are identical.

3 The commodity vega risk factors to be applied by institutions to options with underlyings that are sensitive to commodity shall be the implied volatilities of commodity prices per commodity type, which shall be mapped to the following maturities in accordance with the maturities of the corresponding options subject to own funds requirements: 0,5 years, 1 year, 3 years, 5 years, 10 years. Institutions shall consider sensitivities to the same commodity type and allocated to the same maturity to be a single risk factor which institutions shall then offset.

4 The commodity curvature risk factors to be applied by institutions to options with underlyings that are sensitive to commodity shall be one set of commodity prices with different maturities per commodity type, expressed as a vector. For each instrument, the vector shall contain as many components as there are prices of that commodity that are used as variables by the institution's pricing model for that instrument. Institutions shall not differentiate between commodity prices by delivery location.

The sensitivity of the instrument to each risk factor used in the curvature risk formula shall be calculated as specified in Article 325g. For the purposes of curvature risk, institutions shall consider vectors having a different number of components to constitute the same risk factor, provided that those vectors correspond to the same commodity type.

Article 325q

Foreign exchange risk factors

1 The foreign exchange delta risk factors to be applied by institutions to foreign exchange sensitive instruments shall be all the spot exchange rates between the currency in which an instrument is denominated and the institution's reporting currency. There shall be one bucket per currency pair, containing a single risk factor and a single net sensitivity.

2 The foreign exchange vega risk factors to be applied by institutions to options with underlyings that are sensitive to foreign exchange shall be the implied volatilities of exchange rates between the currency pairs referred to in paragraph 1. Those implied volatilities of exchange rates shall be mapped to the following maturities in accordance with the maturities of the corresponding options subject to own funds requirements: 0,5 years, 1 year, 3 years, 5 years, 10 years.

3 The foreign exchange curvature risk factors to be applied by institutions to options with underlyings that are sensitive to foreign exchange shall be the same as those referred to in paragraph 1.

4 Institutions shall not be required to distinguish between onshore and offshore variants of a currency for all foreign exchange delta, vega and curvature risk factors.

Subsection 2

Sensitivity definitions

Article 325r

Delta risk sensitivities

1 Institutions shall calculate delta general interest rate risk (GIRR) sensitivities as follows:

a the sensitivities to risk factors consisting of risk-free rates shall be calculated as follows:

$$S_{r_{kt}} = \frac{V_i(r_{kt}+0{,}0001,\ x,\ y\ \ldots) - V_i(r_{kt},\ x,\ y\ \ldots)}{0{,}0001}$$

where:

$S_{r_{kt}}$	=	the sensitivities to risk factors consisting of risk-free rates;
r_{kt}	=	the rate of a risk-free curve k with maturity t;
V_i (.)	=	the pricing function of instrument i; and
x,y	=	risk factors other than r_{kt} in the pricing function V_i;

b the sensitivities to risk factors consisting of inflation risk and cross-currency basis shall be calculated as follows:

$$S_{x_j} = \frac{V_i\left(\bar{x}_{jt}+0{,}0001\bar{I}_m,\ y,\ z\ \ldots\right) - V_i\left(\bar{x}_{jt},\ y,\ z\ \ldots\right)}{0{,}0001}$$

where:

S_{x_j}	=	the sensitivities to risk factors consisting of inflation risk and cross-currency basis;
$\bar{x}_{jt}$	=	a vector of m components representing the implied inflation curve or the cross-currency basis curve for a given currency j with m being equal to the number of inflation or cross-currency related variables used in the pricing model of instrument i;
$\bar{I}_m$	=	the unity matrix of dimension (1 × m);
V_i (.)	=	the pricing function of the instrument i; and
y, z	=	other variables in the pricing model.

2 Institutions shall calculate the delta credit spread risk sensitivities for all securitisation and non-securitisation positions as follows:

$$S_{CS_{kt}} = \frac{V_i(CS_{kt}+0{,}0001,\ x,\ y\ \ldots) - V_i(CS_{kt},\ x,\ y\ \ldots)}{0{,}0001}$$

where:

$S_{CS_{kt}}$	=	the delta credit spread risk sensitivities for all securitisation and non-securitisation positions;
cs_{kt}	=	the value of the credit spread rate of an issuer j at maturity t;
V_i (.)	=	the pricing function of instrument i; and
x,y	=	risk factors other than cs_{kt} in the pricing function V_i.

3 Institutions shall calculate delta equity risk sensitivities as follows:

a the sensitivities to risk factors consisting of equity spot prices shall be calculated as follows:

$$S_k = \frac{V_i(1{,}01\ EQ_k,\ x,\ y,\ \ldots) - V_i(EQ_k,\ x,\ y,\ \ldots)}{0{,}01}$$

where:

s_k = the sensitivities to risk factors consisting of equity spot prices;
k = a specific equity security;
EQ_k = the value of the spot price of that equity security;
V_i (.) = the pricing function of instrument i; and
x,y = risk factors other than EQ_k in the pricing function V_i;

b the sensitivities to risk factors consisting of equity repo rates shall be calculated as follows:

$$S_{\bar{x}_k} = \frac{V_i\left(\bar{x}_{ki} + 0{,}0001\bar{I}_m, y, z \ldots\right) - V_i\left(\bar{x}_{ji}, y, z \ldots\right)}{0{,}0001}$$

where:

$S_{\bar{x}_k}$ = the sensitivities to risk factors consisting of equity repo rates;
k = the index that denotes the equity;
$\bar{x}_{ki}$ = a vector of m components representing the repo term structure for a specific equity k with m being equal to the number of repo rates corresponding to different maturities used in the pricing model of instrument i;
$\bar{I}_m$ = the unity matrix of dimension (1 · m);
V_i (.) = the pricing function of the instrument i; and
y,z = risk factors other than $\bar{x}_{ki}$ in the pricing function V_i.

4 Institutions shall calculate the delta commodity risk sensitivities to each risk factor k as follows:

$$S_k = \frac{V_i(1{,}01\ \mathrm{CTY}_k, \gamma, z \ldots) - V_i(\mathrm{CTY}_k, \gamma, z \ldots)}{0{,}01}$$

where:

s_k = the delta commodity risk sensitivities;
k = a given commodity risk factor;
CTY_k = the value of risk factor k;
V_i (.) = the market value of instrument i as a function of risk factor k; and
y, z = risk factors other than CTY_k in the pricing model of instrument i.

5 Institutions shall calculate the delta foreign exchange risk sensitivities to each foreign exchange risk factor k as follows:

$$S_k = \frac{V_i(1{,}01\ \mathrm{FX}_k, y, z \ldots) - V_i(\mathrm{FX}_k, y, z \ldots)}{0{,}01}$$

where:

s_k = the delta foreign exchange risk sensitivities;
k = a given foreign exchange risk factor;
FX_k = the value of the risk factor;

V_i (.) = the market value of instrument i as a function of the risk factor k; and
y, z = risk factors other than FX_k in the pricing model of instrument i.

Article 325s

Vega risk sensitivities

1 Institutions shall calculate the vega risk sensitivity of an option to a given risk factor k as follows:

$$s_k = \frac{V_i(1{,}01 \cdot vol_k, x, y) - V_i(vol_k, x, y)}{0{,}01}$$

where:

s_k = the vega risk sensitivity of an option;
k = a specific vega risk factor, consisting of an implied volatility;
vol_k = the value of that risk factor, which should be expressed as a percentage; and
x,y = risk factors other than vol_k in the pricing function V_i.

2 In the case of risk classes where vega risk factors have a maturity dimension, but where the rules to map the risk factors are not applicable because the options do not have a maturity, institutions shall map those risk factors to the longest prescribed maturity. Those options shall be subject to the residual risks add-on.

3 In the case of options that do not have a strike or barrier and options that have multiple strikes or barriers, institutions shall apply the mapping to strikes and maturity used internally by the institution to price the option. Those options shall also be subject to the residual risks add-on.

4 Institutions shall not calculate the vega risk for securitisation tranches included in the ACTP, as referred to in Article 325(6), (7) and (8), that do not have an implied volatility. Own funds requirements for delta and curvature risk shall be computed for those securitisation tranches.

Article 325t

Requirements on sensitivity computations

1 Institutions shall derive sensitivities from the institution's pricing models that serve as a basis for reporting profit and loss to senior management, using the formulas set out in this Subsection.

By way of derogation from the first subparagraph, competent authorities may require an institution that has been granted permission to use the alternative internal model approach set out in Chapter 1b to use the pricing functions of the risk-measurement system of their internal model approach in the calculation of sensitivities under this Chapter for the calculation and reporting of the own funds requirements for market risk in accordance with Article 430b(3).

2 When calculating delta risk sensitivities of instruments with optionality as referred to in point (a) of Article 325e(2), institutions may assume that the implied volatility risk factors remain constant.

3 When calculating vega risk sensitivities of instruments with optionality as referred to in point (b) of Article 325e(2), the following requirements shall apply:

a for general interest rate risk and credit spread risk, institutions shall assume, for each currency, that the underlying of the volatility risk factors for which vega risk is calculated follows either a lognormal or normal distribution in the pricing models used for those instruments;

b for equity risk, commodity risk and foreign exchange risk, institutions shall assume that the underlying of the volatility risk factors for which vega risk is calculated follows a lognormal distribution in the pricing models used for those instruments.

4 Institutions shall calculate all sensitivities except for the sensitivities to credit valuation adjustments.

5 By way of derogation from paragraph 1, subject to the permission of the competent authorities, an institution may use alternative definitions of delta risk sensitivities in the calculation of the own funds requirements of a trading book position under this Chapter, provided that the institution meets all the following conditions:

a those alternative definitions are used for internal risk management purposes and for the reporting of profits and losses to senior management by an independent risk control unit within the institution;

b the institution demonstrates that those alternative definitions are more appropriate for capturing the sensitivities for the position than are the formulas set out in this Subsection, and that the resulting sensitivities do not materially differ from those formulas.

6 By way of derogation from paragraph 1, subject to the permission of the competent authorities, an institution may calculate vega sensitivities on the basis of a linear transformation of alternative definitions of sensitivities in the calculation of the own funds requirements of a trading book position under this Chapter, provided that the institution meets both the following conditions:

a those alternative definitions are used for internal risk management purposes and for the reporting of profits and losses to senior management by an independent risk control unit within the institution;

b the institution demonstrates that those alternative definitions are more appropriate for capturing the sensitivities for the position than are the formulas set out in this Subsection, and that the linear transformation referred to in the first subparagraph reflects a vega risk sensitivity.

Section 4

The residual risk add-on

Article 325u

Own funds requirements for residual risks

1 In addition to the own funds requirements for market risk set out in Section 2, institutions shall apply additional own funds requirements to instruments exposed to residual risks in accordance with this Article.

2 Instruments are considered to be exposed to residual risks where they meet any of the following conditions:

a the instrument references an exotic underlying, which, for the purposes of this Chapter, means a trading book instrument referencing an underlying exposure that is not in the scope of the delta, vega or curvature risk treatments under the sensitivities-based method laid down in Section 2 or the own funds requirements for the default risk set out in Section 5;

b the instrument is an instrument bearing other residual risks, which, for the purposes of this Chapter, means any of the following instruments:

(i) instruments that are subject to the own funds requirements for vega and curvature risk under the sensitivities-based method set out in Section 2 and that generate pay-offs that cannot be replicated as a finite linear combination of plain-vanilla options with a single underlying equity price, commodity price, exchange rate, bond price, credit default swap price or interest rate swap;

(ii) instruments that are positions that are included in the ACTP referred to in Article 325(6); hedges that are included in that ACTP, as referred to in Article 325(8), shall not be considered.

3 Institutions shall calculate the additional own funds requirements referred to in paragraph 1 as the sum of gross notional amounts of the instruments referred to in paragraph 2, multiplied by the following risk weights:

a 1,0 % in the case of instruments referred to in point (a) of paragraph 2;

b 0,1 % in the case of instruments referred to in point (b) of paragraph 2.

4 By way of derogation from paragraph 1, institution shall not apply the own funds requirement for residual risks to an instrument that meets any of the following conditions:

a the instrument is listed on a recognised exchange;

b the instrument is eligible for central clearing in accordance with Regulation (EU) No 648/2012;

c the instrument perfectly offsets the market risk of another position in the trading book, in which case the two perfectly matching trading book positions shall be exempted from the own funds requirement for residual risks.

5 EBA shall develop draft regulatory technical standards to specify what an exotic underlying is and which instruments are instruments bearing residual risks for the purposes of paragraph 2.

When developing those draft regulatory technical standards, EBA shall examine whether longevity risk, weather, natural disasters and future realised volatility should be considered as exotic underlyings.

EBA shall submit those draft regulatory technical standards to the Commission by 28 June 2021.

Power is delegated to the Commission to supplement this Regulation by adopting the regulatory technical standards referred to in the first subparagraph in accordance with Articles 10 to 14 of Regulation (EU) No 1093/2010.

Section 5

Own funds requirements for the default risk

Article 325v

Definitions and general provisions

1 For the purposes of this Section, the following definitions apply:

a 'short exposure' means that the default of an issuer or group of issuers leads to a gain for the institution, regardless of the type of instrument or transaction creating the exposure;

b 'long exposure' means that the default of an issuer or group of issuers leads to a loss for the institution, regardless of the type of instrument or transaction creating the exposure;

c 'gross jump-to-default (gross JTD) amount' means the estimated size of the loss or gain that the default of the obligor would produce for a specific exposure;

d 'net jump-to-default (net JTD) amount' means the estimated size of the loss or gain that an institution would incur due to the default of an obligor, after offsetting between gross JTD amounts has taken place,

e 'loss given default' or 'LGD' means the loss given default of the obligor on an instrument issued by that obligor expressed as a share of the notional amount of the instrument;

f 'default risk weight' means the percentage representing the estimated probability of the default of each obligor, according to the creditworthiness of that obligor.

2 Own funds requirements for the default risk shall apply to debt and equity instruments, to derivative instruments having those instruments as underlyings and to derivatives, the pay-offs or fair values of which are affected by the default of an obligor other than the counterparty to the derivative instrument itself. Institutions shall calculate default risk requirements separately for each of the following types of instruments: non-securitisations, securitisations that are not included in the ACTP, and securitisations that are included in the ACTP. The final own funds requirements for the default risk to be applied by institutions shall be the sum of those three components.

Subsection 1

Own funds requirements for the default risk for non-securitisations

Article 325w

Gross jump-to-default amounts

1 Institutions shall calculate the gross JTD amounts for each long exposure to debt instruments as follows:

$$JTD_{long} = \max \{LGD\ V_{notional} + P\&L_{long} + Adjustment_{long}; 0\}$$

where:

JTD_{long}	=	the gross JTD amount for the long exposure;
$V_{notional}$	=	the notional amount of the instrument;
$P\&L_{long}$	=	a term which adjusts for gains or losses already accounted for by the institution due to changes in the

fair value of the instrument creating the long exposure; gains shall enter the formula with a positive sign and losses with a negative; and

$Adjustment_{long}$ = the amount by which, due to the structure of the derivative instrument, the institution's loss in the event of default would be increased or reduced relative to the full loss on the underlying instrument; increases shall enter the $Adjustment_{long}$ term with a positive sign and decreases with a negative sign.

2 Institutions shall calculate the gross JTD amounts for each short exposure to debt instruments as follows:

$$JTD_{short} = \min \{LGD\ V_{notional} + P\&L_{short} + Adjustment_{short}; 0\}$$

where:

JTD_{short} = the gross JTD amount for the short exposure;

$V_{notional}$ = the notional amount of the instrument that shall enter into the formula with a negative sign;

$P\&L_{short}$ = a term which adjusts for gains or losses already accounted for by the institution due to changes in the fair value of the instrument creating the short exposure; gains shall enter into the formula with a positive sign and losses shall enter into the formula with a negative sign; and

$Adjustment_{short}$ = the amount by which, due to the structure of the derivative instrument, the institution's gain in the event of default would be increased or reduced relative to the full loss on the underlying instrument; decreases shall enter the $Adjustment_{short}$ term with a positive sign and increases shall enter the $Adjustment_{short}$ term with a negative sign.

3 For the purposes of the calculation set out in paragraphs 1 and 2, the LGD for debt instruments to be applied by institutions shall be the following:

a exposures to non-senior debt instruments shall be assigned an LGD of 100 %;

b exposures to senior debt instruments shall be assigned an LGD of 75 %;

c exposures to covered bonds, as referred to in Article 129, shall be assigned an LGD of 25 %.

4 For the purposes of the calculations set out in paragraphs 1 and 2, notional amounts shall be determined as follows:

a in the case of debt instruments, the notional amount is the face value of the debt instrument;

b in the case of derivative instruments with debt security underlyings, the notional amount is the notional amount of the derivative instrument.

5 For exposures to equity instruments, institutions shall calculate the gross JTD amounts as follows, instead of using the formulas referred to in paragraphs 1 and 2:

$$JTD_{long} = \max \{LGD \cdot V + P\&L_{long} + Adjustment_{long}; 0\}$$

$$JTD_{short} = \min \{LGD \cdot V + P\&L_{short} + Adjustment_{short}; 0\}$$

where:

JTD_{long}	=	the gross JTD amount for the long exposure;
JTD_{short}	=	the gross JTD amount for the short exposure; and
V	=	the fair value of the equity or, in the case of derivative instruments with equity underlyings, the fair value of the equity underlying.

6 Institutions shall assign an LGD of 100 % to equity instruments for the purposes of the calculation set out in paragraph 5.

7 In the case of exposures to default risk arising from derivative instruments whose pay-offs in the event of default of the obligor are not related to the notional amount of a specific instrument issued by that obligor or to the LGD of the obligor or an instrument issued by that obligor, institutions shall use alternative methodologies to estimate the gross JTD amounts.

8 EBA shall develop draft regulatory technical standards to specify:

a how institutions are to calculate JTD amounts for different types of instruments in accordance with this Article;

b which alternative methodologies institutions are to use for the purposes of the estimation of gross JTD amounts referred to in paragraph 7.

c the notional amounts of instruments other than the ones referred to in points (a) and (b) of paragraph 4.

EBA shall submit those draft regulatory technical standards to the Commission by 28 June 2021.

Power is delegated to the Commission to supplement this Regulation by adopting the regulatory technical standards referred to in the first subparagraph in accordance with Articles 10 to 14 of Regulation (EU) No 1093/2010.

Article 325x

Net jump-to-default amounts

1 Institutions shall calculate net JTD amounts by offsetting the gross JTD amounts of short exposures and long exposures. Offsetting shall only be possible between exposures to the same obligor where the short exposures have the same seniority as, or lower seniority than, the long exposures.

2 Offsetting shall be either full or partial, depending on the maturities of the offsetting exposures:

a offsetting shall be full where all offsetting exposures have maturities of one year or more;

b offsetting shall be partial where at least one of the offsetting exposures has a maturity of less than one year, in which case the size of the JTD amount of each exposure with a maturity of less than one year shall be multiplied by the ratio of the exposure's maturity relative to one year.

3 Where no offsetting is possible gross JTD amounts shall equal net JTD amounts in the case of exposures with maturities of one year or more. Gross JTD amounts with maturities of less than one year shall be multiplied by the ratio of the exposure's maturity relative to one year, with a floor of three months, to calculate net JTD amounts.

4 For the purposes of paragraphs 2 and 3, the maturities of the derivative contracts shall be considered, rather than those of their underlyings. Cash equity exposures shall be assigned a maturity of either one year or three months, at the institution's discretion.

Article 325y

Calculation of the own funds requirements for the default risk

1 Net JTD amounts, irrespective of the type of counterparty, shall be multiplied by the default risk weights that correspond to their credit quality, as specified in Table 2:

TABLE 2

Credit quality category	Default risk weight
Credit quality step 1	0,5 %
Credit quality step 2	3 %
Credit quality step 3	6 %
Credit quality step 4	15 %
Credit quality step 5	30 %
Credit quality step 6	50 %
Unrated	15 %
Defaulted	100 %

2 Exposures which would receive a 0 % risk-weight under the Standardised Approach for credit risk in accordance with Chapter 2 of Title II shall receive a 0 % default risk weight for the own funds requirements for the default risk.

3 The weighted net JTD shall be allocated to the following buckets: corporates, sovereigns, and local governments/municipalities.

4 Weighted net JTD amounts shall be aggregated within each bucket, in accordance with the following formula:

$$DRC_b = \max \{(\Sigma_{i\ \#\ long}\ RW_i \cdot \text{net JTD}_i) - WtS \cdot (\Sigma_{i\ \#\ short}\ RW_i \cdot |\text{net JTD}_i|); 0\}$$

where:

DRC_b	=	the own funds requirement for the default risk for bucket b;
i	=	the index that denotes an instrument belonging to bucket b;
RW_i	=	the risk weight; and
WtS	=	a ratio recognising a benefit for hedging relationships within a bucket, which shall be calculated as follows:

$$WtS = \frac{\sum \text{netJTD}_{long}}{\sum \text{netJTD}_{long} + \sum |\text{netJTD}_{short}|}$$

For the purposes of calculating the DRC_b and the WtS, the long positions and short positions shall be aggregated for all positions within a bucket, regardless of the credit

quality step to which those positions are allocated, to produce the bucket-specific own funds requirements for the default risk.

5 The final own funds requirement for the default risk for non-securitisations shall be calculated as the simple sum of the bucket-level own funds requirements.

Subsection 2

Own funds requirements for the default risk for securitisations not included in the ACTP

Article 325z

Jump-to-default amounts

1 Gross jump-to-default amounts for securitisation exposures shall be their market value or, if their market value is not available, their fair value determined in accordance with the applicable accounting framework.

2 Net jump-to-default amounts shall be determined by offsetting long gross jump-to-default amounts and short gross jump-to-default amounts. Offsetting shall only be possible between securitisation exposures with the same underlying asset pool and belonging to the same tranche. No offsetting shall be permitted between securitisation exposures with different underlying asset pools, even where the attachment and detachment points are the same.

3 Where, by decomposing or combining existing securitisation exposures, other existing securitisation exposures can be perfectly replicated, except for the maturity dimension, the exposures resulting from that decomposition or combination may be used instead of the existing securitisation exposures for the purposes of offsetting.

4 Where, by decomposing or combining existing exposures in underlying names, the entire tranche structure of an existing securitisation exposure can be perfectly replicated, the exposures resulting from that decomposition or combination may be used instead of the existing securitisation exposures for the purposes of offsetting. Where underlying names are used in that manner, they shall be removed from the non-securitisation default risk treatment.

5 Article 325x shall apply to both existing securitisation exposures and to securitisation exposures used in accordance with paragraph 3 or 4 of this Article. The relevant maturities shall be those of the securitisation tranches.

Article 325aa

Calculation of the own funds requirement for the default risk for securitisations

1 Net JTD amounts of securitisation exposures shall be multiplied by 8 % of the risk weight that applies to the relevant securitisation exposure, including STS securitisations, in the non-trading book in accordance with the hierarchy of approaches set out in Section 3 of Chapter 5 of Title II and irrespective of the type of counterparty.

2 A maturity of one year shall be applied to all tranches, where risk weights are calculated in accordance with the SEC-IRBA and SEC-ERBA.

3 The risk-weighted JTD amounts for individual cash securitisation exposures shall be capped at the fair value of the position.

4 Risk-weighted net JTD amounts shall be assigned to the following buckets:

a one common bucket for all corporates, regardless of the region;

b 44 different buckets corresponding to one bucket per region for each of the 11 asset classes defined in the second subparagraph.

For the purposes of the first subparagraph, the 11 asset classes are ABCP, auto loans/leases, residential mortgage-backed securities (RMBS), credit cards, commercial mortgage-backed securities (CMBS), collateralised loan obligations, collateralised debt obligations squared (CDO-squared), small and medium-sized enterprises (SMEs), student loans, other retail, other wholesale. The four regions are Asia, Europe, North America, and rest of the world.

5 In order to assign a securitisation exposure to a bucket, institutions shall rely on a classification commonly used in the market. Institutions shall assign each securitisation exposure to only one of the buckets referred to in paragraph 4. Any securitisation exposure that an institution cannot assign to a bucket for an asset class or region shall be assigned to the asset class ‘other retail’ or ‘other wholesale’ or to the region ‘rest of the world’, respectively.

6 Weighted net JTD amounts shall be aggregated within each bucket in the same manner as for default risk of non-securitisation exposures, using the formula in Article 325y(4), resulting in the own funds requirement for the default risk for each bucket.

7 The final own funds requirement for the default risk for securitisations not included in the ACTP shall be calculated as the simple sum of the bucket-level own funds requirements.

Subsection 3

Own funds requirements for the default risk for securitisations included in the ACTP

Article 325ab

Scope

1 For the ACTP, the own funds requirements shall include the default risk for securitisation exposures and for non-securitisation hedges. Those hedges shall be removed from the default risk calculations for non-securitisation. There shall be no diversification benefit between the own funds requirements for the default risk for non-securitisations, the own funds requirements for the default risk for securitisations not included in the ACTP and own funds requirements for the default risk for securitisations included in the ACTP.

2 For traded non-securitisation credit and equity derivatives, JTD amounts by individual constituents shall be determined by applying a look-through approach.

Article 325ac

Jump-to-default amounts for the ACTP

1 For the purposes of this Article, the following definitions apply:

a ‘decomposition with a valuation model’ means that a single name constituent of a securitisation is valued as the difference between the unconditional value of the securitisation and the conditional value of the securitisation assuming that single name defaults with an LGD of 100 %;

b ‘replication’ means that the combination of individual securitisation index tranches are combined to replicate another tranche of the same index series, or to replicate an untranched position in the index series;

c ‘decomposition’ means replicating an index by a securitisation of which the underlying exposures in the pool are identical to the single name exposures that compose the index.

2 The gross JTD amounts for securitisation exposures and non-securitisation exposures in the ACTP shall be their market value or, if their market value is not available, their fair value determined in accordance with the applicable accounting framework.

3 Nth-to-default products shall be treated as tranched products with the following attachment and detachment points:

a attachment point = (N – 1) / Total Names;

b detachment point = N / Total Names;

where ‘Total Names’ shall be the total number of names in the underlying basket or pool.

4 Net JTD amounts shall be determined by offsetting long gross JTD amounts and short gross JTD amounts. Offsetting shall only be possible between exposures that are otherwise identical except for maturity. Offsetting shall only be possible as follows:

a for indices, index tranches and bespoke tranches, offsetting shall be possible across maturities within the same index family, series and tranche, subject to the provisions on exposures of less than one year laid down in Article 325x; long gross JTD amounts and short gross JTD amounts that perfectly replicate each other may be offset through decomposition into single name equivalent exposures using a valuation model; in such cases, the sum of the gross JTD amounts of the single name equivalent exposures obtained through decomposition shall be equal to the gross JTD amount of the undecomposed exposure;

b offsetting through decomposition as set out is point (a) shall not be allowed for resecuritisations or derivatives on securitisation;

c for indices and index tranches, offsetting shall be possible across maturities within the same index family, series and tranche by replication or by decomposition; where the long exposures and short exposures are otherwise equivalent, apart from one residual component, offsetting shall be allowed and the net JTD amount shall reflect the residual exposure;

d different tranches of the same index series, different series of the same index and different index families may not be used to offset each other.

Article 325ad

Calculation of the own funds requirements for the default risk for the ACTP

1 Net JTD amounts shall be multiplied by:

a for tranched products, the default risk weights corresponding to their credit quality as specified in Article 325y(1) and (2);

b for non-tranched products, the default risk weights referred to in Article 325aa(1).

2 Risk-weighted net JTD amounts shall be assigned to buckets that correspond to an index.

3 Weighted net JTD amounts shall be aggregated within each bucket in accordance with the following formula:

$$DRC_b = \max \{(\Sigma_{i\ \#\ long}\ RW_i \cdot \text{net JTD}_i) - WtS_{ACTP} \cdot (\Sigma_{i\ \#\ short}\ RW_i \cdot |\text{net JTD}_i|); 0\}$$

where:

DRC_b	=	the own funds requirement for the default risk for bucket b;
i	=	an instrument belonging to bucket b; and
WtS_{ACTP}	=	the ratio recognising a benefit for hedging relationships within a bucket, which shall be calculated in accordance with the WtS formula set out in Article 325y(4), but using long positions and short positions across the entire ACTP and not just the positions in the particular bucket.

4 Institutions shall calculate the own funds requirements for the default risk for the ACTP by using the following formula:

$$\mathbf{DRC_{ACTP} = \max\{\sum_b (\max[DRC_b, 0] + 0{,}5 \times (\min[DRC_b, 00]); 0)\}}$$

where:

DRC_{ACTP}	=	the own funds requirement for the default risk for the ACTP; and
DRC_b	=	the own funds requirement for the default risk for bucket b.

Section 6

Risk weights and correlations

Subsection 1

Delta risk weights and correlations

Article 325ae

Risk weights for general interest rate risk

1 For currencies not included in the most liquid currency sub-category as referred to in point (b) of Article 325bd(7), the risk weights of the sensitivities to the risk-free rate risk factors for each bucket in Table 3 shall be specified pursuant to the delegated act referred to in Article 461a.

TABLE 3

Bucket	Maturity
1	0,25 years
2	0,5 years
3	1 year
4	2 years
5	3 years

6	5 years
7	10 years
8	15 years
9	20 years
10	30 years

2 A common risk weight both for all the sensitivities to inflation and for cross currency basis risk factors shall be specified in the delegated act referred to in Article 461a.

3 For the currencies included in the most liquid currency sub-category as referred to in point (b) of 325bd(7) and the domestic currency of the institution, the risk weights of the risk-free rate risk factors shall be the risk weights referred to in Table 3 divided by $\sqrt{2}$.

Article 325af

Intra bucket correlations for general interest rate risk

1 Between two weighted sensitivities of general interest rate risk factors WS_k and WS_l within the same bucket, and with the same assigned maturity but corresponding to different curves, correlation ρ_{kl} shall be set at 99,90 %.

2 Between two weighted sensitivities of general interest rate risk factors WS_k and WS_l within the same bucket, corresponding to the same curve, but having different maturities, correlation shall be set in accordance with the following formula:

$$\max\left[e^{\left(-\theta\times\frac{|T_k-T_l|}{\min\{T_k;\,T_l\}}\right)};\,40\,\%\right]$$

where:

T_k (respectivelyT_l) = the maturity that relates to the risk free rate;
θ = 3 %

3 Between two weighted sensitivities of general interest rate risk factors WS_k and WS_l within the same bucket, corresponding to different curves and having different maturities, the correlation ρ_{kl} shall be equal to the correlation parameter specified in paragraph 2, multiplied by 99,90 %.

4 Between any given weighted sensitivity of general interest rate risk factors WS_k and any given weighted sensitivity of inflation risk factors WS_l, the correlation shall be set at 40 %.

5 Between any given weighted sensitivity of cross-currency basis risk factors WS_k and any given weighted sensitivity of general interest rate risk factors WS_l, including another cross-currency basis risk factor, the correlation shall be set at 0 %.

Article 325ag

Correlations across buckets for general interest rate risk

1 The parameter γ_{bc} = 50 % shall be used to aggregate risk factors belonging to different buckets.

2 The parameter γ_{bc} = 80 % shall be used to aggregate an interest rate risk factor based on a currency as referred to in Article 325av(3) and an interest rate risk factor based on the euro.

Article 325ah

Risk weights for credit spread risk for non-securitisations

1 Risk weights for the sensitivities to credit spread risk factors for non-securitisations shall be the same for all maturities (0,5 years, 1 year, 3 years, 5 years, 10 years) within each bucket in Table 4:

TABLE 4

Bucket number	Credit quality	Sector	Risk weight(percentage points)
1	All	Central government, including central banks, of a Member State	0,50 %
2	Credit quality step 1 to 3	Central government, including central banks, of a third country, multilateral development banks and international organisations referred to in Article 117(2) or Article 118	0,5 %
3		Regional or local authority and public sector entities	1,0 %
4		Financial sector entities including credit institutions incorporated or established by a central government, a regional government or a local authority and promotional lenders	5,0 %

5		Basic materials, energy, industrials, agriculture, manufacturing, mining and quarrying	3,0 %
6		Consumer goods and services, transportation and storage, administrative and support service activities	3,0 %
7		Technology, telecommunications	2,0 %
8		Health care, utilities, professional and technical activities	1,5 %
9		Covered bonds issued by credit institutions in Member States	1,0 %
11	Credit quality step 4 to 6	Central government, including central banks, of a third country, multilateral development banks and international organisations referred to in Article 117(2) or Article 118	
12		Regional or local authority and public sector entities	4,0 %
13		Financial sector entities including credit institutions incorporated or established by a central government, a regional government or a local authority and promotional lenders	12,0 %
14		Basic materials, energy, industrials, agriculture, manufacturing, mining and quarrying	7,0 %
15		Consumer goods and services,	8,5 %

		transportation and storage, administrative and support service activities	
16		Technology, telecommunications	5,5 %
17		Health care, utilities, professional and technical activities	5,0 %
18	Other sector		12,0 %

2 To assign a risk exposure to a sector, institutions shall rely on a classification that is commonly used in the market for grouping issuers by sector. Institutions shall assign each issuer to only one of the sector buckets in Table 4. Risk exposures from any issuer that an institution cannot assign to a sector in such a manner shall be assigned to bucket 18 in Table 4.

Article 325ai

Intra-bucket correlations for credit spread risk for non-securitisations

1 The correlation parameter ρ_{kl} between two sensitivities WS_k and WS_l within the same bucket shall be set as follows:

$$\rho_{kl} = \rho_{kl}^{(name)} \cdot \rho_{kl}^{(tenor)} \cdot \rho_{kl}^{(basis)}$$

where:

$\rho_{kl}^{(name)}$ shall be equal to 1 where the two names of sensitivities k and l are identical, otherwise it shall be equal to 35 %;

$\rho_{kl}^{(tenor)}$ shall be equal to 1 where the two vertices of the sensitivities k and l are identical, otherwise it shall be equal to 65 %; and

$\rho_{kl}^{(basis)}$ shall be equal to 1 where the two sensitivities are related to the same curves, otherwise it shall be equal to 99,90 %.

2 The correlation parameters referred to in paragraph 1 of this Article shall not apply to bucket 18 in Table 4 of Article 325ah(1). The capital requirement for the delta risk aggregation formula within bucket 18 shall be equal to the sum of the absolute values of the net weighted sensitivities allocated to that bucket:

$$K_{b(\text{bucket 18})} = \sum_k |WS_k|$$

Article 325aj

Correlations across buckets for credit spread risk for non-securitisations

The correlation parameter γ_{bc} that applies to the aggregation of sensitivities between different buckets shall be set as follows:

$$\gamma_{bc} = \gamma_{bc}^{(rating)} \cdot \gamma_{bc}^{(sector)}$$

where:

$\gamma_{bc}^{(rating)}$ shall be equal to 1 where the two buckets have the same credit quality category (either credit quality step 1 to 3 or credit quality step 4 to 6), otherwise it shall be equal to 50 %; for the purposes of that calculation, bucket 1 shall be considered as belonging to the same credit quality category as buckets that have credit quality step 1 to 3; and

$\gamma_{bc}^{(sector)}$ shall be equal to 1 where the two buckets belong to the same sector, and otherwise shall be equal to the corresponding percentage set out in Table 5:

Table 5

Bucket	1, 2 and 11	3 and 12	4 and 13	5 and 14	6 and 15	7 and 16	8 and 17	9
1, 2 and 11		75 %	10 %	20 %	25 %	20 %	15 %	10 %
3 and 12			5 %	15 %	20 %	15 %	10 %	10 %
4 and 13				5 %	15 %	20 %	5 %	20 %
5 and 14					20 %	25 %	5 %	5 %
6 and 15						25 %	5 %	15 %
7 and 16							5 %	20 %
8 and 17								5 %
9								—

Article 325ak

Risk weights for credit spread risk for securitisations included in the ACTP

Risk weights for the sensitivities to credit spread risk factors for securitisations included in the ACTP risk factors shall be the same for all maturities (0,5 years, 1 year, 3 years, 5 years, 10 years) within each bucket and shall be specified for each bucket in Table 6 pursuant to the delegated act referred to in Article 461a:

TABLE 6

Bucket number	Credit quality	Sector

1	All	Central government, including central banks, of Member States
2	Credit quality step 1 to 3	Central government, including central banks, of a third country, multilateral development banks and international organisations referred to in Article 117(2) or Article 118
3		Regional or local authority and public sector entities
4		Financial sector entities including credit institutions incorporated or established by a central government, a regional government or a local authority and promotional lenders
5		Basic materials, energy, industrials, agriculture, manufacturing, mining and quarrying
6		Consumer goods and services, transportation and storage, administrative and support service activities
7		Technology, telecommunications
8		Health care, utilities, professional and technical activities
9		Covered bonds issued by credit institutions in Member States
10		Covered bonds issued by credit institutions in third countries
11	Credit quality step 4 to 6	Central government, including central banks, of a third country, multilateral development banks and international organisations referred to in Article 117(2) or Article 118

12		Regional or local authority and public sector entities
13		Financial sector entities including credit institutions incorporated or established by a central government, a regional government or a local authority and promotional lenders
14		Basic materials, energy, industrials, agriculture, manufacturing, mining and quarrying
15		Consumer goods and services, transportation and storage, administrative and support service activities
16		Technology, telecommunications
17		Health care, utilities, professional and technical activities
18	Other sector	

Article 325al

Correlations for credit spread risk for securitisations included in the ACTP

1 The delta risk correlation ρ_{kl} shall be derived in accordance with Article 325ai, except that, for the purposes of this paragraph, $\rho_{kl}^{(basis)}$ shall be equal to 1 where the two sensitivities are related to the same curves, otherwise it shall be equal to 99,00 %.

2 The correlation γ_{bc} shall be derived in accordance with Article 325aj.

Article 325am

Risk weights for credit spread risk for securitisations not included in the ACTP

1 Risk weights for the sensitivities to credit spread risk factors for securitisation not included in the ACTP shall be the same for all maturities (0,5 years, 1 year, 3 years, 5 years, 10 years) within each bucket in Table 7 and shall be specified for each bucket in Table 7 pursuant to the delegated act referred to in Article 461a:

TABLE 7

Bucket number	Credit quality	Sector

1	Senior and Credit quality step 1 to 3	RMBS - Prime
2		RMBS - Mid-Prime
3		RMBS - Sub-Prime
4		CMBS
5		Asset backed securities (ABS) - Student loans
6		ABS - Credit cards
7		ABS - Auto
8		Collateralised loan obligations (CLO) non-ACTP
9	Non-senior and credit quality step 1 to 3	RMBS - Prime
10		RMBS - Mid-Prime
11		RMBS - Sub-Prime
12		CMBS
13		ABS - Student loans
14		ABS - Credit cards
15		ABS - Auto
16		CLO non-ACTP
17	Credit quality step 4 to 6	RMBS - Prime
18		RMBS - Mid-Prime
19		RMBS - Sub-Prime
20		CMBS
21		ABS - Student loans
22		ABS - Credit cards
23		ABS - Auto
24		CLO non-ACTP
25	Other sector	

2 To assign a risk exposure to a sector, institutions shall rely on a classification that is commonly used in the market for grouping issuers by sector. Institutions shall assign each tranche to one of the sector buckets in Table 7. Risk exposures from any tranche that an institution cannot assign to a sector in such a manner shall be assigned to bucket 25.

Article 325an

Intra-bucket correlations for credit spread risk for securitisations not included in the ACTP

1 Between two sensitivities WS_k and WS_l within the same bucket, the correlation parameter ρ_{kl} shall be set as follows:

$$\rho_{kl} = \rho_{kl}^{(tranche)} \cdot \rho_{kl}^{(tenor)} \cdot \rho_{kl}^{(basis)}$$

where:

$\rho_{kl}^{(thranche)}$ shall be equal to 1 where the two names of sensitivities k and l are within the same bucket and are related to the same securitisation tranche (more than 80 % overlap in notional terms), otherwise it shall be equal to 40 %;

$\rho_{kl}^{(tenor)}$ shall be equal to 1 where the two vertices of the sensitivities k and l are identical, otherwise it shall be equal to 80 %; and

$\rho_{kl}^{(basis)}$ shall be equal to 1 where the two sensitivities are related to the same curves, otherwise it shall be equal to 99,90 %.

2 The correlation parameters referred to in paragraph 1 shall not apply to bucket 25 in Table 7 of Article 325am(1). The own funds requirement for the delta risk aggregation formula within bucket 25 shall be equal to the sum of the absolute values of the net weighted sensitivities allocated to that bucket:

$$K_{b(\text{bucket 25})} = \sum_k |WS_k|$$

Article 325ao

Correlations across buckets for credit spread risk for securitisations not included in the ACTP

1 The correlation parameter γ_{bc} shall apply to the aggregation of sensitivities between different buckets and shall be set at 0 %.

2 The own funds requirement for bucket 25 shall be added to the overall risk class level capital, with no diversification or hedging effects recognised with any other bucket.

Article 325ap

Risk weights for equity risk

1 Risk weights for the sensitivities to equity and equity repo rate risk factors shall be specified for each bucket in Table 8 pursuant to the delegated act referred to in Article 461a:

TABLE 8

Bucket number	Market capitalisation	Economy	Sector

1	Large	Emerging market economy	Consumer goods and services, transportation and storage, administrative and support service activities, healthcare, utilities
2			Telecommunications, industrials
3			Basic materials, energy, agriculture, manufacturing, mining and quarrying
4			Financials including government-backed financials, real estate activities, technology
5		Advanced economy	Consumer goods and services, transportation and storage, administrative and support service activities, healthcare, utilities
6			Telecommunications, industrials
7			Basic materials, energy, agriculture, manufacturing, mining and quarrying
8			Financials including government-backed financials, real estate activities, technology
9	Small	Emerging market economy	All sectors described under bucket numbers 1, 2, 3 and 4
10		Advanced economy	All sectors described under bucket numbers 5, 6, 7 and 8
11	Other sector		

2 For the purposes of this Article, what constitutes a small and a large market capitalisation shall be specified in the regulatory technical standards referred to in Article 325bd(7).

3 For the purposes of this Article, EBA shall develop draft regulatory technical standards to specify what constitutes an emerging market and to specify what constitutes an advanced economy.

EBA shall submit those draft regulatory technical standards to the Commission by 28 June 2021.

Power is delegated to the Commission to supplement this Regulation by adopting the regulatory technical standards referred to in the first subparagraph in accordance with Articles 10 to 14 of Regulation (EU) No 1093/2010.

4 When assigning a risk exposure to a sector, institutions shall rely on a classification that is commonly used in the market for grouping issuers by sector. Institutions shall assign each issuer to one of the sector buckets in Table 8 and shall assign all issuers from the same industry to the same sector. Risk exposures from any issuer that an institution cannot assign to a sector in such a manner shall be assigned to bucket 11 in Table 8. Multinational or multi-sector equity issuers shall be assigned to a particular bucket on the basis of the most material region and sector in which the equity issuer operates.

Article 325aq

Intra-bucket correlations for equity risk

1 The delta risk correlation parameter ρ_{kl} between two sensitivities WS_k and WS_l within the same bucket shall be set at 99,90 % where one is a sensitivity to an equity spot price and the other a sensitivity to an equity repo rate, where both are related to the same equity issuer name.

2 In other cases than the cases referred to in paragraph 1, the correlation parameter ρkl between two sensitivities WS_k and WS_l to equity spot price within the same bucket shall be set as follows:

a 15 % between two sensitivities within the same bucket that fall under the category large market capitalisation, emerging market economy (bucket number 1, 2, 3 or 4);

b 25 % between two sensitivities within the same bucket that fall under the category large market capitalisation, advanced economy (bucket number 5, 6, 7 or 8);

c 7,5 % between two sensitivities within the same bucket that fall under the category small market capitalisation, emerging market economy (bucket number 9);

d 12,5 % between two sensitivities within the same bucket that fall under the category small market capitalisation, advanced economy (bucket number 10).

3 The correlation parameter ρ_{kl} between two sensitivities WS_k and WS_l to equity repo rate within the same bucket shall be set in accordance with paragraph 2.

4 Between two sensitivities WS_k and WS_l within the same bucket where one is a sensitivity to an equity spot price and the other a sensitivity to an equity repo rate and both sensitivities relate to a different equity issuer name, the correlation parameter ρkl shall be set to the correlation parameters specified in paragraph 2, multiplied by 99,90 %.

5 The correlation parameters specified in paragraphs 1 to 4 shall not apply to bucket 11. The capital requirement for the delta risk aggregation formula within bucket 11 shall be equal to the sum of the absolute values of the net weighted sensitivities allocated to that bucket:

$$K_{g(\text{bucket 11})} = \sum_k |WS_k|$$

Article 325ar

Correlations across buckets for equity risk

The correlation parameter γ_{bc} shall apply to the aggregation of sensitivities between different buckets. It shall be set at 15 % where the two buckets fall within buckets 1 to 10.

Article 325as

Risk weights for commodity risk

Risk weights for sensitivities to commodity risk factors shall be specified for each bucket in Table 9 pursuant to the delegated act referred to in Article 461a:

TABLE 9

Bucket number	Bucket name
1	Energy - solid combustibles
2	Energy - liquid combustibles
3	Energy - electricity and carbon trading
4	Freight
5	Metals – non-precious
6	Gaseous combustibles
7	Precious metals (including gold)
8	Grains and oilseed
9	Livestock and dairy
10	Softs and other agricultural commodities
11	Other commodity

Article 325at

Intra-bucket correlations for commodity risk

1 For the purposes of this Article, any two commodities shall be considered distinct commodities where there exist in the market two contracts that are differentiated only by the underlying commodity to be delivered against each contract.

2 The correlation parameter ρ_{kl} between two sensitivities WS_k and WS_l within the same bucket shall be set as follows:

$$\rho_{kl} = \rho_{kl}^{(commodity)} \cdot \rho_{kl}^{(tenor)} \cdot \rho_{kl}^{(basis)}$$

where:

$\rho_{kl}^{(commodity)}$ shall be equal to 1 where the two commodities of sensitivities k and l are identical, otherwise it shall be equal to the intra-bucket correlations in Table 10;

$\rho_{kl}^{(tenor)}$ shall be equal to 1 where the two vertices of the sensitivities k and l are identical, otherwise it shall be equal to 99 %; and

$\rho_{kl}^{(basis)}$ shall be equal to 1 where the two sensitivities are identical in the delivery location of a commodity, otherwise it shall be equal to 99,90 %.

3 The intra-bucket correlations $\rho_{kl}^{(commodity)}$ are:

TABLE 10

Bucket number	Bucket name	Correlationρ_{kl} (commodity)
1	Energy - solid combustibles	55 %
2	Energy - liquid combustibles	95 %
3	Energy - electricity and carbon trading	40 %
4	Freight	80 %
5	Metals – non-precious	60 %
6	Gaseous combustibles	65 %
7	Precious metals (including gold)	55 %
8	Grains and oilseed	45 %
9	Livestock and dairy	15 %
10	Softs and other agricultural commodities	40 %
11	Other commodity	15 %

4 Notwithstanding paragraph 1, the following provisions apply:

a two risk factors that are allocated to bucket 3 in Table 10 and that concern electricity which is generated in different regions or is delivered at different periods under the contractual agreement shall be considered distinct commodity risk factors;

b two risk factors that are allocated to bucket 4 in Table 10 and that concern freight where the freight route or week of delivery differ shall be considered distinct commodity risk factors.

Article 325au

Correlations across buckets for commodity risk

The correlation parameter γ_{bc} applying to the aggregation of sensitivities between different buckets shall be set at:

(a) 20 % where the two buckets fall within bucket numbers 1 to 10;

(b) 0 % where either of the two buckets is bucket number 11.

Article 325av

Risk weights for foreign exchange risk

1 Risk weight for all sensitivities to foreign exchange risk factors shall be specified in the delegated act referred to in Article 461a.

2 The risk weight of the foreign exchange risk factors concerning currency pairs which are composed of the euro and the currency of a Member State participating in the second stage of the economic and monetary union (ERM II) shall be one of the following:

a the risk weight referred to in paragraph 1, divided by 3;

b the maximum fluctuation within the fluctuation band formally agreed by the Member State and the European Central Bank, if that fluctuation band is narrower than the fluctuation band defined under ERM II.

3 Notwithstanding paragraph 2, the risk weight of the foreign exchange risk factors concerning currencies referred to in paragraph 2 which participate in the ERM II with a formally agreed fluctuation band narrower than the standard band of plus or minus 15 % shall equal the maximum percentage fluctuation within that narrower band.

4 The risk weight of the foreign exchange risk factors included in the most liquid currency pairs sub-category as referred to in point (c) of 325bd(7) shall be the risk weight referred to in paragraph 1 of this Article divided by $\sqrt{2}$.

5 Where the daily exchange-rate data for the preceding three years show that a currency pair composed of euro and a non-euro currency of a Member State is constant and that the institution is always able to face a zero bid/ask spread on the respective trades related to that currency pair, the institution may apply the risk weight referred to in paragraph 1 divided by 2, provided that it has the express permission of its competent authority to do so.

Article 325aw

Correlations for foreign exchange risk

A uniform correlation parameter γ_{bc} equal to 60 % shall apply to the aggregation of sensitivities to foreign exchange risk factors.

Subsection 2

Vega and curvature risk weights and correlations

Article 325ax

Vega and curvature risk weights

1 Vega risk factors shall use the delta buckets referred to in Subsection 1.

2 The risk weight for a given vega risk factor k shall be determined as a share of the current value of that risk factor k which represents the implied volatility of an underlying, as described in Section 3.

3 The share referred to in paragraph 2 shall be made dependent on the presumed liquidity of each type of risk factor in accordance with the following formula:

$$\mathrm{RW_k} = (\text{Value of risk factor k}) \times \min\left\{\mathrm{RW}_\sigma \times \frac{\sqrt{\mathrm{LH}_{\text{risk class}}}}{\sqrt{10}}; 100\%\right\}$$

where:

RW_k = the risk weight for a given vega risk factor k;

RW_σ shall be set at 55 %; and

$LH_{risk\ class}$ is the regulatory liquidity horizon to be prescribed in the determination of each vega risk factor k. $LH_{risk\ class}$ is determined in accordance with the following table:

Table 11

Risk class	**$LH_{risk\ class}$**
GIRR	60
CSR non-securitisations	120
CSR securitisations (ACTP)	120
CSR securitisations (non-ACTP)	120
Equity (large cap)	20
Equity (small cap)	60
Commodity	120
Foreign exchange	40

4 Buckets used in the context of delta risk in Subsection 1 shall be used in the curvature risk context unless specified otherwise in this Chapter.

5 For foreign exchange and equity curvature risk factors, the curvature risk weights shall be relative shifts equal to the delta risk weights referred to in Subsection 1.

6 For general interest rate, credit spread and commodity curvature risk factors, the curvature risk weight shall be the parallel shift of all the vertices for each curve on the basis of the highest prescribed delta risk weight referred to in Subsection 1 for the relevant risk class.

Article 325ay

Vega and curvature risk correlations

1 Between vega risk sensitivities within the same bucket of the general interest rate risk (GIRR) class, the correlation parameter r_{kl} shall be set as follows:

$$\rho_{kl} = \min\left\{\rho^{kl}_{(\text{option maturity})} \times \rho^{kl}_{(\text{underlying maturity})}; 1\right\}$$

where:

$\rho^{kl}_{(\text{option maturity})}$ shall be equal to $e^{-\alpha \times \frac{|T_k - T_l|}{\min\{T_k; T_l\}}}$

where α shall be set at 1 %, T_k and T_l shall be equal to the maturities of the options for which the vega sensitivities are derived, expressed as a number of years; and

$\rho^{kl}_{(\text{underlying maturity})}$ is equal to $e^{-\alpha \times \frac{|T^k_U - T^l_U|}{\min\{T^k_U, T^l_U\}}}$, where α is set at 1%, and

T^k_U and T^l_U shall be equal to the maturities of the underlyings of the options for which the vega sensitivities are derived, minus the maturities of the corresponding options, expressed in both cases as a number of years.

2 Between vega risk sensitivities within a bucket of the other risk classes, the correlation parameter ρ_{kl} shall be set as follows:

$$\rho_{kl} = \min\left\{\rho^{kl}_{(\text{DELTA})} \times \rho^{kl}_{(\text{option maturity})}; 1\right\}$$

where:

$\rho^{kl}_{(\text{DELTA})}$ shall be equal to the delta intra-bucket correlation corresponding to the bucket to which vega risk factors k and l would be allocated; and

$\rho^{kl}_{(\text{option maturity})}$ shall be set in accordance with paragraph 1.

3 With regard to vega risk sensitivities between buckets within a risk class (GIRR and non-GIRR), the same correlation parameters for γ_{bc}, as specified for delta correlations for each risk class in Section 4, shall be used in the vega risk context.

4 There shall be no diversification or hedging benefit recognised in the standardised approach between vega risk factors and delta risk factors. Vega risk charges and delta risk charges shall be aggregated by simple summation.

5 The curvature risk correlations shall be the square of corresponding delta risk correlations ρ_{kl} and γ_{bc} referred to in Subsection 1.

Textual Amendments

F2 Inserted by Regulation (EU) 2019/876 of the European Parliament and of the Council of 20 May 2019 amending Regulation (EU) No 575/2013 as regards the leverage ratio, the net stable funding ratio, requirements for own funds and eligible liabilities, counterparty credit risk, market risk, exposures to central counterparties, exposures to collective investment undertakings, large exposures, reporting and disclosure requirements, and Regulation (EU) No 648/2012 (Text with EEA relevance).

CHAPTER 1b

Alternative internal model approach

Section 1

Permission and own funds requirements

Article 325az

Alternative internal model approach and permission to use alternative internal models

1 The alternative internal model approach as set out in this Chapter shall be used only for the purposes of the reporting requirement laid down in Article 430b(3).

2 After having verified institutions' compliance with the requirements set out in Articles 325bh, 325bi and 325bj, competent authorities shall grant permission to those institutions to calculate their own funds requirements for the portfolio of all positions assigned to trading desks by using their alternative internal models in accordance with Article 325ba, provided that all the following requirements are met:

a the trading desks were established in accordance with Article 104b;

b the institution has provided to the competent authority a rationale for the inclusion of the trading desks in the scope of the alternative internal model approach;

c the trading desks have met the back-testing requirements referred to in Article 325bf(3) for the preceding year;

d the institution has reported to its competent authorities the results of the profit and loss attribution ('P&L attribution') requirement for the trading desks set out in Article 325bg;

e for trading desks that have been assigned at least one of those trading book positions referred to in Article 325bl, the trading desks fulfil the requirements set out in Article 325bm for the internal default risk model;

f no securitisation or re-securitisation positions have been assigned to the trading desks.

For the purposes of point (b) of the first subparagraph of this paragraph, not including a trading desk in the scope of the alternative internal model approach shall not be motivated by the fact that the own funds requirement calculated under the alternative standardised approach set out in point (a) of Article 325(3) would be lower than the own funds requirement calculated under the alternative internal model approach.

3 Institutions that have received the permission to use the alternative internal model approach shall report to the competent authorities in accordance with Article 430b(3).

4 An institution that has been granted the permission referred to in paragraph 2 shall immediately notify its competent authorities that one of its trading desks no longer meets at least one of the requirements set out in that paragraph. That institution shall no longer be permitted to apply this Chapter to any of the positions assigned to that trading desk and shall calculate the own funds requirements for market risk in accordance with the approach set out in Chapter 1a for all the positions assigned to that trading desk from the earliest reporting date and until the institution demonstrates to the competent authorities that the trading desk again fulfils all the requirements set out in paragraph 2.

5 By way of derogation from paragraph 4, in extraordinary circumstances, competent authorities may permit an institution to continue using its alternative internal models for the purpose of calculating the own funds requirements for the market risk of a trading desk that no longer meets the conditions referred to in point (c) of paragraph 2 of this Article and in Article 325bg(1). When competent authorities exercise that discretion, they shall notify EBA and substantiate their decision.

6 For positions assigned to the trading desks for which an institution has not been granted permission as referred to in paragraph 2, the own funds requirements for market risk shall be calculated by that institution in accordance with Chapter 1a of this Title. For the purposes of that calculation, all those positions shall be considered on a stand-alone basis as a separate portfolio.

7 Material changes to the use of alternative internal models that an institution has received permission to use, the extension of the use of alternative internal models that the institution has received permission to use, and material changes to the institution's choice of the subset of the modellable risk factors referred to in Article 325bc(2), shall require separate permission from its competent authorities.

Institutions shall notify the competent authorities of all other extensions and changes to the use of the alternative internal models for which the institution has received permission.

8 EBA shall develop draft regulatory technical standards to specify:

a the conditions for assessing the materiality of extensions and changes to the use of alternative internal models and changes to the subset of the modellable risk factors referred to in Article 325bc;

b the assessment methodology under which competent authorities verify an institution's compliance with the requirements set out in Articles 325bh, 325bi, 325bn, 325bo and 325bp.

EBA shall submit those draft regulatory technical standards to the Commission by 28 June 2024.

Power is delegated to the Commission to supplement this Regulation by adopting the regulatory technical standards referred to in the first subparagraph in accordance with Articles 10 to 14 of Regulation (EU) No 1093/2010.

9 EBA shall develop draft regulatory technical standards to specify the extraordinary circumstances under which competent authorities may permit an institution:

a to continue using its alternative internal models for the purpose of calculating the own funds requirements for the market risk of a trading desk that no longer meets the conditions referred to in point (c) of paragraph 2 of this Article and in Article 325bg(1);

b to limit the add-on to the one resulting from overshootings under back-testing hypothetical changes.

EBA shall submit those draft regulatory technical standards to the Commission by 28 June 2024.

Power is delegated to the Commission to supplement this Regulation by adopting the regulatory technical standards referred to in the first subparagraph in accordance with Articles 10 to 14 of Regulation (EU) No 1093/2010.

Article 325ba

Own funds requirements when using alternative internal models

1 An institution using an alternative internal model shall calculate the own funds requirements for the portfolio of all positions assigned to the trading desks for which the institution has been granted permission as referred to in Article 325az(2) as the higher of the following:

a the sum of the following values:

(i) the institution's previous day's expected shortfall risk measure, calculated in accordance with Article 325bb (ES_{t-1}), and

(ii) the institution's previous day's stress scenario risk measure, calculated in accordance with Section 5 (SS_{t-1}); or

b the sum of the following values:

(i) the average of the institution's daily expected shortfall risk measure, calculated in accordance with Article 325bb for each of the preceding sixty business days (ES^{avg}), multiplied by the multiplication factor (m_c); and

(ii) the average of the institution's daily stress scenario risk measure, calculated in accordance with Section 5 for each of the preceding sixty business days (SS^{avg}).

2 Institutions holding positions in traded debt and equity instruments that are included in the scope of the internal default risk model and assigned to the trading desks referred to in paragraph 1 shall fulfil an additional own funds requirement, expressed as the higher of the following values:

a the most recent own funds requirement for default risk, calculated in accordance with Section 3;

b the average of the amount referred to in point (a) over the preceding 12 weeks.

Section 2

General requirements

Article 325bb

Expected shortfall risk measure

1 Institutions shall calculate the expected shortfall risk measure referred to in point (a) of Article 325ba(1) for any given date ‘t’ and for any given portfolio of trading book positions as follows:

$$\mathbf{ES_t} = \rho \times (\mathbf{UES_t}) + (1-\rho) \times \sum_i \mathbf{UES_i^t}$$

where:

ES_t = the expected shortfall risk measure;

i = the index that denotes the five broad categories of risk factors listed in the first column of Table 2 of Article 325bd;

UES_t = the unconstrained expected shortfall measure calculated as follows:

$$\mathbf{UES}_t = \mathbf{PES}^t_{\mathbf{RS}} \times \max\left(\frac{\mathbf{PES}^t_{\mathbf{FC}}}{\mathbf{PES}^t_{\mathbf{RC}}}, 1\right)$$

$\mathbf{UES}^t_i$ = the unconstrained expected shortfall measure for broad risk factor category i and calculated as follows:

$$\mathbf{UES}^t_i = \mathbf{PES}^t_{\mathbf{RS},i} \times \max\left(\frac{\mathbf{PES}^t_{\mathbf{FC},i}}{\mathbf{PES}^t_{\mathbf{RC},i}}, 1\right)$$

ρ = the supervisory correlation factor across broad categories of risk; ρ = 50 %;

$\mathbf{PES}^t_{\mathbf{RS}}$ = the partial expected shortfall measure that shall be calculated for all the positions in the portfolio in accordance with Article 325bc(2);

$\mathbf{PES}^t_{\mathbf{RC}}$ = the partial expected shortfall measure that shall be calculated for all the positions in the portfolio in accordance with Article 325bc(3);

$\mathbf{PES}^t_{\mathbf{FC}}$ = the partial expected shortfall measure that shall be calculated for all the positions in the portfolio in accordance with Article 325bc(4);

$\mathbf{PES}^t_{\mathbf{RS},i}$ = the partial expected shortfall measure for broad risk factor category i that shall be calculated for all the positions in the portfolio in accordance with Article 325bc(2);

$\mathbf{PES}^t_{\mathbf{RC},i}$ = the partial expected shortfall measure for broad risk factor category i that shall be calculated for all the positions in the portfolio in accordance with Article 325bc(3); and

$\mathbf{PES}^t_{\mathbf{FC},i}$ = the partial expected shortfall measure for broad risk factor category i that shall be calculated for all the positions in the portfolio in accordance with of Article 325bc(4).

2 Institutions shall only apply scenarios of future shocks to the specific set of modellable risk factors applicable to each partial expected shortfall measure, as set out in Article 325bc, when determining each partial expected shortfall measure for the calculation of the expected shortfall risk measure in accordance with paragraph 1.

3 Where at least one transaction of the portfolio has at least one modellable risk factor which has been mapped to the broad risk factor category i in accordance with Article 325bd, institutions shall calculate the unconstrained expected shortfall measure for the broad risk factor category i and include it in the formula for the expected shortfall risk measure referred to in paragraph 1 of this Article.

4 By way of derogation from paragraph 1, an institution may reduce the frequency of the calculation of the unconstrained expected shortfall measures $\mathbf{UES}^t_i$ and of the partial expected shortfall measures $\mathbf{PES}^t_{\mathbf{RS},i}$, $\mathbf{PES}^t_{\mathbf{RC},i}$ and

$\mathbf{PES}^{t}_{\mathbf{FC},i}$ for all broad risk factor categories i from daily to weekly, provided that both of the following conditions are met:

a the institution is able to demonstrate to its competent authority that calculating the unconstrained expected shortfall measure $\mathbf{UES}^{t}_{i}$ does not underestimate the market risk of the relevant trading book positions;

b the institution is able to increase the frequency of calculation of $\mathbf{UES}^{t}_{i}$, $\mathbf{PES}^{t}_{\mathbf{RS},i}$, $\mathbf{PES}^{t}_{\mathbf{RC},i}$ and $\mathbf{PES}^{t}_{\mathbf{FC},i}$ from weekly to daily where required by its competent authority.

Article 325bc

Partial expected shortfall calculations

1 Institutions shall calculate all the partial expected shortfall measures referred to in Article 325bb(1) as follows:

a daily calculations of the partial expected shortfall measures;

b at 97,5th percentile, one tailed confidence interval;

c for a given portfolio of trading book positions, institution shall calculate the partial expected shortfall measure at time ‘t’ accordance with the following formula:

where: $\mathbf{PES}_t = \sqrt{(\mathbf{PES}_t(T))^2 + \sum_{j\geq 2}\left(\mathbf{PES}_t(\mathbf{T},\mathbf{j}) \times \sqrt{\frac{(\mathbf{LH}_j - \mathbf{LH}_{j-1})}{10}}\right)}$

PES_t	=	the partial expected shortfall measure at time t;
j	=	the index that denotes the five liquidity horizons listed in the first column of Table 1;
LH_j	=	the length of liquidity horizons j as expressed in days in Table 1;
T	=	the base time horizon, where T = 10 days;
$PES_t(T)$	=	the partial expected shortfall measure that is determined by applying scenarios of future shocks with a 10-day time horizon only to the specific set of modellable risk factors of the positions in the portfolio set out in paragraphs 2, 3 and 4 for each partial expected shortfall measure referred to in Article 325bb(1); and
$PES_t(T, j)$	=	the partial expected shortfall measure that is determined by applying scenarios of future shocks with a 10-day time horizon only to the specific set of modellable risk factors of the positions in the portfolio set out in

paragraphs 2, 3 and 4 for each partial expected shortfall measure referred to in Article 325bb(1) and of which the effective liquidity horizon, as determined in accordance with Article 325bd(2), is equal or longer than LH_j.

TABLE 1

Liquidity horizon j	Length of liquidity horizon j(in days)
1	10
2	20
3	40
4	60
5	120

2 For the purpose of calculating the partial expected shortfall measures $\mathbf{PES}^t_{RS}$ and $\mathbf{PES}^t_{RS,j}$ referred to in Article 325bb(1), in addition to the requirements set out in paragraph 1 of this Article, institutions shall meet the following requirements:

a in calculating $\mathbf{PES}^t_{RS}$, institutions shall only apply scenarios of future shocks to a subset of the modellable risk factors of the positions in the portfolio which has been chosen by the institution, to the satisfaction of the competent authorities, so that the following condition is met with the sum taken over from the preceding 60 business days:

$$\frac{1}{60} \times \sum_{k=0}^{59} \frac{\mathbf{PES}^{t-k}_{RC}}{\mathbf{PES}^{t-k}_{PC}} \geq 75\%$$

An institution that no longer meets the requirement referred to in the first paragraph of this point shall immediately notify the competent authorities thereof and shall update the subset of the modellable risk factors within two weeks in order to meet that requirement; where, after two weeks, that institution has failed to meet that requirement, the institution shall revert to the approach set out in Chapter 1a to calculate the own funds requirements for market risk for some trading desks, until that institution is able to demonstrate to the competent authority that it is meeting the requirement set out in the first subparagraph of this point;

b in calculating $\mathbf{PES}^t_{RS,j}$, institutions shall only apply scenarios of future shocks to the subset of the modellable risk factors of the positions in the portfolio chosen by the institution for the purposes of point (a) of this paragraph and which have been mapped to the broad risk factor category ‘i’ in accordance with Article 325bd;

c the data inputs used to determine the scenarios of future shocks applied to the modellable risk factors referred to in points (a) and (b) shall be calibrated to historical

data from a continuous 12-month period of financial stress that shall be identified by the institution in order to maximise the value of $\mathbf{PES}^{t}_{\mathbf{RS}}$; for the purpose of identifying that stress period, institutions shall use an observation period starting at least from 1 January 2007, to the satisfaction of the competent authorities; and

d the data inputs of $\mathbf{PES}^{t}_{\mathbf{RS},i}$ shall be calibrated to the 12-month stress period that has been identified by the institution for the purposes of point (c).

3 For the purpose of calculating the partial expected shortfall measures $\mathbf{PES}^{t}_{\mathbf{RC}}$ and $\mathbf{PES}^{t}_{\mathbf{RC},i}$ referred to in Article 325bb(1), institutions shall, in addition to the requirements set out in paragraph 1 of this Article, meet the following requirements:

a in calculating $\mathbf{PES}^{t}_{\mathbf{RC}}$, institutions shall only apply scenarios of future shocks to the subset of the modellable risk factors of the positions in the portfolio referred to in point (a) of paragraph 2;

b in calculating $\mathbf{PES}^{t}_{\mathbf{RC},i}$, institutions shall only apply scenarios of future shocks to the subset of the modellable risk factors of the positions in the portfolio referred to in point (b) of paragraph 2;

c the data inputs used to determine the scenarios of future shocks applied to the modellable risk factors referred to in points (a) and (b) of this paragraph shall be calibrated to historical data referred to in point (c) of paragraph 4; those data shall be updated on at least a monthly basis.

4 For the purpose of calculating the partial expected shortfall measures $\mathbf{PES}^{t}_{\mathbf{FC}}$ and $\mathbf{PES}^{t}_{\mathbf{FC},i}$ referred to in Article 325bb(1), institutions shall, in addition to the requirements set out in paragraph 1 of this Article, meet the following requirements:

a in calculating $\mathbf{PES}^{t}_{\mathbf{FC}}$, institutions shall apply scenarios of future shocks to all the modellable risk factors of the positions in the portfolio;

b in calculating $\mathbf{PES}^{t}_{\mathbf{FC},i}$, institutions shall apply scenarios of future shocks to all the modellable risk factors of the positions in the portfolio which have been mapped to the broad risk factor category i in accordance with Article 325bd;

c the data inputs used to determine the scenarios of future shocks applied to the modellable risk factors referred to in points (a) and (b) shall be calibrated to historical data from the preceding 12-month period; where there is a significant upsurge in the price volatility of a material number of modellable risks factors of an institution's portfolio which are not in the subset of the risk factors referred to in point (a) of

paragraph 2, competent authorities may require an institution to use historical data for a period shorter than the preceding 12-months, but such a shorter period shall not be shorter than the preceding six-months; competent authorities shall notify EBA of any decision to require an institution to use historical data from a shorter period than 12 months and shall substantiate that decision.

5 In calculating a given partial expected shortfall measure as referred to in Article 325bb(1), institutions shall maintain the values of the modellable risks factors for which they have not been required to apply scenarios of future shocks for that partial expected shortfall measure under paragraphs 2, 3 and 4 of this Article.

Article 325bd

Liquidity horizons

1 Institutions shall map each risk factor of positions assigned to the trading desks for which they have been granted permission as referred to in Article 325az(2), or for which they are in the process of being granted such permission, to one of the broad categories of risk factors listed in Table 2 and to one of the broad sub-categories of risk factors listed in that Table.

2 The liquidity horizon of a risk factor of the positions referred to in paragraph 1 shall be the liquidity horizon of the corresponding broad sub-category of risk factors to which it has been mapped.

3 By way of derogation from paragraph 1 of this Article, for a given trading desk, an institution may decide to replace the liquidity horizon of a broad sub-category of risk factors listed in Table 2 of this Article with one of the longer liquidity horizons listed in Table 1 of Article 325bc. Where an institution takes such a decision, the longer liquidity horizon shall apply to all the modellable risk factors of the positions assigned to that trading desk that have been mapped to that broad sub-category of risk factors for the purpose of calculating the partial expected shortfall measures in accordance with point (c) of Article 325bc(1).

An institution shall notify the competent authorities of the trading desks and the broad sub-categories of risk factors to which it decides to apply the treatment referred to in the first subparagraph.

4 For the purpose of calculating the partial expected shortfall measures in accordance with point (c) of Article 325bc(1), the effective liquidity horizon of a given modellable risk factor of a given trading book position shall be calculated as follows:

EffectiveLH =		$SubCatLH \text{ if } Mat > LH_5$
		$\min(SubCatLH, \min_j\{LH_j / LH_j \geq Mat\}) \text{ if } LH_1 \leq Mat \leq LH_5$
		$LH_1 \text{ if } Mat < LH_1$

where:

EffectiveLH = the effective liquidity horizon;
Mat = the maturity of the trading book position;
SubCatLH = the length of liquidity horizon of the modellable risk factor determined in accordance with paragraph 1; and

$\min_j \{LH_j/LH_j \geq Mat\}$ = the length of one of the liquidity horizons listed in Table 1 of Article 325bc which is the nearest liquidity horizon above the maturity of the trading book position.

5 Currency pairs that are composed of the euro and the currency of a Member State participating in ERM II shall be included in the most liquid currency pairs sub-category within the broad category of foreign exchange risk factor of Table 2.

6 An institution shall verify the appropriateness of the mapping referred to in paragraph 1 on at least a monthly basis.

7 EBA shall develop draft regulatory technical standards to specify:

a how institutions are to map the risk factors of the positions referred to in paragraph 1 to broad categories of risk factors and broad sub-categories of risk factors for the purposes of paragraph 1;

b which currencies constitute the most liquid currencies sub-category of the broad category of interest rate risk factor of Table 2;

c which currency pairs constitute the most liquid currency pairs sub-category of the broad category of foreign exchange risk factor of Table 2;

d the definitions of small market capitalisation and large market capitalisation for the purposes of the equity price and volatility sub-category of the broad category of equity risk factor of Table 2.

EBA shall submit those draft regulatory technical standards to the Commission by 28 March 2020.

Power is delegated to the Commission to supplement this Regulation by adopting the regulatory technical standards referred to in the first subparagraph in accordance with Articles 10 to 14 of Regulation (EU) No 1093/2010.

TABLE 2

Broad categories of risk factors	**Broad sub-categories of risk factors**	**Liquidity horizons**	**Length of the liquidity horizon (in days)**
Interest rate	Most liquid currencies and domestic currency	1	10
	Other currencies (excluding most liquid currencies)	2	20
	Volatility	4	60
	Other types	4	60
Credit spread	Central government, including central banks, of Member States	2	20
	Covered bonds issued by credit institutions in Member States (Investment Grade)	2	20

	Sovereign (Investment grade)	2	20
	Sovereign (High yield)	3	40
	Corporate (Investment grade)	3	40
	Corporate (High yield)	4	60
	Volatility	5	120
	Other types	5	120
Equity	Equity price (Large market capitalisation)	1	10
	Equity price (Small market capitalisation)	2	20
	Volatility (Large market capitalisation)	2	20
	Volatility (Small market capitalisation)	4	60
	Other types	4	60
Foreign exchange	Most liquid currency pairs	1	10
	Other currency pairs (excluding most liquid currency pairs)	2	20
	Volatility	3	40
	Other types	3	40
Commodity	Energy price and carbon emissions price	2	20
	Precious metal price and non-ferrous metal price	2	20
	Other commodity prices (excluding energy price, carbon emissions price, precious metal price and non-ferrous metal price)	4	60
	Energy volatility and carbon emissions volatility	4	60

Precious metal volatility and non-ferrous metal volatility	4	60
Other commodity volatilities (excluding energy volatility, carbon emissions volatility, precious metal volatility and non-ferrous metal volatility)	5	120
Other types	5	120

Article 325be

Assessment of the modellability of risk factors

1 Institutions shall assess the modellability of all the risk factors of the positions assigned to the trading desks for which they have been granted permission as referred to in Article 325az(2) or are in the process of being granted such permission.

2 As part of the assessment referred to in paragraph 1 of this Article, institutions shall calculate the own funds requirements for market risk in accordance with Article 325bk for those risk factors that are not modellable.

3 EBA shall develop draft regulatory technical standards to specify the criteria to assess the modellability of risk factors in accordance with paragraph 1 and to specify the frequency of that assessment.

EBA shall submit those draft regulatory technical standards to the Commission by 28 March 2020.

Power is delegated to the Commission to supplement this Regulation by adopting the regulatory technical standards referred to in the first subparagraph in accordance with Articles 10 to 14 of Regulation (EU) No 1093/2010.

Article 325bf

Regulatory back-testing requirements and multiplication factors

1 For the purposes of this Article, an ‘overshooting’ means a one-day change in the value of a portfolio composed of all the positions assigned to the trading desk that exceeds the related value-at-risk number calculated on the basis of the institution's alternative internal model in accordance with the following requirements:

a the calculation of the value at risk shall be subject to a one-day holding period;

b scenarios of future shocks shall apply to the risk factors of the trading desk's positions referred to in Article 325bg(3) and which are considered modellable in accordance with Article 325be;

c data inputs used to determine the scenarios of future shocks applied to the modellable risk factors shall be calibrated to historical data referred to in point (c) of Article 325bc(4);

d unless stated otherwise in this Article, the institution's alternative internal model shall be based on the same modelling assumptions as those used for the calculation of the expected shortfall risk measure referred to in point (a) of Article 325ba(1).

2 Institutions shall count daily overshootings on the basis of back-testing of the hypothetical and actual changes in the value of the portfolio composed of all the positions assigned to the trading desk.

3 An institution's trading desk shall be deemed to meet the back-testing requirements where the number of overshootings for that trading desk that occurred over the most recent 250 business days does not exceed any of the following:

a 12 overshootings for the value-at-risk number, calculated at a 99th percentile one tailed-confidence interval on the basis of back-testing of the hypothetical changes in the value of the portfolio;

b 12 overshootings for the value-at-risk number, calculated at a 99th percentile one tailed-confidence interval on the basis of back-testing of the actual changes in the value of the portfolio;

c 30 overshootings for the value-at-risk number, calculated at a 97,5th percentile one tailed-confidence interval on the basis of back-testing of the hypothetical changes in the value of the portfolio;

d 30 overshootings for the value-at-risk number, calculated at a 97,5th percentile one tailed-confidence interval on the basis of back-testing of the actual changes in the value of the portfolio.

4 Institutions shall count daily overshootings in accordance with the following:

a the back-testing of hypothetical changes in the value of the portfolio shall be based on a comparison between the end-of-day value of the portfolio and, assuming unchanged positions, the value of the portfolio at the end of the subsequent day;

b the back-testing of actual changes in the value of the portfolio shall be based on a comparison between the end-of-day value of the portfolio and its actual value at the end of the subsequent day, excluding fees and commissions;

c an overshooting shall be counted for each business day for which the institution is not able to assess the value of the portfolio or is not able to calculate the value-at-risk number referred to in paragraph 3.

5 An institution shall calculate, in accordance with paragraphs 6 and 7 of this Article, the multiplication factor (m_c) referred to in Article 325ba for the portfolio of all the positions assigned to the trading desks for which it has been granted permission to use alternative internal models as referred to in Article 325az(2).

6 The multiplication factor (m_c) shall be the sum of the value of 1,5 and an add-on between 0 and 0,5 in accordance with Table 3. For the portfolio referred to in paragraph 5, that add-on shall be calculated on the basis of the number of overshootings that occurred over the most recent 250 business days as evidenced by the institution's back-testing of the value-at-risk number calculated in accordance with point (a) of this subparagraph. The calculation of the add-on shall be subject to the following requirements:

a an overshooting shall be a one-day change in the portfolio's value that exceeds the related value-at-risk number calculated by the institution's internal model in accordance with the following:

(i) a one-day holding period;

(ii) a 99th percentile, one tailed confidence interval;

(iii) scenarios of future shocks shall apply to the risk factors of the trading desks' positions referred to in Article 325bg(3) and which are considered modellable in accordance with Article 325be;

(iv) the data inputs used to determine the scenarios of future shocks applied to the modellable risk factors shall be calibrated to historical data referred to in point (c) of Article 325bc(4);

(v) unless stated otherwise in this Article, the institution's internal model shall be based on the same modelling assumptions as those used for the calculation of the expected shortfall risk measure referred to in point (a) of Article 325ba(1);

b the number of overshootings shall be equal to the greater of the number of overshootings under hypothetical and the actual changes in the value of the portfolio.

TABLE 3

Number of overshootings	**Add-on**
Fewer than 5	0,00
5	0,20
6	0,26
7	0,33
8	0,38
9	0,42
More than 9	0,50

In extraordinary circumstances, competent authorities may limit the add-on to that resulting from overshootings under back-testing hypothetical changes where the number of overshootings under back-testing actual changes does not result from deficiencies in the internal model.

7 Competent authorities shall monitor the appropriateness of the multiplication factor referred to in paragraph 5 and the compliance of trading desks with the back-testing requirements referred to in paragraph 3. Institutions shall promptly notify, the competent authorities of overshootings that result from their back-testing programme and provide an explanation for those overshootings, and in any case shall notify the competent authorities thereof no later than within five business days after the occurrence of an overshooting.

8 By way of derogation from paragraphs 2 and 6 of this Article, competent authorities may permit an institution not to count an overshooting where a one-day change in the value of its portfolio that exceeds the related value-at-risk number calculated by that institution's internal model is attributable to a non-modellable risk factor. To do so, the institution shall demonstrate to its competent authority that the stress scenario risk measure calculated in accordance with Article 325bk for that non-modellable risk factor is higher than the positive difference between the change in the value of the institution's portfolio and the related value-at-risk number.

9 EBA shall develop draft regulatory technical standards to specify the technical elements to be included in the actual and hypothetical changes to the value of the portfolio of an institution for the purposes of this Article.

EBA shall submit those draft regulatory technical standards to the Commission by 28 March 2020.

Power is delegated to the Commission to supplement this Regulation by adopting the regulatory technical standards referred to in the first subparagraph in accordance with Articles 10 to 14 of Regulation (EU) No 1093/2010.

Article 325bg

Profit and loss attribution requirement

1 An institution's trading desk meets the P&L attribution requirements where that trading desk complies with the requirements set out in this Article.

2 The P&L attribution requirement shall ensure that the theoretical changes in the value of a trading desk's portfolio, based on the institution's risk-measurement model, are sufficiently close to the hypothetical changes in the value of the trading desk's portfolio, based on the institution's pricing model.

3 For each position of a given trading desk, an institution's compliance with the P&L attribution requirement shall lead to the identification of a precise list of risk factors that are deemed appropriate for verifying the institution's compliance with the back-testing requirement set out in Article 325bf.

4 EBA shall develop draft regulatory technical standards to specify:

a the criteria necessary to ensure that the theoretical changes in the value of a trading desk's portfolio is sufficiently close to the hypothetical changes in the value of a trading desk's portfolio for the purposes of paragraph 2, taking into account international regulatory developments;

b the consequences for an institution where the theoretical changes in the value of a trading desk's portfolio are not sufficiently close to the hypothetical changes in the value of a trading desk's portfolio for the purposes of paragraph 2;

c the frequency at which the P&L attribution is to be performed by an institution;

d the technical elements to be included in the theoretical and hypothetical changes in the value of a trading desk's portfolio for the purposes of this Article;

e the manner in which institutions that use the internal model are to aggregate the total own funds requirement for market risk for all their trading book positions and non-trading book positions that are subject to foreign exchange risk or commodity risk, taking into account the consequences referred to in point (b).

EBA shall submit those draft regulatory technical standards to the Commission by 28 March 2020.

Power is delegated to the Commission to supplement this Regulation by adopting the regulatory technical standards referred to in the first subparagraph in accordance with Articles 10 to 14 of Regulation (EU) No 1093/2010.

Article 325bh

Requirements on risk measurement

1 Institutions using an internal risk-measurement model that is used to calculate the own funds requirements for market risk as referred to in Article 325ba shall ensure that that model meets all the following requirements:

a the internal risk-measurement model shall capture a sufficient number of risk factors, which shall include at least the risk factors referred to in Subsection 1 of Section 3 of Chapter 1a unless the institution demonstrates to the competent authorities that the omission of those risk factors does not have a material impact on the results of the P&L attribution requirement referred to in Article 325bg; an institution shall be able to explain to the competent authorities why it has incorporated a risk factor in its pricing model but not in its internal risk-measurement model;

b the internal risk-measurement model shall capture nonlinearities for options and other products as well as correlation risk and basis risk;

c the internal risk-measurement model shall incorporate a set of risk factors that correspond to the interest rates in each currency in which the institution has interest rate sensitive on- or off-balance-sheet positions; the institution shall model the yield curves using one of the generally accepted approaches; the yield curve shall be divided into various maturity segments to capture the variations of volatility of rates along the yield curve; for material exposures to interest-rate risk in the major currencies and markets, the yield curve shall be modelled using a minimum of six maturity segments, and the number of risk factors used to model the yield curve shall be proportionate to the nature and complexity of the institution's trading strategies, the model shall also capture the risk spread of less than perfectly correlated movements between different yield curves or different financial instruments on the same underlying issuer;

d the internal risk-measurement model shall incorporate risk factors corresponding to gold and to the individual foreign currencies in which the institution's positions are denominated; for CIUs, the actual foreign exchange positions of the CIU shall be taken into account; institutions may rely on third-party reporting of the foreign exchange position of the CIU, provided that the correctness of that report is adequately ensured; foreign exchange positions of a CIU of which an institution is not aware of shall be carved out from the internal models approach and treated in accordance with Chapter 1a;

e the sophistication of the modelling technique shall be proportionate to the materiality of the institutions' activities in the equity markets; the internal risk-measurement model shall use a separate risk factor at least for each of the equity markets in which the institution holds significant positions and at least one risk factor that captures systemic movements in equity prices and the dependency of that risk factor on the individual risk factors for each equity market;

f the internal risk-measurement model shall use a separate risk factor at least for each commodity in which the institution holds significant positions, unless the institution has a small aggregate commodity position compared to all its trading activities, in which case it may use a separate risk factor for each broad commodity type; for material exposures to commodity markets, the model shall capture the risk of less than perfectly correlated movements between commodities that are similar, but not identical, the exposure to changes in forward prices arising from maturity mismatches, and the convenience yield between derivative and cash positions;

g the proxies used shall show a good track record for the actual position held, shall be appropriately conservative, and shall be used only where the available data

are insufficient, such as during the period of stress referred to in point (c) of Article 325bc(2);

h for material exposures to volatility risks in instruments with optionality, the internal risk-measurement model shall capture the dependency of implied volatilities across strike prices and options' maturities.

2 Institutions may use empirical correlations within broad categories of risk factors and, for the purpose of calculating the unconstrained expected shortfall measure UES_t as referred to in Article 325bb(1), across broad categories of risk factors only where the institution's approach for measuring those correlations is sound, consistent with the applicable liquidity horizons, and implemented with integrity.

3 By 28 September 2020, EBA shall issue guidelines, in accordance with Article 16 of Regulation (EU) No 1093/2010, specifying criteria for the use of data inputs in the risk-measurement model referred to in Article 325bc.

Article 325bi

Qualitative requirements

1 Any internal risk-measurement model used for the purposes of this Chapter shall be conceptually sound, shall be calculated and implemented with integrity, and shall comply with all the following qualitative requirements:

a any internal risk-measurement model used to calculate capital requirements for market risk shall be closely integrated into the daily risk management process of the institution and shall serve as the basis for reporting risk exposures to senior management;

b an institution shall have a risk control unit that is independent from business trading units and that reports directly to senior management; that unit shall be responsible for designing and implementing any internal risk-measurement model; that unit shall conduct the initial and on-going validation of any internal model used for the purposes of this Chapter and shall be responsible for the overall risk management system; that unit shall produce and analyse daily reports on the output of any internal model used to calculate capital requirements for market risk, as well as reports on the appropriateness of measures to be taken in terms of trading limits;

c the management body and senior management shall be actively involved in the risk-control process, and the daily reports produced by the risk control unit shall be reviewed at a level of management with sufficient authority to require the reduction of positions taken by individual traders and to require the reduction of the institution's overall risk exposure;

d the institution shall have a sufficient number of staff with a level of skills that is appropriate to the sophistication of the internal risk-measurement models, and a sufficient number of staff with skills in the trading, risk control, audit and back-office areas;

e the institution shall have in place a documented set of internal policies, procedures and controls for monitoring and ensuring compliance with the overall operation of its internal risk-measurement models;

f any internal risk-measurement model, including any pricing model, shall have a proven track record of being reasonably accurate in measuring risks, and shall not differ significantly from the models that the institution uses for its internal risk management;

g the institution shall frequently conduct rigorous programmes of stress testing, including reverse stress tests, which shall encompass any internal risk-measurement model; the results of those stress tests shall be reviewed by senior management at least on a monthly

basis and shall comply with the policies and limits approved by the management body; the institution shall take appropriate actions where the results of those stress tests show excessive losses arising from the trading's business of the institution under certain circumstances;

h the institution shall conduct an independent review of its internal risk-measurement models, either as part of its regular internal auditing process, or by mandating a third-party undertaking to conduct that review, which shall be conducted to the satisfaction of the competent authorities.

For the purposes of point (h) of the first subparagraph, a third-party undertaking means an undertaking that provides auditing or consulting services to institutions and that has staff who have sufficient skills in the area of market risk in trading activities.

2 The review referred to in point (h) of paragraph 1 shall include both the activities of the business trading units and the independent risk control unit. The institution shall conduct a review of its overall risk management process at least once a year. That review shall assess the following:

a the adequacy of the documentation of the risk management system and process and the organisation of the risk control unit;

b the integration of risk measures into daily risk management and the integrity of the management information system;

c the processes the institution employs for approving the risk-pricing models and valuation systems that are used by front and back-office personnel;

d the scope of risks captured by the model, the accuracy and appropriateness of the risk-measurement system, and the validation of any significant changes to the internal risk-measurement model;

e the accuracy and completeness of position data, the accuracy and appropriateness of volatility and correlation assumptions, the accuracy of valuation and risk sensitivity calculations, and the accuracy and appropriateness for generating data proxies where the available data are insufficient to meet the requirement set out in this Chapter;

f the verification process that the institution employs to evaluate the consistency, timeliness and reliability of the data sources used to run any of its internal risk-measurement models, including the independence of those data sources;

g the verification process that the institution employs to evaluate back-testing requirements and P&L attribution requirements that are conducted in order to assess the accuracy of its internal risk-measurement models;

h where the review is performed by a third-party undertaking in accordance with point (h) of paragraph 1 of this Article, the verification that the internal validation process set out in Article 325bj fulfils its objectives.

3 Institutions shall update the techniques and practices they use for any of the internal risk-measurement models used for the purposes of this Chapter to take into account the evolution of new techniques and best practices that develop in respect of those internal risk-measurement models.

Article 325bj

Internal validation

1 Institutions shall have processes in place to ensure that any internal risk-measurement models used for the purposes of this Chapter have been adequately validated by suitably

qualified parties that are independent of the development process, in order to ensure that any such models are conceptually sound and adequately capture all material risks.

2 Institutions shall conduct the validation referred to in paragraph 1 in the following circumstances:

a when any internal risk-measurement model is initially developed and when any significant changes are made to that model;

b on a periodic basis, and where there have been significant structural changes in the market or changes to the composition of the portfolio which might lead to the internal risk-measurement model no longer being adequate.

3 The validation of the internal risk-measurement models of an institution shall not be limited to back-testing and P&L attribution requirements, but shall, at a minimum, include the following:

a tests to verify whether the assumptions made in the internal model are appropriate and do not underestimate or overestimate the risk;

b own internal model validation tests, including back-testing in addition to the regulatory back-testing programmes, in relation to the risks and structures of their portfolios;

c the use of hypothetical portfolios to ensure that the internal risk-measurement model is able to account for particular structural features that may arise, for example, material basis risks and concentration risk, or the risks associated with the use of proxies.

Article 325bk

Calculation of stress scenario risk measure

1 The ‘stress scenario risk measure’ of a given non-modellable risk factor means the loss that is incurred in all trading book positions or non-trading book positions that are subject to foreign exchange or commodity risk of the portfolio which includes that non-modellable risk factor when an extreme scenario of future shock is applied to that risk factor.

2 Institutions shall develop appropriate extreme scenarios of future shock for all non-modellable risk factors, to the satisfaction of their competent authorities.

3 EBA shall develop draft regulatory technical standards to specify:

a how institutions are to develop extreme scenarios of future shock applicable to non-modellable risk factors and how they are to apply those extreme scenarios of future shock to those risk factors;

b a regulatory extreme scenario of future shock for each broad sub-category of risk factors listed in Table 2 of Article 325bd, which institutions may use when they are unable to develop an extreme scenario of future shock in accordance with point (a) of this subparagraph, or which competent authorities may require that institution apply if those authorities are not satisfied with the extreme scenario of future shock developed by the institution;

c the circumstances under which institutions may calculate a stress scenario risk measure for more than one non-modellable risk factor;

d how institutions are to aggregate the stress scenario risk measures of all non-modellable risk factors included in their trading book positions and non-trading book positions that are subject to foreign exchange risk or commodity risk.

In developing those draft regulatory technical standards, EBA shall take into consideration the requirement that the level of own funds requirements for market risk

of a non-modellable risk factor as set out in this Article shall be as high as the level of own funds requirements for market risk that would have been calculated under this Chapter if that risk factor were modellable.

EBA shall submit those draft regulatory technical standards to the Commission by 28 September 2020.

Power is delegated to the Commission to supplement this Regulation by adopting the regulatory technical standards referred to in the first subparagraph in accordance with Articles 10 to 14 of Regulation (EU) No 1093/2010.

Section 3

Internal default risk model

Article 325bl

Scope of the internal default risk model

1 All the positions of an institution that have been assigned to the trading desks for which the institution has been granted permission as referred to in Article 325az(2) shall be subject to an own funds requirement for default risk where those positions contain at least one risk factor that has been mapped to the broad categories of ‘equity’ or ‘credit spread’ risk factors in accordance with Article 325bd(1). That own funds requirement, which is incremental to the risks captured by the own funds requirements referred to in Article 325ba(1), shall be calculated using the institution's internal default risk model. That model which shall comply with the requirements laid down in this Section.

2 For each of the positions referred to in paragraph 1, an institution shall identify one issuer of traded debt or equity instruments related to at least one risk factor.

Article 325bm

Permission to use an internal default risk model

1 Competent authorities shall grant an institution permission to use an internal default risk model to calculate the own funds requirements referred to in Article 325ba(2) for all the trading book positions referred to in Article 325bl that are assigned to a trading desk for which the internal default risk model complies with the requirements set out in Articles 325bi, 325bj, 325bn, 325bo and 325bp.

2 Where the trading desk of an institution, to which at least one of the trading book positions referred to in Article 325bl has been assigned, does not meet the requirements set out in paragraph 1 of this Article, the own funds requirements for market risk of all positions in that trading desk shall be calculated in accordance with the approach set out in Chapter 1a.

Article 325bn

Own funds requirements for default risk using an internal default risk model

1 Institutions shall calculate the own funds requirements for default risk using an internal default risk model for the portfolio of all trading book positions as referred to in Article 325bl as follows:

a the own funds requirements shall be equal to a value-at-risk number measuring potential losses in the market value of the portfolio caused by the default of issuers related to those positions at the 99,9 % confidence interval over a one-year time horizon;

b the potential loss referred to in point (a) means a direct or indirect loss in the market value of a position which was caused by the default of the issuers and which is incremental to any losses already taken into account in the current valuation of the position; the default of the issuers of equity positions shall be represented by the value for the issuers' equity prices being set to zero;

c institutions shall determine default correlations between different issuers on the basis of a conceptually sound methodology, using objective historical data on market credit spreads or equity prices that cover at least a 10 year period that includes the stress period identified by the institution in accordance with Article 325bc(2); the calculation of default correlations between different issuers shall be calibrated to a one-year time horizon;

d the internal default risk model shall be based on a one-year constant position assumption.

2 Institutions shall calculate the own funds requirement for default risk using an internal default risk model as referred to in paragraph 1 on at least a weekly basis.

3 By way of derogation from points (a) and (c) of paragraph 1, an institution may replace the one-year time horizon with a time horizon of sixty days for the purpose of calculating the default risk of some or all of the equity positions, where appropriate. In such case, the calculation of default correlations between equity prices and default probabilities shall be consistent with a time horizon of sixty days and the calculation of default correlations between equity prices and bond prices shall be consistent with a one-year time horizon.

Article 325bo

Recognition of hedges in an internal default risk model

1 Institutions may incorporate hedges in their internal default risk model and may net positions where the long positions and short positions relate to the same financial instrument.

2 In their internal default risk models, institutions may only recognise hedging or diversification effects associated with long and short positions involving different instruments or different securities of the same obligor, as well as long and short positions in different issuers by explicitly modelling the gross long and short positions in the different instruments, including modelling of basis risks between different issuers.

3 In their internal default risk models, institutions shall capture material risks between a hedging instrument and the hedged instrument that could occur during the interval between the maturity of a hedging instrument and the one-year time horizon, as well as the potential for significant basis risks in hedging strategies that arise from differences in the type of

product, seniority in the capital structure, internal or external ratings, maturity, vintage and other differences. Institutions shall recognise a hedging instrument only to the extent that it can be maintained even as the obligor approaches a credit event or other event.

Article 325bp

Particular requirements for an internal default risk model

1 The internal default risk model referred to in Article 325bm(1) shall be capable of modelling the default of individual issuers as well as the simultaneous default of multiple issuers, and shall take into account the impact of those defaults in the market values of the positions that are included in the scope of that model. For that purpose, the default of each individual issuer shall be modelled using two types of systematic risk factors.

2 The internal default risk model shall reflect the economic cycle, including the dependency between recovery rates and the systematic risk factors referred to in paragraph 1.

3 The internal default risk model shall reflect the nonlinear impact of options and other positions with material nonlinear behaviour with respect to price changes. Institutions shall also have due regard to the amount of model risk inherent in the valuation and estimation of price risks associated with those products.

4 The internal default risk model shall be based on data that are objective and up-to-date.

5 To simulate the default of issuers in the internal default risk model, the institution's estimates of default probabilities shall meet the following requirements:

a the default probabilities shall be floored at 0,03 %;

b the default probabilities shall be based on a one-year time horizon, unless stated otherwise in this Section;

c the default probabilities shall be measured using, solely or in combination with current market prices, data observed during a historical period of at least five years of actual past defaults and extreme declines in market prices equivalent to default events; default probabilities shall not be inferred solely from current market prices;

d an institution that has been granted permission to estimate default probabilities in accordance with Section 1 of Chapter 3 of Title II shall use the methodology set out therein to calculate default probabilities;

e an institution that has not been granted permission to estimate default probabilities in accordance with Section 1 of Chapter 3 of Title II shall develop an internal methodology or use external sources to estimate default probabilities; in both situations, the estimates of default probabilities shall be consistent with the requirements set out in this Article.

6 To simulate the default of issuers in the internal default risk model, the institution's estimates of loss given default shall meet the following requirements:

a the loss given default estimates are floored at 0 %;

b the loss given default estimates shall reflect the seniority of each position;

c an institution that has been granted permission to estimate loss given default in accordance with Section 1 of Chapter 3 of Title II shall use the methodology set out therein to calculate loss given default estimates;

d an institution that has not been granted permission to estimate loss given default in accordance with Section 1 of Chapter 3 of Title II shall develop an internal methodology or use external sources to estimate loss given default; in both situations, the estimates of loss given default shall be consistent with the requirements set out in this Article.

7 As part of the independent review and validation of the internal models that they use for the purposes of this Chapter, including for the risk-measurement system, institutions shall:

a verify that their approach for the modelling of correlations and price changes is appropriate for their portfolio, including the choice and weights of the systematic risk factors in the model;

b perform a variety of stress tests, including sensitivity analyses and scenario analyses, to assess the qualitative and quantitative reasonableness of the internal default risk model, in particular with regard to the treatment of concentrations; and

c apply appropriate quantitative validation including relevant internal modelling benchmarks.

The tests referred to in point (b) shall not be limited to the range of past events experienced.

8 The internal default risk model shall appropriately reflect issuer concentrations and concentrations that can arise within and across product classes under stressed conditions.

9 The internal default risk model shall be consistent with the institution's internal risk management methodologies for identifying, measuring, and managing trading risks.

10 Institutions shall have clearly defined policies and procedures for determining the default assumptions for correlations between different issuers in accordance with point (c) of Article 325bn(1) and the preferred choice of method for estimating the default probabilities in point (e) of paragraph 5 of this Article and the loss given default in point (d) of paragraph 6 of this Article.

11 Institutions shall document their internal models so that their correlation assumptions and other modelling assumptions are transparent to the competent authorities.

12 EBA shall develop draft regulatory technical standards to specify the requirements that an institution's internal methodology or external sources are to fulfil for estimating default probabilities and losses given default in accordance with point (e) of paragraph 5 and point (d) of paragraph 6.

EBA shall submit those draft regulatory technical standards to the Commission by 28 September 2020.

Power is delegated to the Commission to supplement this Regulation by adopting the regulatory technical standards referred to in the first subparagraph in accordance with Articles 10 to 14 of Regulation (EU) No 1093/2010.**]**

CHAPTER 2

Own funds requirements for position risk

Section 1

General provisions and specific instruments

Article 326

Own funds requirements for position risk

The institution's own funds requirement for position risk shall be the sum of the own funds requirements for the general and specific risk of its positions in debt and equity instruments. Securitisation positions in the trading book shall be treated as debt instruments.

Article 327

Netting

1 The absolute value of the excess of an institution's long (short) positions over its short (long) positions in the same equity, debt and convertible issues and identical financial futures, options, warrants and covered warrants shall be its net position in each of those different instruments. In calculating the net position, positions in derivative instruments shall be treated as laid down in Articles 328 to 330. Institutions' holdings of their own debt instruments shall be disregarded in calculating specific risk capital requirements under Article 336.

2 No netting shall be allowed between a convertible and an offsetting position in the instrument underlying it, unless the competent authorities adopt an approach under which the likelihood of a particular convertible's being converted is taken into account or require an own funds requirement to cover any loss which conversion might entail. Such approaches or own funds requirements shall be notified to EBA. EBA shall monitor the range of practices in this area and shall, in accordance with Article 16 of Regulation (EU) No 1093/2010, issue guidelines.

3 All net positions, irrespective of their signs, shall be converted on a daily basis into the institution's reporting currency at the prevailing spot exchange rate before their aggregation.

Article 328

Interest rate futures and forwards

1 Interest-rate futures, forward-rate agreements (FRAs) and forward commitments to buy or sell debt instruments shall be treated as combinations of long and short positions. Thus a long interest-rate futures position shall be treated as a combination of a borrowing maturing on the delivery date of the futures contract and a holding of an asset with maturity date equal to that of the instrument or notional position underlying the futures contract in question. Similarly a sold FRA will be treated as a long position with a maturity date equal to the settlement date plus the contract period, and a short position with maturity equal to the settlement date. Both the borrowing and the asset holding shall be included in the first category set out in Table 1 in Article 336 in order to calculate the own funds requirement for specific risk for interest-

rate futures and FRAs. A forward commitment to buy a debt instrument shall be treated as a combination of a borrowing maturing on the delivery date and a long (spot) position in the debt instrument itself. The borrowing shall be included in the first category set out in Table 1 in Article 336 for purposes of specific risk, and the debt instrument under whichever column is appropriate for it in the same table.

2 For the purposes of this Article, 'long position' means a position in which an institution has fixed the interest rate it will receive at some time in the future, and 'short position' means a position in which it has fixed the interest rate it will pay at some time in the future.

Article 329

Options and warrants

1 Options and warrants on interest rates, debt instruments, equities, equity indices, financial futures, swaps and foreign currencies shall be treated as if they were positions equal in value to the amount of the underlying instrument to which the option refers, multiplied by its delta for the purposes of this Chapter. The latter positions may be netted off against any offsetting positions in the identical underlying securities or derivatives. The delta used shall be that of the exchange concerned. For OTC-options, or where delta is not available from the exchange concerned, the institution may calculate delta itself using an appropriate model, subject to permission by the competent authorities. Permission shall be granted if the model appropriately estimates the rate of change of the option's or warrant's value with respect to small changes in the market price of the underlying.

2 Institutions shall adequately reflect other risks, apart from the delta risk, associated with options in the own funds requirements.

3 EBA shall develop draft regulatory technical standards defining a range of methods to reflect in the own funds requirements other risks, apart from delta risk, referred to in paragraph 2 in a manner proportionate to the scale and complexity of institutions' activities in options and warrants.

EBA shall submit those draft regulatory technical standards to the Commission by 31 December 2013.

Power is delegated to the Commission to adopt the regulatory technical standards referred to in the first subparagraph in accordance with Articles 10 to 14 of Regulation (EU) No 1093/2010.

4 Before the entry into force of the technical standards referred to in paragraph 3, competent authorities may continue to apply the existing national treatments, where the competent authorities have applied those treatments before 31 December 2013.

Article 330

Swaps

Swaps shall be treated for interest-rate risk purposes on the same basis as on-balance-sheet instruments. Thus, an interest-rate swap under which an institution receives floating-rate interest and pays fixed-rate interest shall be treated as equivalent to a long position in a floating-rate instrument of maturity equivalent to the period until the next interest fixing and a short position in a fixed-rate instrument with the same maturity as the swap itself.

Article 331

Interest rate risk on derivative instruments

1 Institutions which mark to market and manage the interest-rate risk on the derivative instruments covered in Articles 328 to 330 on a discounted-cash-flow basis may, subject to permission by the competent authorities, use sensitivity models to calculate the positions referred to in those Articles and may use them for any bond which is amortised over its residual life rather than via one final repayment of principal. Permission shall be granted if these models generate positions which have the same sensitivity to interest-rate changes as the underlying cash flows. This sensitivity shall be assessed with reference to independent movements in sample rates across the yield curve, with at least one sensitivity point in each of the maturity bands set out in Table 2 in Article 339. The positions shall be included in the calculation of own funds requirements for general risk of debt instruments.

2 Institutions which do not use models under paragraph 1 may, treat as fully offsetting any positions in derivative instruments covered in Articles 328 to 330 which meet the following conditions at least:

a the positions are of the same value and denominated in the same currency;

b the reference rate (for floating-rate positions) or coupon (for fixed-rate positions) is closely matched;

c the next interest-fixing date or, for fixed coupon positions, residual maturity corresponds with the following limits:

(i) less than one month hence: same day;

(ii) between one month and one year hence: within seven days;

(iii) over one year hence: within 30 days.

Article 332

Credit Derivatives

1 When calculating the own funds requirement for general and specific risk of the party who assumes the credit risk (the ‘protection seller’), unless specified differently, the notional amount of the credit derivative contract shall be used. Notwithstanding the first sentence, the institution may elect to replace the notional value by the notional value plus the net market value change of the credit derivative since trade inception, a net downward change from the protection seller's perspective carrying a negative sign. For the purpose of calculating the specific risk charge, other than for total return swaps, the maturity of the credit derivative contract, rather than the maturity of the obligation, shall apply. Positions are determined as follows:

a a total return swap creates a long position in the general risk of the reference obligation and a short position in the general risk of a government bond with a maturity equivalent to the period until the next interest fixing and which is assigned a 0 % risk weight under Title II, Chapter 2. It also creates a long position in the specific risk of the reference obligation;

b a credit default swap does not create a position for general risk. For the purposes of specific risk, the institution shall record a synthetic long position in an obligation of the reference entity, unless the derivative is rated externally and meets the conditions for a qualifying debt item, in which case a long position in the derivative is recorded.

If premium or interest payments are due under the product, these cash flows shall be represented as notional positions in government bonds;

c a single name credit linked note creates a long position in the general risk of the note itself, as an interest rate product. For the purpose of specific risk, a synthetic long position is created in an obligation of the reference entity. An additional long position is created in the issuer of the note. Where the credit linked note has an external rating and meets the conditions for a qualifying debt item, a single long position with the specific risk of the note need only be recorded;

d in addition to a long position in the specific risk of the issuer of the note, a multiple name credit linked note providing proportional protection creates a position in each reference entity, with the total notional amount of the contract assigned across the positions according to the proportion of the total notional amount that each exposure to a reference entity represents. Where more than one obligation of a reference entity can be selected, the obligation with the highest risk weighting determines the specific risk;

e a first-asset-to-default credit derivative creates a position for the notional amount in an obligation of each reference entity. If the size of the maximum credit event payment is lower than the own funds requirement under the method in the first sentence of this point, the maximum payment amount may be taken as the own funds requirement for specific risk.

A -n-th-asset-to-default credit derivative creates a position for the notional amount in an obligation of each reference entity less the n-1 reference entities with the lowest specific risk own funds requirement. If the size of the maximum credit event payment is lower than the own funds requirement under the method in the first sentence of this point, this amount may be taken as the own funds requirement for specific risk.

Where an n-th-to-default credit derivative is externally rated, the protection seller shall calculate the specific risk own funds requirement using the rating of the derivative and apply the respective securitisation risk weights as applicable.

2 For the party who transfers credit risk (the protection buyer), the positions are determined as the mirror principle of the protection seller, with the exception of a credit linked note (which entails no short position in the issuer). When calculating the own funds requirement for the ‘protection buyer’, the notional amount of the credit derivative contract shall be used. Notwithstanding the first sentence, the institution may elect to replace the notional value by the notional value plus the net market value change of the credit derivative since trade inception, a net downward change from the protection seller's perspective carrying a negative sign. If at a given moment there is a call option in combination with a step-up, such moment is treated as the maturity of the protection.

3 Credit derivatives in accordance with Article 338(1) or (3) shall be included only in the determination of the specific risk own funds requirement in accordance with Article 338(4).

Article 333

Securities sold under a repurchase agreement or lent

The transferor of securities or guaranteed rights relating to title to securities in a repurchase agreement and the lender of securities in a securities lending shall include these securities in the calculation of its own funds requirement under this Chapter provided that such securities are trading book positions.

Section 2

Debt instruments

Article 334

Net positions in debt instruments

Net positions shall be classified according to the currency in which they are denominated and shall calculate the own funds requirement for general and specific risk in each individual currency separately.

Sub-Section 1

Specific risk

Article 335

Cap on the own funds requirement for a net position

The institution may cap the own funds requirement for specific risk of a net position in a debt instrument at the maximum possible default-risk related loss. For a short position, that limit may be calculated as a change in value due to the instrument or, where relevant, the underlying names immediately becoming default risk-free.

Article 336

Own funds requirement for non-securitisation debt instruments

1 The institution shall assign its net positions in the trading book in instruments that are not securitisation positions as calculated in accordance with Article 327 to the appropriate categories in Table 1 on the basis of their issuer or obligor, external or internal credit assessment, and residual maturity, and then multiply them by the weightings shown in that table. It shall sum its weighted positions resulting from the application of this Article regardless of whether they are long or short in order to calculate its own funds requirement against specific risk.

TABLE 1

Categories	Specific risk own funds requirement
Debt securities which would receive a 0 % risk weight under the Standardised Approach for credit risk.	0 %
Debt securities which would receive a 20 % or 50 % risk weight under the Standardised Approach for credit risk and other qualifying items as defined in paragraph 4.	0,25 % (residual term to final maturity six months or less) 1,00 % (residual term to final maturity greater than six months and up to and including 24 months) 1,60 % (residual term to maturity exceeding 24 months)

Debt securities which would receive a 100 % risk weight under the Standardised Approach for credit risk.	8,00 %
Debt which would receive a 150 % risk weight under the Standardised Approach for credit risk.	12,00 %

2 For institutions which apply the IRB Approach to the exposure class of which the issuer of the debt instrument forms part, to qualify for a risk weight under the Standardised Approach for credit risk as referred to in paragraph 1, the issuer of the exposure shall have an internal rating with a PD equivalent to or lower than that associated with the appropriate credit quality step under the Standardised Approach.

3 Institutions may calculate the specific risk requirements for any bonds that qualify for a 10 % risk weight in accordance with the treatment set out in Article 129(4), (5) and (6) as half of the applicable specific risk own funds requirement for the second category in Table 1.

4 Other qualifying items are:

a long and short positions in assets for which a credit assessment by a nominated ECAI is not available and which meet all of the following conditions:

(i) they are considered by the institution concerned to be sufficiently liquid;

(ii) their investment quality is, according to the institution's own discretion, at least equivalent to that of the assets referred to under Table 1 second row;

(iii) they are listed on at least one regulated market in a Member State or on a stock exchange in a third country provided that the exchange is recognised by the competent authorities of the relevant Member State;

b long and short positions in assets issued by institutions subject to the own funds requirements set out in this Regulation which are considered by the institution concerned to be sufficiently liquid and whose investment quality is, according to the institution's own discretion, at least equivalent to that of the assets referred to under Table 1 second row;

c securities issued by institutions that are deemed to be of equivalent, or higher, credit quality than those associated with credit quality step 2 under the Standardised Approach for credit risk of exposures to institutions and that are subject to supervisory and regulatory arrangements comparable to those under this Regulation and Directive 2013/36/EU.

Institutions that make use of point (a) or (b) shall have a documented methodology in place to assess whether assets meet the requirements in those points and shall notify this methodology to the competent authorities.

[F3 Article 337

Own funds requirement for securitisation instruments

1 For instruments in the trading book that are securitisation positions, the institution shall weight the net positions as calculated in accordance with Article 327(1) with 8 % of the risk weight the institution would apply to the position in its non-trading book according to Section 3 of Chapter 5 of Title II.

2 When determining risk weights for the purposes of paragraph 1, estimates of PD and LGD may be determined based on estimates that are derived from an internal incremental default and migration risk model (IRC model) of an institution that has been granted permission to use an internal model for specific risk of debt instruments. The latter alternative may be used only subject to permission by the competent authorities, which shall be granted if those estimates meet the quantitative requirements for the IRB Approach set out in Chapter 3 of Title II.

In accordance with Article 16 of Regulation (EU) No 1093/2010, the EBA shall issue guidelines on the use of estimates of PD and LGD as inputs when those estimates are based on an IRC model.

3 For securitisation positions that are subject to an additional risk weight in accordance with Article 247(6), 8 % of the total risk weight shall be applied.

4 The institution shall sum its weighted positions resulting from the application of paragraphs 1, 2 and 3 regardless of whether they are long or short, in order to calculate its own funds requirement against specific risk, except for securitisation positions subject to Article 338(4).

5 Where an originator institution of a traditional securitisation does not meet the conditions for significant risk transfer set out in Article 244, the originator institution shall include the exposures underlying the securitisation in its calculation of own funds requirement as if those exposures had not been securitised.

Where an originator institution of a synthetic securitisation does not meet the conditions for significant risk transfer set out in Article 245, the originator institution shall include the exposures underlying the securitisation in its calculation of own funds requirements as if those exposures had not been securitised and shall ignore the effect of the synthetic securitisation for credit protection purposes.**]**

Textual Amendments

F3 Substituted by Regulation (EU) 2017/2401 of the European Parliament and of the Council of 12 December 2017 amending Regulation (EU) No 575/2013 on prudential requirements for credit institutions and investment firms.

Article 338

Own funds requirement for the correlation trading portfolio

1 The correlation trading portfolio shall consist of securitisation positions and n-th-to-default credit derivatives that meet all of the following criteria:

a the positions are neither re-securitisation positions, nor options on a securitisation tranche, nor any other derivatives of securitisation exposures that do not provide a pro-rata share in the proceeds of a securitisation tranche;

b all reference instruments are either of the following:

(i) single-name instruments, including single-name credit derivatives, for which a liquid two-way market exists;

(ii) commonly-traded indices based on those reference entities.

A two-way market is deemed to exist where there are independent bona fide offers to buy and sell so that a price reasonably related to the last sales price or current bona fide

competitive bid and offer quotations can be determined within one day and settled at such price within a relatively short time conforming to trade custom.

2 Positions which reference any of the following shall not be part of the correlation trading portfolio:

a an underlying that is capable of being assigned to the exposure class 'retail exposures' or to the exposure class 'exposures secured by mortgages on immovable property' under the Standardised Approach for credit risk in an institution's non-trading book;

b a claim on a special purpose entity, collateralised, directly or indirectly, by a position that would itself not be eligible for inclusion in the correlation trading portfolio in accordance with paragraph 1 and this paragraph.

3 An institution may include in the correlation trading portfolio positions which are neither securitisation positions nor n-th-to-default credit derivatives but which hedge other positions of that portfolio, provided that a liquid two-way market as described in the last subparagraph of paragraph 1 exists for the instrument or its underlyings.

4 An institution shall determine the larger of the following amounts as the specific risk own funds requirement for the correlation trading portfolio:

a the total specific risk own funds requirement that would apply just to the net long positions of the correlation trading portfolio;

b the total specific risk own funds requirement that would apply just to the net short positions of the correlation trading portfolio.

Sub-Section 2

General risk

Article 339

Maturity-based calculation of general risk

1 In order to calculate own funds requirements against general risk all positions shall be weighted according to maturity as explained in paragraph 2 in order to compute the amount of own funds required against them. This requirement shall be reduced when a weighted position is held alongside an opposite weighted position within the same maturity band. A reduction in the requirement shall also be made when the opposite weighted positions fall into different maturity bands, with the size of this reduction depending both on whether the two positions fall into the same zone, or not, and on the particular zones they fall into.

2 The institution shall assign its net positions to the appropriate maturity bands in column 2 or 3, as appropriate, in Table 2 in paragraph 4. It shall do so on the basis of residual maturity in the case of fixed-rate instruments and on the basis of the period until the interest rate is next set in the case of instruments on which the interest rate is variable before final maturity. It shall also distinguish between debt instruments with a coupon of 3 % or more and those with a coupon of less than 3 % and thus allocate them to column 2 or column 3 in Table 2. It shall then multiply each of them by the weighing for the maturity band in question in column 4 in Table 2.

3 The institution shall then work out the sum of the weighted long positions and the sum of the weighted short positions in each maturity band. The amount of the former which are matched by the latter in a given maturity band shall be the matched weighted position in that

band, while the residual long or short position shall be the unmatched weighted position for the same band. The total of the matched weighted positions in all bands shall then be calculated.

4 The institution shall compute the totals of the unmatched weighted long positions for the bands included in each of the zones in Table 2 in order to derive the unmatched weighted long position for each zone. Similarly, the sum of the unmatched weighted short positions for each band in a particular zone shall be summed to compute the unmatched weighted short position for that zone. That part of the unmatched weighted long position for a given zone that is matched by the unmatched weighted short position for the same zone shall be the matched weighted position for that zone. That part of the unmatched weighted long or unmatched weighted short position for a zone that cannot be thus matched shall be the unmatched weighted position for that zone.

TABLE 2

Zone	**Maturity band**		**Weighting (in %)**	**Assumed interest rate change (in %)**
	Coupon of 3 % or more	**Coupon of less than 3 %**		
One	0 ≤ 1 month	0 ≤ 1 month	0,00	—
	> 1 ≤ 3 months	> 1 ≤ 3 months	0,20	1,00
	> 3 ≤ 6 months	> 3 ≤ 6 months	0,40	1,00
	> 6 ≤ 12 months	> 6 ≤ 12 months	0,70	1,00
Two	> 1 ≤ 2 years	> 1,0 ≤ 1,9 years	1,25	0,90
	> 2 ≤ 3 years	> 1,9 ≤ 2,8 years	1,75	0,80
	> 3 ≤ 4 years	> 2,8 ≤ 3,6 years	2,25	0,75
Three	> 4 ≤ 5 years	> 3,6 ≤ 4,3 years	2,75	0,75
	> 5 ≤ 7 years	> 4,3 ≤ 5,7 years	3,25	0,70
	> 7 ≤ 10 years	> 5,7 ≤ 7,3 years	3,75	0,65
	> 10 ≤ 15 years	> 7,3 ≤ 9,3 years	4,50	0,60
	> 15 ≤ 20 years	> 9,3 ≤ 10,6 years	5,25	0,60
	> 20 years	> 10,6 ≤ 12,0 years	6,00	0,60
		> 12,0 ≤ 20,0 years	8,00	0,60
		> 20 years	12,50	0,60

5 The amount of the unmatched weighted long or short position in zone one which is matched by the unmatched weighted short or long position in zone two shall then be the matched weighted position between zones one and two. The same calculation shall then be undertaken with regard to that part of the unmatched weighted position in zone two which is left over and the unmatched weighted position in zone three in order to calculate the matched weighted position between zones two and three.

6 The institution may reverse the order in paragraph 5 so as to calculate the matched weighted position between zones two and three before calculating that position between zones one and two.

7 The remainder of the unmatched weighted position in zone one shall then be matched with what remains of that for zone three after the latter's matching with zone two in order to derive the matched weighted position between zones one and three.

8 Residual positions, following the three separate matching calculations in paragraphs 5, 6 and 7 shall be summed.

9 The institution's own funds requirement shall be calculated as the sum of:

a 10 % of the sum of the matched weighted positions in all maturity bands;

b 40 % of the matched weighted position in zone one;

c 30 % of the matched weighted position in zone two;

d 30 % of the matched weighted position in zone three;

e 40 % of the matched weighted position between zones one and two and between zones two and three;

f 150 % of the matched weighted position between zones one and three;

g 100 % of the residual unmatched weighted positions.

Article 340

Duration-based calculation of general risk

1 Institutions may use an approach for calculating the own funds requirement for the general risk on debt instruments which reflects duration, instead of the approach set out in Article 339, provided that the institution does so on a consistent basis.

2 Under the duration-based approach referred to in paragraph 1, the institution shall take the market value of each fixed-rate debt instrument and hence calculate its yield to maturity, which is implied discount rate for that instrument. In the case of floating-rate instruments, the institution shall take the market value of each instrument and hence calculate its yield on the assumption that the principal is due when the interest rate can next be changed.

3 The institution shall then calculate the modified duration of each debt instrument on the basis of the following formula:

$$\text{modified duration} = \frac{D}{1+R}$$

where:

D = duration calculated according to the following formula:

$$D = \frac{\sum_{t=1}^{M} \frac{t \times C_t}{(1+R)^t}}{\sum_{t=1}^{M} \frac{C_t}{(1+R)^t}}$$

where:

R = yield to maturity;

C_t = cash payment in time t;

M = total maturity.

Correction shall be made to the calculation of the modified duration for debt instruments which are subject to prepayment risk. EBA shall, in accordance with Article 16 of Regulation (EU) No 1093/2010, issue guidelines about how to apply such corrections.

4 The institution shall then allocate each debt instrument to the appropriate zone in Table 3. It shall do so on the basis of the modified duration of each instrument.

TABLE 3

Zone	Modified duration(in years)	Assumed interest (change in %)
One	> 0 ≤ 1,0	1,0
Two	> 1,0 ≤ 3,6	0,85
Three	> 3,6	0,7

5 The institution shall then calculate the duration-weighted position for each instrument by multiplying its market price by its modified duration and by the assumed interest-rate change for an instrument with that particular modified duration (see column 3 in Table 3).

6 The institution shall calculate its duration-weighted long and its duration-weighted short positions within each zone. The amount of the former which are matched by the latter within each zone shall be the matched duration-weighted position for that zone.

The institution shall then calculate the unmatched duration-weighted positions for each zone. It shall then follow the procedures laid down for unmatched weighted positions in Article 339(5) to (8).

7 The institution's own funds requirement shall then be calculated as the sum of the following:

a 2 % of the matched duration-weighted position for each zone;

b 40 % of the matched duration-weighted positions between zones one and two and between zones two and three;

c 150 % of the matched duration-weighted position between zones one and three;

d 100 % of the residual unmatched duration-weighted positions.

Section 3

Equities

Article 341

Net positions in equity instruments

1 The institution shall separately sum all its net long positions and all its net short positions in accordance with Article 327. The sum of the absolute values of the two figures shall be its overall gross position.

2 The institution shall calculate, separately for each market, the difference between the sum of the net long and the net short positions. The sum of the absolute values of those differences shall be its overall net position.

3 EBA shall develop draft regulatory technical standards defining the term market referred to in paragraph 2.

EBA shall submit those draft regulatory technical standards to the Commission by 31 January 2014.

Power is delegated to the Commission to adopt the regulatory technical standards referred to in the first subparagraph in accordance with Articles 10 to 14 of Regulation (EU) No 1093/2010.

Article 342

Specific risk of equity instruments

The institution shall multiply its overall gross position by 8 % in order to calculate its own funds requirement against specific risk.

Article 343

General risk of equity instruments

The own funds requirement against general risk shall be the institution's overall net position multiplied by 8 %.

Article 344

Stock indices

1 EBA shall develop draft implementing technical standards listing the stock indices for which the treatments set out in the second sentence of paragraph 4 is available.

EBA shall submit those draft implementing technical standards to the Commission by 1 January 2014.

Power is conferred on the Commission to adopt the implementing technical standards referred to in the first subparagraph in accordance with Article 15 of Regulation (EU) No 1093/2010.

2 Before the entry into force of the technical standards referred to in paragraph 1, institutions may continue to apply the treatment set out in the second sentence of paragraph 4, where the competent authorities have applied that treatment before 1 January 2014.

3 Stock-index futures, the delta-weighted equivalents of options in stock-index futures and stock indices collectively referred to hereafter as ‘stock-index futures’, may be broken down into positions in each of their constituent equities. These positions may be treated as underlying positions in the equities in question, and may, be netted against opposite positions in the underlying equities themselves. Institutions shall notify the competent authority of the use they make of that treatment.

4 Where a stock-index future is not broken down into its underlying positions, it shall be treated as if it were an individual equity. However, the specific risk on this individual equity can be ignored if the stock-index future in question is exchange traded and represents a relevant appropriately diversified index.

Section 4

Underwriting

Article 345

Reduction of net positions

1 In the case of the underwriting of debt and equity instruments, an institution may use the following procedure in calculating its own funds requirements. The institution shall first calculate the net positions by deducting the underwriting positions which are subscribed or sub-underwritten by third parties on the basis of formal agreements. The institution shall then reduce the net positions by the reduction factors in Table 4 and calculate its own funds requirements using the reduced underwriting positions.

TABLE 4

working day 0:	100 %
working day 1:	90 %
working days 2 to 3:	75 %
working day 4:	50 %
working day 5:	25 %
after working day 5:	0 %.

‘Working day zero’ shall be the working day on which the institution becomes unconditionally committed to accepting a known quantity of securities at an agreed price.

2 The institutions shall notify to the competent authorities the use they make of paragraph 1.

Section 5

Specific risk own funds requirements for positions hedged by credit derivatives

Article 346

Allowance for hedges by credit derivatives

1 An allowance shall be given for hedges provided by credit derivatives, in accordance with the principles set out in paragraphs 2 to 6.

2 Institutions shall treat the position in the credit derivative as one ‘leg’ and the hedged position that has the same nominal, or, where applicable, notional amount, as the other ‘leg’.

3 Full allowance shall be given when the values of the two legs always move in the opposite direction and broadly to the same extent. This will be the case in the following situations:

a the two legs consist of completely identical instruments;

b a long cash position is hedged by a total rate of return swap (or vice versa) and there is an exact match between the reference obligation and the underlying exposure (i.e., the cash position). The maturity of the swap itself may be different from that of the underlying exposure.

In these situations, a specific risk own funds requirement shall not be applied to either side of the position.

4 An 80 % offset will be applied when the values of the two legs always move in the opposite direction and where there is an exact match in terms of the reference obligation, the maturity of both the reference obligation and the credit derivative, and the currency of the underlying exposure. In addition, key features of the credit derivative contract shall not cause the price movement of the credit derivative to materially deviate from the price movements of the cash position. To the extent that the transaction transfers risk, an 80 % specific risk offset will be applied to the side of the transaction with the higher own funds requirement, while the specific risk requirements on the other side shall be zero.

5 Partial allowance shall be given, absent the situations in paragraphs 3 and 4, in the following situations:

a the position falls under paragraph 3(b) but there is an asset mismatch between the reference obligation and the underlying exposure. However, the positions meet the following requirements:

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

(ii) the underlying obligation and reference obligation share the same obligor and have legally enforceable cross-default or cross-acceleration clauses;

b the position falls under paragraph 3(a) or paragraph 4 but there is a currency or maturity mismatch between the credit protection and the underlying asset. Such currency mismatch shall be included in the own funds requirement for foreign exchange risk;

c the position falls under paragraph 4 but there is an asset mismatch between the cash position and the credit derivative. However, the underlying asset is included in the (deliverable) obligations in the credit derivative documentation.

In order to give partial allowance, rather than adding the specific risk own funds requirements for each side of the transaction, only the higher of the two own funds requirements shall apply.

6 In all situations not falling under paragraphs 3 to 5, an own funds requirement for specific risk shall be calculated for both sides of the positions separately.

Article 347

Allowance for hedges by first and nth-to default credit derivatives

In the case of first-to-default credit derivatives and nth-to-default credit derivatives, the following treatment applies for the allowance to be given in accordance with Article 346:

(a) where an institution obtains credit protection for a number of reference entities underlying a credit derivative under the terms that the first default among the assets shall trigger payment and that this credit event shall terminate the contract, the

institution may offset specific risk for the reference entity to which the lowest specific risk percentage charge among the underlying reference entities applies in accordance with Table 1 in Article 336;

(b) where the nth default among the exposures triggers payment under the credit protection, the protection buyer may only offset specific risk if protection has also been obtained for defaults 1 to n-1 or when n-1 defaults have already occurred. In such cases, the methodology set out in point (a) for first-to-default credit derivatives shall be followed appropriately amended for nth-to-default products.

Section 6

Own funds requirements for CIUs

Article 348

Own funds requirements for CIUs

1 Without prejudice to other provisions in this Section, positions in CIUs shall be subject to an own funds requirement for position risk, comprising specific and general risk, of 32 %. Without prejudice to Article 353 taken together with the amended gold treatment set out in Article 352(4) and Article 367(2)(b) positions in CIUs shall be subject to an own funds requirement for position risk, comprising specific and general risk, and foreign-exchange risk of 40 %.

2 Unless noted otherwise in Article 350, no netting is permitted between the underlying investments of a CIU and other positions held by the institution.

Article 349

General criteria for CIUs

CIUs shall be eligible for the approach set out in Article 350, where all the following conditions are met:

(a) the CIU's prospectus or equivalent document shall include all of the following:

(i) the categories of assets in which the CIU is authorised to invest;

(ii) where investment limits apply, the relative limits and the methodologies to calculate them;

(iii) where leverage is allowed, the maximum level of leverage;

(iv) where concluding OTC financial derivatives transactions or repurchase transactions or securities borrowing or lending is allowed, a policy to limit counterparty risk arising from these transactions;

(b) the business of the CIU shall be reported in half-yearly and annual reports to enable an assessment to be made of the assets and liabilities, income and operations over the reporting period;

(c) the shares or units of the CIU shall be redeemable in cash, out of the undertaking's assets, on a daily basis at the request of the unit holder;

(d) investments in the CIU shall be segregated from the assets of the CIU manager;

(e) there shall be adequate risk assessment of the CIU, by the investing institution;

(f) CIUs shall be managed by persons supervised in accordance with Directive 2009/65/EC or equivalent legislation.

Article 350

Specific methods for CIUs

1 Where the institution is aware of the underlying investments of the CIU on a daily basis, the institution may look through to those underlying investments in order to calculate the own funds requirements for position risk, comprising specific and general risk. Under such an approach, positions in CIUs shall be treated as positions in the underlying investments of the CIU. Netting shall be permitted between positions in the underlying investments of the CIU and other positions held by the institution, provided that the institution holds a sufficient quantity of shares or units to allow for redemption/creation in exchange for the underlying investments.

2 Institutions may calculate the own funds requirements for position risk, comprising specific and general risk, for positions in CIUs by assuming positions representing those necessary to replicate the composition and performance of the externally generated index or fixed basket of equities or debt securities referred to in point (a), subject to the following conditions:

a the purpose of the CIU's mandate is to replicate the composition and performance of an externally generated index or fixed basket of equities or debt securities;

b a minimum correlation coefficient between daily returns on the CIU and the index or basket of equities or debt securities it tracks of 0,9 can be clearly established over a minimum period of six months.

3 Where the institution is not aware of the underlying investments of the CIU on a daily basis, the institution may calculate the own funds requirements for position risk, comprising specific and general risk, subject to the following conditions:

a it will be assumed that the CIU first invests to the maximum extent allowed under its mandate in the asset classes attracting the highest own funds requirement for specific and general risk separately, and then continues making investments in descending order until the maximum total investment limit is reached. The position in the CIU will be treated as a direct holding in the assumed position;

b institutions shall take account of the maximum indirect exposure that they could achieve by taking leveraged positions through the CIU when calculating their own funds requirement for specific and general risk separately, by proportionally increasing the position in the CIU up to the maximum exposure to the underlying investment items resulting from the mandate;

c if the own funds requirement for specific and general risk together in accordance with this paragraph exceed that set out in Article 348(1) the own funds requirement shall be capped at that level.

4 Institutions may rely on the following third parties to calculate and report own funds requirements for position risk for positions in CIUs falling under paragraphs 1 to 4, in accordance with the methods set out in this Chapter:

a the depository of the CIU provided that the CIU exclusively invests in securities and deposits all securities at this depository;

b for other CIUs, the CIU management company, provided that the CIU management company meets the criteria set out in Article 132(3)(a).

The correctness of the calculation shall be confirmed by an external auditor.

CHAPTER 3

Own funds requirements for foreign-exchange risk

Article 351

De minimis and weighting for foreign exchange risk

If the sum of an institution's overall net foreign-exchange position and its net gold position, calculated in accordance with the procedure set out in Article 352, including for any foreign exchange and gold positions for which own funds requirements are calculated using an internal model, exceeds 2 % of its total own funds, the institution shall calculate an own funds requirement for foreign exchange risk. The own funds requirement for foreign exchange risk shall be the sum of its overall net foreign-exchange position and its net gold position in the reporting currency, multiplied by 8 %.

Article 352

Calculation of the overall net foreign exchange position

1 The institution's net open position in each currency (including the reporting currency) and in gold shall be calculated as the sum of the following elements (positive or negative):

a the net spot position (i.e. all asset items less all liability items, including accrued interest, in the currency in question or, for gold, the net spot position in gold);

b the net forward position, which are all amounts to be received less all amounts to be paid under forward exchange and gold transactions, including currency and gold futures and the principal on currency swaps not included in the spot position;

c irrevocable guarantees and similar instruments that are certain to be called and likely to be irrecoverable;

d the net delta, or delta-based, equivalent of the total book of foreign-currency and gold options;

e the market value of other options.

The delta used for purposes of point (d) shall be that of the exchange concerned. For OTC options, or where delta is not available from the exchange concerned, the institution may calculate delta itself using an appropriate model, subject to permission by the competent authorities. Permission shall be granted if the model appropriately estimates the rate of change of the option's or warrant's value with respect to small changes in the market price of the underlying.

The institution may include net future income/expenses not yet accrued but already fully hedged if it does so consistently.

The institution may break down net positions in composite currencies into the component currencies in accordance with the quotas in force.

2 Any positions which an institution has deliberately taken in order to hedge against the adverse effect of the exchange rate on its ratios in accordance with Article 92(1) may, subject to permission by the competent authorities, be excluded from the calculation of net open currency positions. Such positions shall be of a non-trading or structural nature and any variation of the terms of their exclusion, subject to separate permission by the competent authorities. The same treatment subject to the same conditions may be applied to positions which an institution has which relate to items that are already deducted in the calculation of own funds.

3 An institution may use the net present value when calculating the net open position in each currency and in gold provided that the institution applies this approach consistently.

4 Net short and long positions in each currency other than the reporting currency and the net long or short position in gold shall be converted at spot rates into the reporting currency. They shall then be summed separately to form the total of the net short positions and the total of the net long positions respectively. The higher of these two totals shall be the institution's overall net foreign-exchange position.

5 Institutions shall adequately reflect other risks associated with options, apart from the delta risk, in the own funds requirements.

6 EBA shall develop draft regulatory technical standards defining a range of methods to reflect in the own funds requirements other risks, apart from delta risk, in a manner proportionate to the scale and complexity of institutions' activities in options.

EBA shall submit those draft regulatory technical standards to the Commission by 31 December 2013.

Power is delegated to the Commission to adopt the regulatory technical standards referred to in the first subparagraph in accordance with Articles 10 to 14 of Regulation (EU) No 1093/2010.

Before the entry into force of the technical standards referred to in the first subparagraph, competent authorities may continue to apply the existing national treatments, where the competent authorities have applied those treatments before 31 December 2013.

Article 353

Foreign exchange risk of CIUs

1 For the purposes of Article 352, in respect of CIUs the actual foreign exchange positions of the CIU shall be taken into account.

2 Institutions may rely on the following third parties' reporting of the foreign exchange positions in the CIU:

a the depository institution of the CIU provided that the CIU exclusively invests in securities and deposits all securities at this depository institution;

b for other CIUs, the CIU management company, provided that the CIU management company meets the criteria set out in point (a) of Article 132(3).

The correctness of the calculation shall be confirmed by an external auditor.

3 Where an institution is not aware of the foreign exchange positions in a CIU, it shall be assumed that the CIU is invested up to the maximum extent allowed under the CIU's mandate in foreign exchange and institutions shall, for trading book positions, take account of the maximum indirect exposure that they could achieve by taking leveraged positions through

the CIU when calculating their own funds requirement for foreign exchange risk. This shall be done by proportionally increasing the position in the CIU up to the maximum exposure to the underlying investment items resulting from the investment mandate. The assumed position of the CIU in foreign exchange shall be treated as a separate currency according to the treatment of investments in gold, subject to the addition of the total long position to the total long open foreign exchange position and the total short position to the total short open foreign exchange position where the direction of the CIU's investment is available. There shall be no netting allowed between such positions prior to the calculation.

Article 354

Closely correlated currencies

1 Institutions may provide lower own funds requirements against positions in relevant closely correlated currencies. A pair of currencies is deemed to be closely correlated only if the likelihood of a loss — calculated on the basis of daily exchange-rate data for the preceding three or five years — occurring on equal and opposite positions in such currencies over the following 10 working days, which is 4 % or less of the value of the matched position in question (valued in terms of the reporting currency) has a probability of at least 99 %, when an observation period of three years is used, and 95 %, when an observation period of five years is used. The own-funds requirement on the matched position in two closely correlated currencies shall be 4 % multiplied by the value of the matched position.

2 In calculating the requirements of this Chapter, institutions may disregard positions in currencies, which are subject to a legally binding intergovernmental agreement to limit its variation relative to other currencies covered by the same agreement. Institutions shall calculate their matched positions in such currencies and subject them to an own funds requirement no lower than half of the maximum permissible variation laid down in the intergovernmental agreement in question in respect of the currencies concerned.

3 EBA shall develop draft implementing technical standards listing the currencies for which the treatment set out in paragraph 1 is available.

EBA shall submit those draft implementing technical standards to the Commission by 1 January 2014.

Power is conferred on the Commission to adopt the implementing technical standards referred to in the first subparagraph in accordance with Article 15 of Regulation (EU) No 1093/2010.

4 The own funds requirement on the matched positions in currencies of Member States participating in the second stage of the economic and monetary union may be calculated as 1,6 % of the value of such matched positions.

5 Only the unmatched positions in currencies referred to in this Article shall be incorporated into the overall net open position in accordance with Article 352(4).

6 Where daily exchange-rate data for the preceding three or five years — occurring on equal and opposite positions in a pair of currencies over the following 10 working days show that these two currencies are perfectly positively correlated and the institution always can face a zero bid/ask spread on the respective trades, the institution can, upon explicit permission by its competent authority, apply an own funds requirement of 0 % until the end of 2017.

CHAPTER 4

Own funds requirements for commodities risk

Article 355

Choice of method for commodities risk

Subject to Articles 356 to 358, institutions shall calculate the own funds requirement for commodities risk with one of the methods set out in Article 359, 360 or 361.

Article 356

Ancillary commodities business

1 Institutions with ancillary agricultural commodities business may determine the own funds requirements for their physical commodity stock at the end of each year for the following year where all of the following conditions are met:

a at any time of the year it holds own funds for this risk which are not lower than the average own funds requirement for that risk estimated on a conservative basis for the coming year;

b it estimates on a conservative basis the expected volatility for the figure calculated under point (a);

c its average own funds requirement for this risk does not exceed 5 % of its own funds or EUR 1 million and, taking into account the volatility estimated in accordance with (b), the expected peak own funds requirements do not exceed 6,5 % of its own funds;

d the institution monitors on an ongoing basis whether the estimates carried out under points (a) and (b) still reflect the reality.

2 Institutions shall notify to the competent authorities the use they make of the option provided in paragraph 1.

Article 357

Positions in commodities

1 Each position in commodities or commodity derivatives shall be expressed in terms of the standard unit of measurement. The spot price in each commodity shall be expressed in the reporting currency.

2 Positions in gold or gold derivatives shall be considered as being subject to foreign-exchange risk and treated in accordance with Chapter 3 or 5, as appropriate, for the purpose of calculating commodities risk.

3 For the purpose of Article 360(1), the excess of an institution's long positions over its short positions, or vice versa, in the same commodity and identical commodity futures, options and warrants shall be its net position in each commodity. Derivative instruments shall be treated, as laid down in Article 358, as positions in the underlying commodity.

4 For the purposes of calculating a position in a commodity, the following positions shall be treated as positions in the same commodity:

a positions in different sub-categories of commodities in cases where the sub-categories are deliverable against each other;

b positions in similar commodities if they are close substitutes and where a minimum correlation of 0,9 between price movements can be clearly established over a minimum period of one year.

Article 358

Particular instruments

1 Commodity futures and forward commitments to buy or sell individual commodities shall be incorporated in the measurement system as notional amounts in terms of the standard unit of measurement and assigned a maturity with reference to expiry date.

2 Commodity swaps where one side of the transaction is a fixed price and the other the current market price shall be treated, as a series of positions equal to the notional amount of the contract, with, where relevant, one position corresponding with each payment on the swap and slotted into the maturity bands in Article 359(1). The positions shall be long positions if the institution is paying a fixed price and receiving a floating price and short positions if the institution is receiving a fixed price and paying a floating price. Commodity swaps where the sides of the transaction are in different commodities are to be reported in the relevant reporting ladder for the maturity ladder approach.

3 Options and warrants on commodities or on commodity derivatives shall be treated as if they were positions equal in value to the amount of the underlying to which the option refers, multiplied by its delta for the purposes of this Chapter. The latter positions may be netted off against any offsetting positions in the identical underlying commodity or commodity derivative. The delta used shall be that of the exchange concerned. For OTC options, or where delta is not available from the exchange concerned the institution may calculate delta itself using an appropriate model, subject to permission by the competent authorities. Permission shall be granted if the model appropriately estimates the rate of change of the option's or warrant's value with respect to small changes in the market price of the underlying.

Institutions shall adequately reflect other risks associated with options, apart from the delta risk, in the own funds requirements.

4 EBA shall develop draft regulatory technical standards defining a range of methods to reflect in the own funds requirements other risks, apart from delta risk, in a manner proportionate to the scale and complexity of institutions' activities in options.

EBA shall submit those draft regulatory technical standards to the Commission by 31 December 2013.

Power is delegated to the Commission to adopt the regulatory technical standards referred to in the first subparagraph in accordance with Articles 10 to 14 of Regulation (EU) No 1093/2010.

Before the entry into force of the technical standards referred to in the first subparagraph, competent authorities may continue to apply the existing national treatments, where the competent authorities have applied those treatments before 31 December 2013.

5 Where an institution is either of the following, it shall include the commodities concerned in the calculation of its own funds requirement for commodities risk:

a the transferor of commodities or guaranteed rights relating to title to commodities in a repurchase agreement;

b the lender of commodities in a commodities lending agreement.

Article 359

Maturity ladder approach

1 The institution shall use a separate maturity ladder in line with Table 1 for each commodity. All positions in that commodity shall be assigned to the appropriate maturity bands. Physical stocks shall be assigned to the first maturity band between 0 and up to and including 1 month.

TABLE 1

Maturity band(1)	Spread rate (in %)(2)
0 ≤ 1 month	1,50
> 1 ≤ 3 months	1,50
> 3 ≤ 6 months	1,50
> 6 ≤ 12 months	1,50
> 1 ≤ 2 years	1,50
> 2 ≤ 3 years	1,50
> 3 years	1,50

2 Positions in the same commodity may be offset and assigned to the appropriate maturity bands on a net basis for the following:

a positions in contracts maturing on the same date;

b positions in contracts maturing within 10 days of each other if the contracts are traded on markets which have daily delivery dates.

3 The institution shall then calculate the sum of the long positions and the sum of the short positions in each maturity band. The amount of the former which are matched by the latter in a given maturity band shall be the matched positions in that band, while the residual long or short position shall be the unmatched position for the same band.

4 That part of the unmatched long position for a given maturity band that is matched by the unmatched short position, or vice versa, for a maturity band further out shall be the matched position between two maturity bands. That part of the unmatched long or unmatched short position that cannot be thus matched shall be the unmatched position.

5 The institution's own funds requirement for each commodity shall be calculated on the basis of the relevant maturity ladder as the sum of the following:

a the sum of the matched long and short positions, multiplied by the appropriate spread rate as indicated in the second column of Table 1 for each maturity band and by the spot price for the commodity;

b the matched position between two maturity bands for each maturity band into which an unmatched position is carried forward, multiplied by 0,6 %, which is the carry rate and by the spot price for the commodity;

c the residual unmatched positions, multiplied by 15 % which is the outright rate and by the spot price for the commodity.

6 The institution's overall own funds requirement for commodities risk shall be calculated as the sum of the own funds requirements calculated for each commodity in accordance with paragraph 5.

Article 360

Simplified approach

1 The institution's own funds requirement for each commodity shall be calculated as the sum of the following:

a 15 % of the net position, long or short, multiplied by the spot price for the commodity;

b 3 % of the gross position, long plus short, multiplied by the spot price for the commodity.

2 The institution's overall own funds requirement for commodities risk shall be calculated as the sum of the own funds requirements calculated for each commodity in accordance with paragraph 1.

Article 361

Extended maturity ladder approach

Institutions may use the minimum spread, carry and outright rates set out in the following Table 2 instead of those indicated in Article 359 provided that the institutions:

(a) undertake significant commodities business;

(b) have an appropriately diversified commodities portfolio;

(c) are not yet in a position to use internal models for the purpose of calculating the own funds requirement for commodities risk.

TABLE 2

	Precious metals (except gold)	**Base metals**	**Agricultural products (softs)**	**Other, including energy products**
Spread rate (%)	1,0	1,2	1,5	1,5
Carry rate (%)	0,3	0,5	0,6	0,6
Outright rate (%)	8	10	12	15

Institutions shall notify the use they make of this Article to their competent authorities together with evidence of their efforts to implement an internal model for the purpose of calculating the own funds requirement for commodities risk.

CHAPTER 5

Use of internal models to calculate own funds requirements

Section 1

Permission and own funds requirements

Article 362

Specific and general risks

Position risk on a traded debt instrument or equity instrument or derivative thereof may be divided into two components for purposes of this Chapter. The first shall be its specific risk component and shall encompass the risk of a price change in the instrument concerned due to factors related to its issuer or, in the case of a derivative, the issuer of the underlying instrument. The general risk component shall encompass the risk of a price change in the instrument due in the case of a traded debt instrument or debt derivative to a change in the level of interest rates or in the case of an equity or equity derivative to a broad equity-market movement unrelated to any specific attributes of individual securities.

Article 363

Permission to use internal models

1 After having verified an institution's compliance with the requirements of Sections 2, 3 and 4 as relevant, competent authorities shall grant permission to institutions to calculate their own funds requirements for one or more of the following risk categories by using their internal models instead of or in combination with the methods in Chapters 2 to 4:

a general risk of equity instruments;
b specific risk of equity instruments;
c general risk of debt instruments;
d specific risk of debt instruments;
e foreign-exchange risk;
f commodities risk.

2 For risk categories for which the institution has not been granted the permission referred to in paragraph 1 to use its internal models, that institution shall continue to calculate own funds requirements in accordance with those Chapters 2, 3 and 4 as relevant. Permission by the competent authorities for the use of internal models shall be required for each risk category and shall be granted only if the internal model covers a significant share of the positions of a certain risk category.

3 Material changes to the use of internal models that the institution has received permission to use, the extension of the use of internal models that the institution has received permission to use, in particular to additional risk categories, and the initial calculation of stressed value-at-risk in accordance with Article 365(2) require a separate permission by the competent authority.

Institutions shall notify the competent authorities of all other extensions and changes to the use of those internal models that the institution has received permission to use.

4 EBA shall develop draft regulatory technical standards to specify the following:

a the conditions for assessing materiality of extensions and changes to the use of internal models;

b the assessment methodology under which competent authorities permit institutions to use internal models;

c the conditions under which the share of positions covered by the internal model within a risk category shall be considered significant as referred to in paragraph 2.

EBA shall submit those draft regulatory technical standards to the Commission by 31 December 2014.

Power is delegated to the Commission to adopt the regulatory technical standards referred to in the first subparagraph in accordance with Articles 10 to 14 of Regulation (EU) No 1093/2010.

Article 364

Own funds requirements when using internal models

1 Each institution using an internal model shall fulfil, in addition to own funds requirements calculated in accordance with Chapters 2, 3 and 4 for those risk categories for which permission to use an internal model has not been granted, an own funds requirement expressed as the sum of points (a) and (b):

a the higher of the following values:

(i) its previous day's value-at-risk number calculated in accordance with Article 365(1) (VaR_{t-1});

(ii) an average of the daily value-at-risk numbers calculated in accordance with Article 365(1) on each of the preceding sixty business days (VaR_{avg}), multiplied by the multiplication factor (m_c) in accordance with Article 366;

b the higher of the following values:

(i) its latest available stressed-value-at-risk number calculated in accordance with Article 365(2) ($sVaR_{t-1}$); and

(ii) an average of the stressed value-at-risk numbers calculated in the manner and frequency specified in Article 365(2) during the preceding sixty business days ($sVaR_{avg}$), multiplied by the multiplication factor (m_s) in accordance with Article 366;

2 Institutions that use an internal model to calculate their own funds requirement for specific risk of debt instruments shall fulfil an additional own funds requirement expressed as the sum of the following points (a) and (b):

a the own funds requirement calculated in accordance with Article 337 and 338 for the specific risk of securitisation positions and nth to default credit derivatives in the trading book with the exception of those incorporated in an own funds requirement for the specific risk of the correlation trading portfolio in accordance with Section 5 and, where applicable, the own funds requirement for specific risk in accordance with Chapter 2, Section 6, for those positions in CIUs for which neither the conditions in Article 350(1) nor Article 350(2) are fulfilled;

b the higher of:

(i) the most recent risk number for the incremental default and migration risk calculated in accordance with Section 3;

(ii) the average of this number over the preceding 12 weeks.

3 Institutions that have a correlation trading portfolio, which meets the requirements in Article 338(1) to (3), may fulfil an own funds requirement on the basis of Article 377 instead of Article 338(4), calculated as the higher of the following:

a the most recent risk number for the correlation trading portfolio calculated in accordance with Section 5;

b the average of this number over the preceding 12-weeks;

c 8 % of the own funds requirement that would, at the time of calculation of the most recent risk number referred to in point (a), be calculated in accordance with Article 338(4) for all those positions incorporated into the internal model for the correlation trading portfolio.

Section 2

General requirements

Article 365

VaR and stressed VaR Calculation

1 The calculation of the value-at-risk number referred to in Article 364 shall be subject to the following requirements:

a daily calculation of the value-at-risk number;

b a 99th percentile, one-tailed confidence interval;

c a 10-day holding period;

d an effective historical observation period of at least one year except where a shorter observation period is justified by a significant upsurge in price volatility;

e at least monthly data set updates.

The institution may use value-at-risk numbers calculated according to shorter holding periods than 10 days scaled up to 10 days by an appropriate methodology that is reviewed periodically.

2 In addition, the institution shall at least weekly calculate a ‘stressed value-at-risk’ of the current portfolio, in accordance with the requirements set out in the first paragraph, with value-at-risk model inputs calibrated to historical data from a continuous 12-month period of significant financial stress relevant to the institution's portfolio. The choice of such historical data shall be subject to at least annual review by the institution, which shall notify the outcome to the competent authorities. EBA shall monitor the range of practices for calculating stressed value at risk and shall, in accordance with Article 16 of Regulation (EU) No 1093/2010, issue guidelines on such practices.

Article 366

Regulatory back testing and multiplication factors

1 The results of the calculations referred to in Article 365 shall be scaled up by the multiplication factors (m_c) and (m_s).

2 Each of the multiplication factors (m_c) and (m_s) shall be the sum of at least 3 and an addend between 0 and 1 in accordance with Table 1. That addend shall depend on the number of overshootings for the most recent 250 business days as evidenced by the institution's back-testing of the value-at-risk number as set out in Article 365(1).

TABLE 1

Number of overshootings	**addend**
Fewer than 5	0,00
5	0,40
6	0,50
7	0,65
8	0,75
9	0,85
10 or more	1,00

3 The institutions shall count daily overshootings on the basis of back-testing on hypothetical and actual changes in the portfolio's value. An overshooting is a one-day change in the portfolio's value that exceeds the related one-day value-at-risk number generated by the institution's model. For the purpose of determining the addend the number of overshootings shall be assessed at least quarterly and shall be equal to the higher of the number of overshootings under hypothetical and actual changes in the value of the portfolio.

Back-testing on hypothetical changes in the portfolio's value shall be based on a comparison between the portfolio's end-of-day value and, assuming unchanged positions, its value at the end of the subsequent day.

Back-testing on actual changes in the portfolio's value shall be based on a comparison between the portfolio's end-of-day value and its actual value at the end of the subsequent day excluding fees, commissions, and net interest income.

4 The competent authorities may in individual cases limit the addend to that resulting from overshootings under hypothetical changes, where the number of overshootings under actual changes does not result from deficiencies in the internal model.

5 In order to allow competent authorities to monitor the appropriateness of the multiplication factors on an ongoing basis, institutions shall notify promptly, and in any case no later than within five working days, the competent authorities of overshootings that result from their back-testing programme.

Article 367

Requirements on risk measurement

1 Any internal model used to calculate capital requirements for position risk, foreign exchange risk, commodities risk and any internal model for correlation trading shall meet all of the following requirements:

a the model shall capture accurately all material price risks;

b the model shall capture a sufficient number of risk factors, depending on the level of activity of the institution in the respective markets. Where a risk factor is incorporated into the institution's pricing model but not into the risk-measurement model, the institution shall be able to justify such an omission to the satisfaction of the competent authority. The risk- measurement model shall capture nonlinearities for options and other products as well as correlation risk and basis risk. Where proxies for risk factors are used they shall show a good track record for the actual position held.

2 Any internal model used to calculate capital requirements for position risk, foreign exchange risk or commodities risk shall meet all of the following requirements:

a the model shall incorporate a set of risk factors corresponding to the interest rates in each currency in which the institution has interest rate sensitive on- or off-balance sheet positions. The institution shall model the yield curves using one of the generally accepted approaches. For material exposures to interest-rate risk in the major currencies and markets, the yield curve shall be divided into a minimum of six maturity segments, to capture the variations of volatility of rates along the yield curve. The model shall also capture the risk of less than perfectly correlated movements between different yield curves;

b the model shall incorporate risk factors corresponding to gold and to the individual foreign currencies in which the institution's positions are denominated. For CIUs the actual foreign exchange positions of the CIU shall be taken into account. Institutions may rely on third party reporting of the foreign exchange position of the CIU, where the correctness of that report is adequately ensured. If an institution is not aware of the foreign exchange positions of a CIU, this position shall be carved out and treated in accordance with Article 353(3);

c the model shall use a separate risk factor at least for each of the equity markets in which the institution holds significant positions;

d the model shall use a separate risk factor at least for each commodity in which the institution holds significant positions. The model shall also capture the risk of less than perfectly correlated movements between similar, but not identical, commodities and the exposure to changes in forward prices arising from maturity mismatches. It shall also take account of market characteristics, notably delivery dates and the scope provided to traders to close out positions;

e the institution's internal model shall conservatively assess the risk arising from less liquid positions and positions with limited price transparency under realistic market scenarios. In addition, the internal model shall meet minimum data standards. Proxies shall be appropriately conservative and shall be used only where available data is insufficient or is not reflective of the true volatility of a position or portfolio.

3 Institutions may, in any internal model used for purposes of this Chapter, use empirical correlations within risk categories and across risk categories only if the institution's approach for measuring correlations is sound and implemented with integrity.

Article 368

Qualitative requirements

1 Any internal model used for purposes of this Chapter shall be conceptually sound and implemented with integrity and, in particular, all of the following qualitative requirements shall be met:

a any internal model used to calculate capital requirements for position risk, foreign exchange risk or commodities risk shall be closely integrated into the daily risk-management process of the institution and serve as the basis for reporting risk exposures to senior management;

b the institution shall have a risk control unit that is independent from business trading units and reports directly to senior management. The unit shall be responsible for designing and implementing any internal model used for purposes of this Chapter. The unit shall conduct the initial and on-going validation of any internal model used for purposes of this Chapter, being responsible for the overall risk management system. The unit shall produce and analyse daily reports on the output of any internal model used for calculating capital requirements for position risk, foreign exchange risk and commodities risk, and on the appropriate measures to be taken in terms of trading limits;

c the institution's management body and senior management shall be actively involved in the risk-control process and the daily reports produced by the risk-control unit are reviewed by a level of management with sufficient authority to enforce both reductions of positions taken by individual traders as well as in the institution's overall risk exposure;

d the institution shall have sufficient numbers of staff skilled in the use of sophisticated internal models, and including those used for purposes of this Chapter, in the trading, risk-control, audit and back-office areas;

e the institution shall have established procedures for monitoring and ensuring compliance with a documented set of internal policies and controls concerning the overall operation of its internal models, and including those used for purposes of this Chapter;

f any internal model used for purposes of this Chapter shall have a proven track record of reasonable accuracy in measuring risks;

g the institution shall frequently conduct a rigorous programme of stress testing, including reverse stress tests, which encompasses any internal model used for purposes of this Chapter and the results of these stress tests shall be reviewed by senior management and reflected in the policies and limits it sets. This process shall particularly address illiquidity of markets in stressed market conditions, concentration risk, one way markets, event and jump-to-default risks, non-linearity of products, deep out-of-the-money positions, positions subject to the gapping of prices and other risks that may not be captured appropriately in the internal models. The shocks applied shall reflect the nature of the portfolios and the time it could take to hedge out or manage risks under severe market conditions;

h the institution shall conduct, as part of its regular internal auditing process, an independent review of its internal models, and including those used for purposes of this Chapter.

2 The review referred to in point (h) of paragraph 1 shall include both the activities of the business trading units and of the independent risk-control unit. At least once a year,

the institution shall conduct a review of its overall risk-management process. The review shall consider the following:

a the adequacy of the documentation of the risk-management system and process and the organisation of the risk-control unit;

b the integration of risk measures into daily risk management and the integrity of the management information system;

c the process the institution employs for approving risk-pricing models and valuation systems that are used by front and back-office personnel;

d the scope of risks captured by the risk-measurement model and the validation of any significant changes in the risk-measurement process;

e the accuracy and completeness of position data, the accuracy and appropriateness of volatility and correlation assumptions, and the accuracy of valuation and risk sensitivity calculations;

f the verification process the institution employs to evaluate the consistency, timeliness and reliability of data sources used to run internal models, including the independence of such data sources;

g the verification process the institution uses to evaluate back-testing that is conducted to assess the models' accuracy.

3 As techniques and best practices evolve, institutions shall apply those new techniques and practices in any internal model used for purposes of this Chapter.

Article 369

Internal Validation

1 Institutions shall have processes in place to ensure that all their internal models used for purposes of this Chapter have been adequately validated by suitably qualified parties independent of the development process to ensure that they are conceptually sound and adequately capture all material risks. The validation shall be conducted when the internal model is initially developed and when any significant changes are made to the internal model. The validation shall also be conducted on a periodic basis but especially where there have been any significant structural changes in the market or changes to the composition of the portfolio which might lead to the internal model no longer being adequate. As techniques and best practices for internal validation evolve, institutions shall apply these advances. Internal model validation shall not be limited to back-testing, but shall, at a minimum, also include the following:

a tests to demonstrate that any assumptions made within the internal model are appropriate and do not underestimate or overestimate the risk;

b in addition to the regulatory back-testing programmes, institutions shall carry out their own internal model validation tests, including back-testing, in relation to the risks and structures of their portfolios;

c the use of hypothetical portfolios to ensure that the internal model is able to account for particular structural features that may arise, for example material basis risks and concentration risk.

2 The institution shall perform back-testing on both actual and hypothetical changes in the portfolio's value.

Section 3

Requirements particular to specific risk modelling

Article 370

Requirements for modelling specific risk

An internal model used for calculating own funds requirements for specific risk and an internal model for correlation trading shall meet the following additional requirements:

(a) it explains the historical price variation in the portfolio;

(b) it captures concentration in terms of magnitude and changes of composition of the portfolio;

(c) it is robust to an adverse environment;

(d) it is validated through back-testing aimed at assessing whether specific risk is being accurately captured. If the institution performs such back-testing on the basis of relevant sub-portfolios, these shall be chosen in a consistent manner;

(e) it captures name-related basis risk and shall in particular be sensitive to material idiosyncratic differences between similar but not identical positions;

(f) it captures event risk.

Article 371

Exclusions from specific risk models

1 An institution may choose to exclude from the calculation of its specific risk own funds requirement using an internal model those positions for which it fulfils an own funds requirement for specific risk in accordance with Article 332(1)(e) or Article 337 with exception of those positions that are subject to the approach set out in Article 377.

2 An institution may choose not to capture default and migration risks for traded debt instruments in its internal model where it is capturing those risks through the requirements set out in Section 4.

Section 4

Internal model for incremental default and migration risk

Article 372

Requirement to have an internal IRC model

An institution that uses an internal model for calculating own funds requirements for specific risk of traded debt instruments shall also have an internal incremental default and migration risk (IRC) model in place to capture the default and migration risks of its trading book positions that are incremental to the risks captured by the value-at-risk measure as specified in Article 365(1). The institution shall demonstrate that its

internal model meets the following standards under the assumption of a constant level of risk, and adjusted where appropriate to reflect the impact of liquidity, concentrations, hedging and optionality:

(a) the internal model provides a meaningful differentiation of risk and accurate and consistent estimates of incremental default and migration risk;

(b) the internal model's estimates for potential losses play an essential role in the risk management of the institution;

(c) the market and position data used for the internal model are up-to-date and subject to an appropriate quality assessment;

(d) the requirements in Article 367(3), Article 368, Article 369(1) and points (b), (c), (e) and (f) of Article 370 are met.

EBA shall issue guidelines on the requirements in Articles 373 to 376.

Article 373

Scope of the internal IRC model

The internal IRC model shall cover all positions subject to an own funds requirement for specific interest rate risk, including those subject to a 0 % specific risk capital charge under Article 336, but shall not cover securitisation positions and n-th-to-default credit derivatives.

The institution may, subject to permission by the competent authorities, choose to consistently include all listed equity positions and derivatives positions based on listed equities. The permission shall be granted if such inclusion is consistent with how the institution internally measures and manages risk.

Article 374

Parameters of the internal IRC model

1 Institutions shall use the internal model to calculate a number which measures losses due to default and internal or external ratings migration at the 99,9 % confidence interval over a time horizon of one year. Institutions shall calculate this number at least weekly.

2 Correlation assumptions shall be supported by analysis of objective data in a conceptually sound framework. The internal model shall appropriately reflect issuer concentrations. Concentrations that can arise within and across product classes under stressed conditions shall also be reflected.

3 The internal IRC model shall reflect the impact of correlations between default and migration events. The impact of diversification between, on the one hand, default and migration events and, on the other hand, other risk factors shall not be reflected.

4 The internal model shall be based on the assumption of a constant level of risk over the one-year time horizon, implying that given individual trading book positions or sets of positions that have experienced default or migration over their liquidity horizon are re-balanced at the end of their liquidity horizon to attain the initial level of risk. Alternatively, an institution may choose to consistently use a one-year constant position assumption.

5 The liquidity horizons shall be set according to the time required to sell the position or to hedge all material relevant price risks in a stressed market, having particular regard to the size of the position. Liquidity horizons shall reflect actual practice and experience during periods of both systematic and idiosyncratic stresses. The liquidity horizon shall be measured under conservative assumptions and shall be sufficiently long that the act of selling or hedging, in itself, would not materially affect the price at which the selling or hedging would be executed.

6 The determination of the appropriate liquidity horizon for a position or set of positions is subject to a floor of three months.

7 The determination of the appropriate liquidity horizon for a position or set of positions shall take into account an institution's internal policies relating to valuation adjustments and the management of stale positions. When an institution determines liquidity horizons for sets of positions rather than for individual positions, the criteria for defining sets of positions shall be defined in a way that meaningfully reflects differences in liquidity. The liquidity horizons shall be greater for positions that are concentrated, reflecting the longer period needed to liquidate such positions. The liquidity horizon for a securitisation warehouse shall reflect the time to build, sell and securitise the assets, or to hedge the material risk factors, under stressed market conditions.

Article 375

Recognition of hedges in the internal IRC model

1 Hedges may be incorporated into an institution's internal model to capture the incremental default and migration risks. Positions may be netted when long and short positions refer to the same financial instrument. Hedging or diversification effects associated with long and short positions involving different instruments or different securities of the same obligor, as well as long and short positions in different issuers, may only be recognised by explicitly modelling gross long and short positions in the different instruments. Institutions shall reflect the impact of material risks that could occur during the interval between the hedge's maturity and the liquidity horizon as well as the potential for significant basis risks in hedging strategies by product, seniority in the capital structure, internal or external rating, maturity, vintage and other differences in the instruments. An institution shall reflect a hedge only to the extent that it can be maintained even as the obligor approaches a credit or other event.

2 For positions that are hedged via dynamic hedging strategies, a rebalancing of the hedge within the liquidity horizon of the hedged position may be recognised provided that the institution:

a chooses to model rebalancing of the hedge consistently over the relevant set of trading book positions;

b demonstrates that the inclusion of rebalancing results in a better risk measurement;

c demonstrates that the markets for the instruments serving as hedges are liquid enough to allow for such rebalancing even during periods of stress. Any residual risks resulting from dynamic hedging strategies shall be reflected in the own funds requirement.

Article 376

Particular requirements for the internal IRC model

1 The internal model to capture the incremental default and migration risks shall reflect the nonlinear impact of options, structured credit derivatives and other positions with material

nonlinear behaviour with respect to price changes. The institution shall also have due regard to the amount of model risk inherent in the valuation and estimation of price risks associated with such products.

2 The internal model shall be based on data that are objective and up-to-date.

3 As part of the independent review and validation of their internal models used for purposes of this Chapter, inclusively for purposes of the risk measurement system, an institution shall in particular do all of the following:

a validate that its modelling approach for correlations and price changes is appropriate for its portfolio, including the choice and weights of its systematic risk factors;

b perform a variety of stress tests, including sensitivity analysis and scenario analysis, to assess the qualitative and quantitative reasonableness of the internal model, particularly with regard to the treatment of concentrations. Such tests shall not be limited to the range of events experienced historically;

c apply appropriate quantitative validation including relevant internal modelling benchmarks.

4 The internal model shall be consistent with the institution's internal risk management methodologies for identifying, measuring, and managing trading risks.

5 Institutions shall document their internal models so that its correlation and other modelling assumptions are transparent to the competent authorities.

6 The internal model shall conservatively assess the risk arising from less liquid positions and positions with limited price transparency under realistic market scenarios. In addition, the internal model shall meet minimum data standards. Proxies shall be appropriately conservative and may be used only where available data is insufficient or is not reflective of the true volatility of a position or portfolio.

Section 5

Internal model for correlation trading

Article 377

Requirements for an internal model for correlation trading

1 Competent authorities shall grant permission to use an internal model for the own funds requirement for the correlation trading portfolio instead of the own funds requirement in accordance with Article 338 to institutions that are allowed to use an internal model for specific risk of debt instruments and that meet the requirements in paragraphs 2 to 6 of this Article and in Article 367(1) and (3), Article 368, Article 369(1) and points (a), (b), (c), (e) and (f) of Article 370.

2 Institutions shall use this internal model to calculate a number which adequately measures all price risks at the 99,9 % confidence interval over a time horizon of one year under the assumption of a constant level of risk, and adjusted where appropriate to reflect the impact of liquidity, concentrations, hedging and optionality. Institutions shall calculate this number at least weekly.

3 The following risks shall be adequately captured by the model referred to in paragraph 1:

a the cumulative risk arising from multiple defaults, including different ordering of defaults, in tranched products;

b credit spread risk, including the gamma and cross-gamma effects;

c volatility of implied correlations, including the cross effect between spreads and correlations;

d basis risk, including both of the following:

(i) the basis between the spread of an index and those of its constituent single names;

(ii) the basis between the implied correlation of an index and that of bespoke portfolios;

e recovery rate volatility, as it relates to the propensity for recovery rates to affect tranche prices;

f to the extent the comprehensive risk measure incorporates benefits from dynamic hedging, the risk of hedge slippage and the potential costs of rebalancing such hedges;

g any other material price risks of positions in the correlation trading portfolio.

4 An institution shall use sufficient market data within the model referred to in paragraph 1 in order to ensure that it fully captures the salient risks of those exposures in its internal approach in accordance with the requirements set out in this Article. It shall be able to demonstrate to the competent authority through back testing or other appropriate means that its model can appropriately explain the historical price variation of those products.

The institution shall have appropriate policies and procedures in place in order to separate the positions for which it holds permission to incorporate them in the own funds requirement in accordance with this Article from other positions for which it does not hold such permission.

5 With regard to the portfolio of all the positions incorporated in the model referred to in paragraph 1, the institution shall regularly apply a set of specific, predetermined stress scenarios. Such stress scenarios shall examine the effects of stress to default rates, recovery rates, credit spreads, basis risk, correlations and other relevant risk factors on the correlation trading portfolio. The institution shall apply stress scenarios at least weekly and report at least quarterly to the competent authorities the results, including comparisons with the institution's own funds requirement in accordance with this Article. Any instances where the stress test results materially exceed the own funds requirement for the correlation trading portfolio shall be reported to the competent authorities in a timely manner. EBA shall issue guidelines on the application of stress scenarios for the correlation trading portfolio.

6 The internal model shall conservatively assess the risk arising from less liquid positions and positions with limited price transparency under realistic market scenarios. In addition, the internal model shall meet minimum data standards. Proxies shall be appropriately conservative and may be used only where available data is insufficient or is not reflective of the true volatility of a position or portfolio.**]**

Editorial Information

X1 Substituted by Corrigendum to Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012 (OJ L 176, 27.6.2013, p. 1).

Status:
Point in time view as at 27/06/2019.

Changes to legislation:
There are currently no known outstanding effects for the Regulation (EU) No 575/2013 of the European Parliament and of the Council, TITLE IV.