

Pursuant to Article 44 paragraph 2 item 3 of the Central Bank of Montenegro Law (OGM 40/10, 06/13, 70/17, 125/23) and Article 117 of the Law on Credit Institutions (OGM 72/19, 8/21), the Council of the Central Bank of Montenegro, at its meeting held on 26 June 2024, passed the following

**DECISION
AMENDING THE DECISION ON MINIMUM STANDARDS
FOR RISK MANAGEMENT IN CREDIT INSTITUTIONS**

Article 1

In the Decision on Minimum Standards for Risk Management in Credit Institutions (OGM 134/21) in Article 3 item 29) shall be amended to read:

“29) **option risk** means the risk that arises from options (embedded and explicit), where the credit institution or its customer can alter the level and timing of their cash flows, or the risk arising from interest rate sensitive instruments where the holder will almost certainly exercise the option if it is in their financial interest to do so (embedded or explicit automatic options) and the risk arising from flexibility embedded implicitly or within the terms of interest rate sensitive instruments, such that changes in interest rates may affect a change in the behaviour of the client (embedded behavioural option risk);”.

After item 29) seventeen new items shall be added, worded as follows:

“30) **interest rate sensitive instruments** mean assets, liabilities and off-balance-sheet items in the non-trading book, which are sensitive to credit spread changes (excluding assets deducted from CET1 capital – e.g., real estate or intangible assets or equity exposures in the non-trading book);

31) **net interest income measures** mean measures of changes in expected future profitability within a given time horizon resulting from interest rate movements, in case of IRRBB; or from credit spread changes, in case of CSRBB. It encompasses interest income and interest expenses;

32) **net interest income measures plus market value changes** mean net interest income measures after the market value changes of instruments have been accounted for/taken into account depending on accounting treatment through fair value measures;

33) **economic value (EV) measures** mean measures of changes in the net present value of interest rate sensitive instruments over their remaining life resulting from interest rate movements, in case of IRRBB; or of changes in the net present value of instruments sensitive to credit spread changes over their remaining life resulting from

credit spread movement, in case of CSRBB. Economic value measures reflect changes in value over the remaining life of the interest rate sensitive instruments, in case of IRRBB, or of the credit spread risk sensitive instruments, in case of CSRBB – i.e., until all positions have run off;

- 34) **economic value of equity (EVE) measures** mean a specific form of economic value measure where equity is excluded from the cash flows;
- 35) **conditional cash flow modelling** means cash flow modelling under the assumption that the timing or amount of cash flows is dependent on the specific interest rate scenario;
- 36) **unconditional cash flow modelling** means cash flow modelling under the assumption that the timing and amount of cash flows is independent of the specific interest rate scenario;
- 37) **run-off balance sheet** means a balance sheet including on- and off-balance-sheet items where existing non-trading book positions amortise and are not replaced by any new business;
- 38) **dynamic balance sheet** means a balance sheet including on- and off-balance-sheet items incorporating future business expectations, adjusted for the relevant scenario in a consistent manner;
- 39) **constant balance sheet** means a balance sheet including on- and off-balance-sheet items in which the total size and composition are maintained by replacing maturing or repricing cash flows with new cash flows that have comparable features with regard to the amount, repricing period and spread components;
- 40) **retail deposit** shall have a meaning laid down in the regulation governing liquidity risk management in credit institutions;
- 41) **transactional deposit and accounts** mean non-maturity deposits where regular transactions are carried out (e.g., where salaries are regularly credited) or those retail non-maturity deposits which are non-interest bearing even in a high interest rate environment;
- 42) **other retail deposits** mean deposits held in a non-transactional account;
- 43) **IRRBB measures** mean economic value measures and net interest income measures plus market value changes, applied in the context of the sensitivity to changes in the interest rates;
- 44) **credit spread sensitive instruments** mean assets, liabilities and off-balance-sheet items in the non-trading book, which are sensitive to credit spread changes (excluding assets deducted from CET1 capital – e.g., real estate or intangible assets or equity exposures in the non-trading book);
- 45) **CSRBB measures** mean economic value measures and net interest income measures plus market value changes, applied in the context of the sensitivity to changes in market credit/liquidity spreads;
- 46) **material currency for the purposes of the IRRBB** means a currency where the

accounting value of financial assets or liabilities denominated in a currency amounts to 5% or more of the total non-trading book financial assets or liabilities “.

Article 2

In Chapter VI. MANAGEMENT OF THE INTEREST RATE RISK ARISING FROM NON-TRADING BOOK ACTIVITIES, a title of the sub-chapter shall be added, worded as follows:

“6.1. Identification and management of IRRBB.”

Article 3

Articles 62 and 63 shall be amended to read:

“Management of IRRBB

Article 62

(1) A credit institution shall implement internal systems, use standardised approach or simplified standardised approach for identifying, evaluating, managing and mitigating risks arising from potential changes in interest rates that affect both the economic value of equity and the net interest income of non-trading book activities (hereinafter: the IRRBB).

(2) A credit institution shall identify its existing and prospective exposures to IRRBB in a proportionate manner, depending on the level, complexity and riskiness of its non-trading book positions, taking into account its business model, its strategy and the business environment it operates in or intends to operate in.

(3) When calculating the effects of interest rate movement from the income perspective, a credit institution shall, in addition to the effects on interest income and expenses, consider effects of the market value changes of instruments, depending on accounting treatment (fair value) shown in the profit and loss account or directly in equity (via other comprehensive income), and it shall also take into account the increase or reduction in the amount of profit and losses and capital over short- and medium-term horizons resulting from interest rate movements.

(4) The change in income referred to in paragraph (3) of this Article shall be the difference between the expected income under base scenario and the expected income under alternative scenario, which shall include either adverse shock or stress scenario from a going-concern perspective.

(5) The change in net interest income should be the difference between the expected net interest income under a shock or stress scenario from a going-concern perspective and the expected net interest income under a base scenario.

(6) The change in the market value of instruments (fair value) should be the difference

between the expected market value under a shock or stress scenario from a going-concern perspective and the expected market value under a base scenario at the end of the assessed horizon.

(7) A credit institution must consider all interest rate sensitive instruments in the banking book in the context of the assessment and management of exposures to IRRBB, including assets, liabilities, interest rate derivatives, non-interest rate derivatives referencing an interest rate and other off-balance sheet items (such as loan commitments).

(8) When identifying interest rate sensitive instruments, a credit institution should consider non-performing exposures (net of provisions) as interest rate sensitive instruments reflecting expected cash flows and their timing.

(9) Non-performing exposures referred to in paragraph (2) of this Article shall be exposures which are identified as non-performing loans in accordance with the regulation governing asset classification and calculation of provisions for potential losses of credit institutions.

(10) A credit institution shall fully integrate a supervisory outlier test into its internal framework for the management of IRRBB and use it as a complementary tool for measuring exposures to IRRBB.

(11) A parent credit institution in Montenegro shall ensure that the internal governance systems and processes for managing IRRBB consistent and well-integrated on a consolidated basis.

Overall strategy for managing IRRBB

Article 63

(1) The IRRBB strategy of the credit institution, including the risk appetite for IRRBB and IRRBB mitigation, should be part of the overall strategy, in particular the strategic objectives and risk objectives

(2) The overall IRRBB strategy should also include the decision about the extent to which the business model relies on generating net interest income by 'riding the yield curve' – i.e., funding assets with a comparatively long repricing period with liabilities with a comparatively short repricing period. Where the business model relies heavily on this source of net interest income, the management body should explain its IRRBB strategy and how it plans to survive periods of flat or inverse yield curves.

(3) A credit institution using derivative financial instruments to mitigate IRRBB exposures should possess the necessary knowledge and expertise to demonstrate that it understands the consequences of mitigation with interest rate derivatives.

(4) A credit institution using models of customer behaviour as input for the measurement of their IRRBB should possess the necessary knowledge and expertise. Each institution

should be able to demonstrate that it understands the consequences of modelling the behaviour of its customer base.

(5) When making decisions on hedging activities, a credit institutions should be aware of the effects of accounting policies, but the accounting treatment should not drive their risk management approach.

(6) A credit institution responsible for consolidation shall ensure that internal governance arrangements and processes for the management of IRRBB are consistent and well-integrated on a consolidated and a sub-consolidated basis.”

Article 4

In Article 65 after paragraph (2) two new paragraphs shall be added, worded as follows:

“(3) A credit institution may also, depending its business model, identify sub-limits for individual business units, portfolios, instrument types, specific instruments or material sub-types of IRRBB risk such as gap risk, basis risk and option risk.

(4) Limits may be associated with specific scenarios of changes in interest rates and term structures, such as their increase or decrease or a change in shape of the yield curve; the interest rate movements used in developing these limits should represent sufficiently adverse shock and stress situations, taking into account historical interest rate volatility and the time required by management to mitigate those risk exposures.“.

Article 5

In Article 66 paragraph (2) item 2) the Montenegrin words translated as “assets” shall be replaced by other Montenegrin words, with no relevance to the English translation.

In item 3) the words: “earnings risk” shall be replaced by the following: “net interest income measures plus market value changes”.

In item 11) the words: “assets or liabilities” shall be replaced by the following: “assets and liabilities”.

Article 6

In Article 67 after paragraph (1) a new paragraph shall be added, worded as follows:

“(2) A credit institution shall undertake regular reviews and evaluations of their internal control systems and risk management processes, seeking assurance that employees comply with established policies and procedures. Such reviews should also address any significant changes that may affect the effectiveness of controls, including changes in market conditions, personnel, technology and structures of compliance with exposure limits, and ensure that there are appropriate escalation procedures for any exceeded limits.”

Current paragraph (2) shall become paragraph (3).

Article 7

In Article 68 paragraph (2) item 4 shall be amended to read:

„4) calculation of IRRBB measures, as well as other IRRBB measures based on interest rate shock and stress scenarios;“.

Item 5) shall be deleted.

Current items 6) and 7) shall become items 5) and 6).

Paragraphs (3) and (4) shall be deleted.

Current paragraphs (5) to (8) shall become paragraphs (3) to (8).

Article 8

In Article 69 paragraph (3) items 4) and 5) shall be amended to read:

“4) details of the impact of key modelling assumptions on the measurement of IRRBB, including changes in assumptions under various interest rate scenarios;

(5) details of the impact of interest rate derivatives on the measurement of IRRBB;“.

In item 7) the words: “Article 78” shall be replaced by the following: “Article 78nj”.

Article 9

After Article 70 a title of the new sub-chapter shall be added, worded as follows:

“6.2. IRRBB measurement using internal system of credit institution“.

Article 10

Articles 71 and 72 shall be amended to read:

“Overall approach for measuring IRRBB

Article 71

(1) A credit institution applying internal systems for measuring IRRBB shall implement them in accordance with the requirements referred to in this Decision, taking into account the principle of proportionality.

(2) A credit institution using internal systems for measuring IRRBB should take into

consideration methods listed in Annex 1a of this Decision, but it should not limit to them in order to ensure that the material aspects of the IRRBB have been adequately captured.

(3) A credit institution shall implement reliable internal measurement systems that capture all components and sources of IRRBB which are relevant for the credit institution's business model.

(4) A credit institution shall measure and monitor its exposure to IRRBB in terms of potential changes to both economic value and net interest income measures plus market value changes, in particular:

- 1) the overall impact of key modelling assumptions on the measurement of IRRBB under various IRRBB measures; and
- 2) the IRRBB of their interest rate derivatives arising from non-trading activities, where relevant for the business model.

(5) A credit institution may exclude from the calculation of economic value commercial margins and other spread components, whereat it shall use:

- 1) a transparent methodology for identifying the risk-free rate at inception of each instrument; and
- 2) a methodology that is applied consistently across all interest rate sensitive instruments and all business units.

(6) Where a credit institution, when calculating economic value, excludes commercial margins and other spread components, it shall use:

- 1) a transparent methodology for identifying the risk-free rate at inception of each instrument; and
- 2) a methodology that is applied consistently across all interest rate sensitive instruments and all business units.

(7) When calculating net interest income measures, a credit institution shall include commercial margins.

(8) A credit institution shall include non-performing exposures (net of provisions) as interest rate sensitive instruments reflecting expected cash flows and their timing.

(9) When measuring its exposure to IRRBB, a credit institution shall use its own assumptions and calculation methods, and it cannot rely purely on the calculation and outcomes of the supervisory outlier tests as referred to in Article 78nj of this Decision.

Methods for measuring IRRBB

Article 72

(1) A credit institution shall, depending on its size and complexity of its operations, use a range of quantitative tools and models that corresponds to its risk exposure to address capture in adequate manner various aspects of interest rate risk.

(2) A credit institution must fully understand the limitations of each quantitative tool and model used and take into consideration these limitations in the IRRBB risk management.

(3) A credit institution shall identify and measure all components of the IRRBB, taking into account at least the following methods:

1) for gap risk:

- gap analysis that focuses on identifying the volume of mismatches in different time bands;
- partial duration for yield curve risk, which focuses on the dispersion and concentration of mismatches in different time bands;

2) for basis risk, monitoring of groups of instruments by using different interest rates, focusing on the use of derivatives and other hedging instruments in terms of different bases, convexity and timing difference neglected by gap analysis;

3) for option risk, monitoring of all instruments with embedded or explicit options, whereat in respect of behavioural options, the focus is on the volume of mortgages, current accounts, savings and deposits where the customer has the option to deviate from the contractual maturity; the volume of commitments with interest rate sensitive customer drawings, while with regard to automatic interest rate options, the focus is on caps and floors embedded in assets and liabilities; swaptions or prepayment options embedded in wholesale assets and liabilities; and explicit caps, floors and swaptions.

(4) For measuring and monitoring of IRRBB, a credit institution shall use at least one net interest income measure plus market value changes and at least one economic value measurement method that, in combination, capture all components of IRRBB.

(5) A credit institution must, in IRRBB assessment, be aware of risks that may arise as a result of accounting treatment of transactions arising from non-trading book activities.

(6) A credit institution with complex or sophisticated business models shall use multiple measurement methods.“

Article 11

In Article 73 paragraph (4) the Montenegrin words translated as “currency-specific” shall be replaced by other Montenegrin words, with no relevance to the English translation.

In paragraph (5) item 3) the words: “referred to in Article 52 paragraph (3)” shall be replaced by the following: “referred to in Article 78nj“.

In item 3) a full stop at the end of the sentence shall be replaced by semi-colon and a new item shall be added, worded as follows:

“4) whether the validity of diversification assumption is appropriately addressed.”.

Article 12

In Article 74 paragraph (2) item 1) shall be amended to read:

“1) identify interest rate scenarios that could severely threaten capital, economic value and net interest income plus market value changes; and”.

Article 13

In Article 75 paragraph (2) item 6) alterations were made in Montenegrin language with no relevance to the English translation.

In item 6) a full stop at the end of the sentence shall be replaced by semi-colon and a new item shall be added, worded as follows:

“7) validity of diversification assumption.”.

Article 14

Article 77 shall be amended to read:

“Behavioural assumptions for customer accounts without specific repricing dates

Article 77

(1) In defining behavioural modelling assumptions, a credit institution shall not take into consideration non-maturity deposit of financial customers, unless they are operational deposits held for obtaining settlement service, custody, cash management or other similar services of a credit institution in the context of stable operational relationship.

(2) A credit institution should, when modelling repricing date of retail deposits, wholesale deposits and operational deposits that are non-maturity deposits (NMDs), constrain that date to a maximum weighted average repricing date of 5 years, and that cap shall apply to the full amount of the aggregate portfolio of these deposits and separately for each currency..

(3) When making behavioural assumptions about accounts without specific repricing dates for the purposes of interest rate risk management, a credit institution shall:

- 1) be able to identify ‘core’ balances, i.e. deposits that are stable and unlikely to reprice even under significant changes and/or other deposits whose limited elasticity to interest rate changes could be modelled;
- 2) enable that modelling assumptions for these deposits reflect depositor characteristics (e.g. retail/wholesale) and account characteristics (e.g. transactional/non-transactional), in the manner that:
 - retail transactional deposits include accounts whose remuneration component is not relevant in the client’s decision to hold money in the account;
 - retail non-transactional deposits include retail accounts whose remuneration component is relevant in the client’s decision to hold money in the account.

- wholesale deposits include accounts from corporate and other wholesale clients, excluding interbank accounts or other fully price-sensitive ones;
- 3) assess the potential migration between deposits without specific repricing dates and other deposits that could modify, under different interest rate scenarios, key behavioural modelling assumptions;
- 4) consider potential constraints on the repricing of retail deposits in low or negative interest rate environments;
- 5) ensure that assumptions about the decay of core and other modelled balances are prudent and appropriate in balancing the benefits to earnings against the additional economic value risk entailed in locking in a future interest rate return on the assets financed by these balances, and the potential forgone revenue under a rising interest rate environment.
- 6) emphasise the importance of statistical or quantitative methods to determine the behavioural repricing dates and the cash flow profile of NMDs, that may require additional contribution of various experts within the credit institution (e.g. directorate for risk management and control of risk, sales and treasury);
- 7) have appropriate documentation of the assumptions used and identify the procedures for their regular review;
- 8) understand the impact of the assumptions used on selected IRRBB measures and internal capital allocation decisions, in particular by carrying out periodic sensitivity analyses under key parameters (e.g. percentage and maturity of core balances on accounts and pass-through rate), so as to isolate, using contractual terms rather than behavioural assumptions, the effect of assumptions on IRRBB measures;
- 9) undertake stress testing to understand the sensitivity of the chosen IRRBB measures to changes in key assumptions, taking the results of such tests into account in internal capital allocation decisions.”

Article 15

After Article 77 the title of the new sub-chapter shall be added, worded as follows:

„6.3. IRRBB measurement using standardised approach of credit institution”.

Article 16

Article 78 shall be amended to read:

“Implementation of standardised approach for assessing IRRBB

Article 78

- (1) Where the Central Bank in the course of supervision evaluates that the internal systems for the IRRBB are not satisfactory, a credit institution shall apply standardised approach.
- (2) The Central Bank shall evaluate that the internal system for IRRBB measurement of a credit institution unsatisfactory at least in the following situations:
 - 1) where on individual basis, the methods used do not cover all material components

of the interest rate risk (gap risk, basis risk, option risk), and/or measures do not capture in a robust manner all material dimensions of risks for significant assets, liabilities and off-balance sheet type instruments (e.g., non-maturity deposits, loans, options) of the bank's non-trading book;

- 2) where all relevant parameters of internal system are not calibrated, back-tested and reviewed on an appropriate frequency and supported by documentation that considers the nature, scale and complexity of the IRRBB inherent in the business model and the credit institution's activity.

(3) Small and non-complex credit institution shall apply standardised approach for IRRBB assessment where the Central Bank evaluates that the simplified standardised approach is not appropriate to capture all components of the IRRBB.

(4) In the absence of an internal system, a credit institution that uses standardised approach for the purposes of identification, assessment, management and mitigation of IRRBB shall include at least the following non-trading book positions in financial assets, liabilities and off-balance sheet items at least for each currency where they have a position that is material:

- 1) interest rate derivatives;
- 2) non-interest rate derivatives for which the cash flows are determined in total or in part, by referencing an interest rate;
- 3) pension obligations and pension plan assets except where their interest rate risk is captured in another risk measure;
- 4) interest rate-sensitive assets, other than those referred to in items 1) to 3) of this paragraph which are not deducted from Common Equity Tier 1 capital;
- 5) interest rate-sensitive liabilities other than those referred to in items 1) to 3) of this paragraph and other than Common Equity Tier 1 and other perpetual instruments without any call dates, including non-remunerated deposits;
- 6) interest rate sensitive off-balance sheet items other than those referred to in items 1) to 3) of this paragraph; and
- 7) small trading book positions referred to in Article 103 of the Decision on Capital Adequacy of Credit Institutions, except where their interest rate risk is captured in another risk measure.

(5) Material position referred to in paragraph (4) of this Article means position whose accounting value of assets or liabilities denominated in a currency amounts to at least 5% of the total non-trading book financial assets or liabilities, or to less than 5% where the sum of financial assets or liabilities included in the calculation is lower than 90% of the total non-trading book financial assets (excluding tangible assets) or liabilities.

(6) The net interest income shall be calculated at a minimum on a time horizon of one year.

(7) The remaining time up to the end of a net interest income horizon shall be the net interest rate horizon minus the relevant repricing mid points of the buckets referred to in Annex 1b item 1 of this Decision.

- (8) A credit institution shall classify shock scenarios into one of the following types:
- 1) parallel shock, of which:
 - a shock of increased interest rates in parallel across all maturities;
 - a shock of decreased interest rates in parallel across all maturities;
 - 2) a shock involving rotations to the term structure, of which:
 - with a decrease of the interest rate at long-term maturities and increase of the interest rate at short-term maturities, leading to a flattening of the interest rate curve;
 - with an increase of the interest rate at long-term maturities and decrease of the interest rate at short-term maturities, leading to a steepening of the interest rate curve;
 - 3) uneven shocks, of which:
 - a shock of increased interest rates that is greater at short-term maturities;
 - a shock of decreased interest rates that is greater at short-term maturities.

(9) For the purposes of Articles 78b paragraphs (6) and (7) and Article 78č of this Decision, the shock types referred to in paragraph (7) item 1) indent 1, item 2) indent 1 and item 3) indent 1 of this Article shall be referred to as shocks prescribing an increase of short-term interest rates, and the shock types in item 1) indent 2, item 2) indent 2 and item 3) indent 2 of this Article shall be referred to as shocks prescribing a decrease of short-term interest rates.

(10) For the purposes of Article 78c paragraph (3), the shock types in paragraph (7) item 1) indent 1, item 2) indent 2 and item 3) indent 1 of this Article shall be referred to as shocks prescribing an increase of interest rates, and the shock types in item 1) indent 2, item 2) indent 1 and item 3) indent 2 of this Article shall be referred to as shocks prescribing a decrease of interest rates.“

Article 17

After Article 78 eight new sub-chapters and twenty-five new Articles shall be added, worded as follows:

„6.4. Allocation of repricing cashflows under standardised approach for the calculation of credit institution’s economic value of equity

General requirement for allocating repricing cash flows

Article 78a

(1) A credit institution shall slot by repricing date, currency and type of shock scenario the notional repricing cash flows of their positions into the repricing time buckets laid down in Annex 1b item 1 of this Decision as follows:

- 1) for fixed instruments by repricing date, following any deduction applied in accordance with paragraph (2) and (3) of this Article, to the relevant time bucket referred to Annex 1b item 1 of this Decision;
- 2) for floating rate instruments repricing date into the relevant repricing time buckets,

as follows:

- cash flows deriving from interest payments other than payments of the spread component up to the next repricing date, as per the contractual agreement.
 - the remaining principal amount, as per the contractual agreement.
 - spread components up to the final contractual maturity irrespective of any repricing of the non-amortised principal, except where they are excluded according to paragraphs (2) and (3) of this Article.
- 3) for non-maturity deposits in accordance with Article 78b of this Decision;
 - 4) for fixed rate loans subject to the risk of early repayment in accordance with Article 78c of this Decision;
 - 5) for term deposits subject to early redemption in accordance with Article 78č of this Decision;
 - 6) for derivatives not subject to optionality in accordance with Article 78ć of this Decision;
 - 7) for other instruments in accordance with Article 78d of this Decision.

(2) A credit institution shall treat commercial margins and other spread components in interest payments in terms of their exclusion from or inclusion in the cash flows in accordance with its internal risk management and measurement approach for IRRBB.

(3) Where credit institution excludes commercial margins and other spread components, it shall perform the following:

- 1) use a transparent methodology for identifying the risk-free rate at origination of each instrument;
- 2) use a methodology that is applied consistently across business units;
- 3) ensure that the exclusion of commercial margins and other spread components from the cash flows is consistent with how the institution manages and hedges IRRBB;
- 4) notify the Central Bank of their exclusion.

(4) A credit institution shall not take into account, for the purposes of the slotting referred to in paragraph (1) of this Article, the impact on notional repricing cash flow deriving from an embedded optionality of an automatic interest rate option, but the notional repricing cash flows shall be slotted as if the embedded optionality does not exist.

(5) A credit institution shall take into account, for the purposes of slotting referred to in paragraph (1) of this Article the notional repricing cash flow deriving from an embedded optionality of a behavioural interest rate option.

Non-Maturity Deposits

Article 78b

(1) A credit institution shall classify non-maturity deposits according to the counterparty as follows:

- 1) retail non-maturity deposits, which are further classified into retail transactional deposits and retail non-transactional deposits; and

2) wholesale non-maturity deposits, which are further classified into wholesale deposits of financial customers and wholesale non-financial deposits.

(2) A credit institution shall distinguish the stable from the non-stable part of the retail transactional and non-transactional and the wholesale non-financial deposits referred to in paragraph 1 of this Article using observed changes of the volume of the deposits due to upward and downward movements of the risk-free interest rate for a period of at least the preceding ten years.

(3) A credit institution shall further distinguish the stable part of the non-maturity deposits referred to in paragraph 1 of this Article into a core and a non-core component.

(4) To determine the amount of the non-core component of the stable deposits, the credit institution may multiply the amount of all stable deposits by the pass-through rate.

(5) When assessing the pass-through rate, the credit institution shall consider the following elements also having regard to positions having similar characteristics:

- 1) the current level of interest rates, the spread between an institution's offer rate and market rate, competition from other firms, the institution's geographical location and demographic and other relevant characteristics of its customer base.
- 2) the unlikely repricing of the core component even under significant changes in the interest rate environment.

(6) In scenarios prescribing an increase of short-term interest rates as referred to in Article 78 paragraphs 8 and 9, the core component calculated in accordance with paragraph 4 and 5 of this Article shall be multiplied by 0.8 and the non-core component shall increase accordingly.

(7) In scenarios prescribing a downward movement of short-term interest rates, the core component calculated in accordance with paragraphs 3 and 5 of this Article shall be multiplied by 1.2 and the non-core component shall decrease accordingly.

(8) A credit institution shall apply the following caps on the proportion of the core component of the non-maturity deposits when implementing paragraphs 3 to 7 of this Article:

- 1) 90%, for retail transactional non-maturity deposits referred to in paragraph 1 item 1 of this Article;
- 2) 70%, for retail non-transactional non-maturity deposits referred to in paragraph 1 item 1 of this Article;
- 3) 50%, for non-financial wholesale non-maturity deposits referred to in paragraph 1 item 2 of this Article.

(9) A credit institution shall treat all non-maturity wholesale deposits of financial customers, as referred to in paragraph 1 item 1 of this Article, as non-core non-maturity deposits.

(10) A credit institution shall allocate the non-core component of the non-maturity deposits into the (overnight) repricing time bucket (1) referred to in Annex 1b, item 1 to this Decision.

(11) A credit institution shall allocate the core components of the non-maturity deposits consistently over time into the repricing time buckets referred to in Annex 1b, item 1 to this Decision, based on observed internal data and subject to the following maturity restrictions calculated on a weighted average basis:

- 1) 5 years, for retail transactional non-maturity deposits;
- 2) 4.5 years, for retail non-transactional non-maturity deposits;
- 3) 4 years, for non-financial wholesale non-maturity deposits.

(12) A credit institution shall identify non-maturity deposits as non-core deposits if the total of non-maturity deposits is smaller than 2% of the positions referred to in Article 78 paragraph 4 of this Decision that are accounted for as a liability in accordance with the applicable accounting framework.

Fixed rate loans subject to the risk of early repayment

Article 78c

(1) A credit institution shall treat fixed rate loans to retail customers as subject to the risk of early repayment, where the borrower has the ability to prepay part or all of the outstanding principal before the contractually agreed repayment date or the contractual maturity date of the principal without bearing the economic costs for such repayment, and where a borrower is bearing the economic cost only above a certain prepayment threshold, the credit institution shall treat the loan as a fixed rate loan subject to the risk of early repayment.

(2) A credit institution shall determine and apply in a way consistent over time and appropriate for the estimation of an average prepayment rate, an estimation of the baseline annual conditional prepayment rate per currency for the positions referred to in paragraphs 1 and 7 of this Article, whereby that rate shall be distinct for each portfolio of homogeneous positions and shall be determined under the prevailing term structure of interest rates based on all available internal observations, while the prepayment rate may be set at 0, where the total of the fixed rate loans referred to in paragraphs 1 and 7 of this Article is less than 5% of the positions referred to in Article 78 paragraph 4 of this Decision that are accounted for as an asset in accordance with the applicable accounting framework.

(3) A credit institution shall adjust the conditional prepayment rate calculated in accordance with paragraph 2 of this Article to the shock scenarios, whereby in scenarios prescribing an increase in interest rates as referred to in Article 78 paragraph 10, the conditional prepayment rate shall be multiplied by 0.8. while in scenarios prescribing a decrease in interest rates as referred to in Article 78 paragraphs 8 and 10 of this Decision, the conditional prepayment rate shall be multiplied by 1.2.

(4) For each repricing time bucket referred to in Annex 1b, item 1 to this Decision, the expected amount of prepaid loans per time bucket shall be estimated by multiplying the amount referred to in item 1 of this paragraph with the appropriate rate referred to in item 2 of this paragraph:

- 1) the outstanding amount of the fixed rate loans referred to in paragraph 1 of this Article of a certain homogeneous product type denominated in a certain currency, whereby the amount matured or prepaid at a time earlier than the lower limit of the time bucket shall not be regarded as outstanding amount;
- 2) the appropriate time-weighted conditional prepayment rate is defined as the conditional prepayment rate in accordance with paragraph 2 of this Article, multiplied by the length of the applicable time bucket specified in Annex 1b, item 2 to this Decision and adjusted in accordance with paragraph 3 of this Article.

(5) A credit institution shall allocate the prepaid amount of the fixed rate loans referred to in paragraph 1 of this Article, including penalty fees on the prepaid amount that retail customers pay in the applicable scenario, into the appropriate time buckets of Annex 1b, item 1 to this Decision, whereby any part of their repricing cash flows that is not expected to be prepaid shall be allocated into the repricing time buckets referred to Annex 1b, item 1 to this Decision on the basis of the contractual repayment schedule for the duration of their contractual maturity.

(6) A credit institution shall not treat fixed loans to wholesale customers, where the borrower has the ability to prepay part or all of the outstanding principal before the contractually agreed repayment date or the contractual maturity date of the principal in accordance with the provisions of this Article but in accordance with Article 78a paragraph 1 item 1 and Article 78dž of this Decision.

(7) Where the credit institution is exposed to assets in the form of securities with underlying instruments in the form of loans referred to in paragraph 1 of this Article, and the issuer of those assets has no obligation to replace the loans in the case of their early repayment, a look-through approach shall be applied and the positions in those assets shall be evaluated in accordance with paragraph 1 of this Article, irrespective of whether the counterparty of the credit institution is a wholesale or retail customer.

Term deposits subject to the risk of early redemption

Article 78č

(1) A credit institution shall consider fixed rate term deposits as term deposits with the risk of early redemption, where they are retail deposits and the depositor holds the option to redeem any outstanding amount before the contractual maturity date of the deposit.

(2) Term deposits referred to in paragraph 1 of this Article, whose early redemption (withdrawal) would result in a penalty that the customer would pay to the credit institution compensating both for the loss of interest between the date of the deposit's redemption and the date of its contractual maturity and for the economic cost of redeeming the

deposit, may be treated in accordance with Article 78a paragraph 1 item 1 of this Decision and not in accordance with paragraph 1 of this Article.

(3) A credit institution shall not apply the provisions of this Article to wholesale fixed rate term deposits, but Article 78a paragraph 1 item 1 of this Decision, and where the wholesale depositor holds the option to redeem any outstanding amount before the contractual maturity date of the deposit and the conditions referred to in paragraph 2 of this Article are not met, the option shall be treated as an embedded automatic option in accordance with Article 78dž of this Decision.

(4) A credit institution shall determine, in a way that is consistently applied over time and which is suitable for the estimation of an average early redemption rate, an estimation of the baseline cumulative term deposit redemption rate for term deposits referred to in paragraph 1 of this Article, whereby the credit institution shall determine this rate distinctively for each portfolio of homogeneous products denominated in a currency, under the prevailing term structure of interest rates, based on all available internal observations, and the rate may also be set at 0, where the total of term deposits referred to paragraph 1 of this Article is smaller than 5% of the positions referred to in Article 78 paragraph 4 of this Decision that are accounted for as a liability in accordance with the applicable accounting framework.

(5) A credit institution shall adjust the term deposit redemption rates determined in paragraph 4 of this Article to the shock scenarios, while in scenarios prescribing a decrease of the short-term interest rates referred to in Article 78 paragraphs 8 and 10 of this Decision, the redemption rate shall be multiplied by 0.8, and in scenarios prescribing an increase of the short-term interest rates referred to in Article 78 paragraphs 8 and 10 of this Decision, the redemption rate shall be multiplied by 1.2.

(6) A credit institution shall obtain the expected amount of early redeemed term deposits, per time bucket in Annex 1b, item 1 to this Decision, by the multiplication of the amount of term deposits referred to in item 1 of this paragraph with the appropriate rate referred to in item 2 of this paragraph:

- 1) The amount of term deposits referred to in paragraph 1 of this Article of a certain homogeneous product type denominated in a certain currency;
- 2) the appropriate cumulative term deposit redemption rate adjusted in accordance with paragraph 5 of this Article.

(7) A credit institution shall obtain the total amount of the early redeemed term deposits by the aggregation of the early redemption amounts by time bucket in accordance with paragraph 6 of this Article, for all time buckets and sets of homogeneous product types, whereby the expected early redeemed amounts shall be allocated in the time bucket (1) (overnight deposits), while the parts of the cash flows of the term deposits referred to in paragraph 1 of this Article not expected to be redeemed early shall be allocated in accordance with their contractual maturity into the time buckets of Annex 1b, item 1 to this Decision.

Derivatives not subject to optionality

Article 78c

- (1) A credit institution shall separate derivative instruments not subject to optionality into a paying and a receiving leg.
- (2) The receiving leg of a derivative instrument shall be treated as an incoming cash flow, the paying leg of a derivative instrument shall be treated as an outgoing cash flow.
- (3) Cross-currency interest rate swaps involving swapping principal or interest in different currencies shall be treated separately for each leg in each currency.
- (4) A credit institution shall treat the interest income and expenses of derivative instruments used for hedging separately the income and expenses deriving from the hedged position.

Other instruments

Article 78d

- (1) A credit institution whose non-performing exposure ratio equals or exceeds 2% shall allocate the cash flow of non-performing exposures net of value adjustments, reflecting their expected cash flows and their timing, into the repricing time buckets of Annex 1b, item 1 to this Decision in a way that it is consistently applied over time.
- (2) For the purposes of paragraph 1 of this Article, non-performing exposures shall be determined by debt securities, loans and advances classified as non-performing in accordance with Article 35 of the Decision on Capital Adequacy of Credit Institutions, whereby the non-performing exposures ratio shall be calculated as the amount of non-performing exposures divided by the amount of total gross debt securities, loans and advances.
- (3) Where the sum of notional amounts of fixed rate loan commitments to retail counterparties exceeds 2% of the positions referred to in Article 78 paragraph 4 of this Decision that are accounted for as an asset in accordance with the applicable accounting framework, a credit institution shall estimate, taking into account the value of the contract for the counterparty in the baseline and shock scenarios and based on historical internal observations of drawings on fixed rate loan commitments by the type of the counterparty under similar conditions, amounts to be drawn and undrawn in both scenarios. Estimated drawn amounts shall be allocated, in accordance with the estimated time of the drawing, into the repricing time buckets of Annex 1b, item 1 to this Decision.

6.5. Add-ons for the calculation of standardised approach on economic value of equity

Economic value of equity add-on for automatic interest rate options

Article 78dž

(1) A credit institution shall calculate the economic value of equity add-on for the explicit and embedded automatic sold and bought interest rate options of their positions referred to in Article 78a paragraph 5 of this Decision.

(2) In case of bought automatic interest rate options, the credit institution shall determine the change in value of the option between the applicable interest rate shock scenario and the baseline scenario combined with a relative increase in the implicit interest rate volatility of 25%.

(3) In case of sold automatic interest rate options, a credit institution shall calculate the value change for the applicable interest rate shock scenario compared to the baseline scenario. The value change shall be the difference between:

- 1) an estimate of the value of the option for the option holder, given:
 - a risk-free yield curve in the applicable currency under the applicable interest rate shock scenario; and
 - a relative increase in the implicit interest rate volatility of 25%.
- 2) the value of the sold option for the option holder, on the basis of the non-shock yield curve and implicit interest rate volatility in the applicable currency at the valuation date.

(4) A credit institution shall calculate the total measure for automatic interest rate option risk as a result of an interest rate shock scenario in a currency as the difference between the values calculated in accordance with paragraph 2 and 3 of this Article.

(5) For the valuation required in paragraph 2 and 3 of this Article, a credit institution shall apply its relevant internal valuation methods.

6.6. Calculation of the standardised economic value of equity measure

Economic value of equity and delta economic value of equity calculation

Article 78d

(1) A credit institution shall calculate the economic value of equity for the baseline and the shock scenario in each currency in accordance with paragraphs 2 to 4 of this Article, whereby the change in the economic value of equity shall be calculated in accordance with paragraphs 5 and 6 of this Article.

(2) A credit institution shall allocate the notional repricing cash flows into the repricing time buckets in accordance with Articles 78a to 78d of this Decision, with the following further specifications:

- 1) all positive and negative notional repricing cash flows within a repricing time bucket shall be netted, forming a net long or net short position for each repricing time bucket;
- 2) incoming cash flows shall have a positive sign and outgoing cash flows shall have a negative sign.

(3) Net notional repricing cash flows shall be discounted towards a present value by using a discount factor. The discount factor $DF_{i,c}(tk)$ shall be calculated from the spot zero interest rate $R_{i,c}(tk)$ at the bucket mid-point for the respective scenario i and currency c multiplied by the bucket mid-point tk as:

$$DF_{i,c}(t_k) = \exp(-R_{i,c}(t_k) * t_k)$$

(4) A credit institution shall sum up the discounted net repricing cash flows across all repricing time buckets, to determine the economic value of equity for the baseline and the shock scenario, for each currency.

(5) The change in the economic value of equity shall be calculated by subtracting the economic value of equity in the baseline scenario from the economic value of equity in the shock scenario, and by adding the change of the value of the explicit and embedded automatic interest rate option calculated in accordance with Article 78dž of this Decision.

(6) When calculating the aggregate change for each shock scenario, credit institution shall add together any negative and positive changes occurring in each currency. In this calculation, currencies other than the reporting currency shall be converted to the reporting currency at the Central Bank spot FX rate on the reference date.

(7) Positive changes shall be weighted by a factor of 50% or by a factor of 80% in the case of Exchange Rate Mechanism - ERM II currencies with a formally agreed fluctuation band narrower than the standard band of +/- 15%.

(8) Weighted gains shall be recognized up to the greater of the following values:

- 1) the absolute value of negative changes in EUR or ERMII currencies; or
- 2) the result of applying a factor of 50% to the positive changes of ERMII currencies or EUR.

6.7. Allocation of repricing cashflow for the calculation of the standardised approach on net interest income of a credit institution

Specific requirements for allocating repricing cash flows

Article 78e

For the allocation of repricing cash flows for the calculation of the net interest income, a credit institution shall apply provisions of Articles 78a to 78d of this Decision, with the following derogations:

- 1) by way of derogation from Article 78a paragraph 2 of this Decision, a credit institution shall include in interest payments the commercial margins and other spread components;
- 2) in addition to the allocation of the notional repricing cash flows referred to in Article 78a paragraph 1 of this Decision and Articles 78c, 78č, and 78d of this Decision into the appropriate repricing time buckets in accordance with the provisions of those Articles, a credit institution shall allocate those cash flows into the reference term time buckets of Annex 1b, item 3 to this Decision, whereby notional repricing cash flows that are interest payments shall assume the reference term of the instrument that generated them.
- 3) in addition to the allocation of the notional repricing cash flows into repricing time buckets referred to in Article 78 paragraph 1 item 2 and Article 78b of this Decision, credit institution shall allocate those cash flows into the first reference term time bucket of Annex 1b, item 3 (time bucket exceeding overnight up to and including 12 months, with the midpoint of 12 months);
- 4) fixed legs of derivative instruments referred to in Article 78c of this Decision shall be treated under item 2 of this paragraph, while floating legs of derivative instruments shall be treated under item 3 of this paragraph.

6.8. Add-ons for the calculation of standardised approach on net interest income

Net interest income add-on for automatic interest rate options up to the net interest income horizon

Article 78f

A credit institution shall apply Article 78dž of this Decision to calculate the net interest income add-on for explicit and embedded automatic interest rate options up to the net interest income horizon, with the following derogations:

- 1) automatic options that can only be exercised beyond the net interest income horizon shall be excluded from the calculation;
- 2) the relative increase in implicit volatility shall be disregarded for the purposes of this calculation;
- 3) the value referred to in Article 178dž paragraphs 2 and 3 of this Decision shall be calculated on the basis of payouts expected in the baseline and shock scenarios;

- 4) by way of derogation from Article 178dž paragraphs 2 and 3 of this Decision, the instruments vis-a-vis retail and non-retail counterparties, whose optionality/non-linearity is automatically activated, shall be assumed to be rolled over with comparable characteristics up to the end of the net interest income horizon referred to in item 1 of this paragraph.

Market value changes for automatic interest rate options held at fair value and maturing beyond the net interest income horizon

Article 78g

To calculate the market value changes for automatic interest rate options held at fair value and maturing beyond the net interest income horizon, a credit institution shall apply Article 78dž of this Decision.

6.9. Calculation of the standardised net interest income risk measure

Projected yield of risk-free component

Article 78h

(1) For the purposes of calculating the contribution to net interest income of the projected risk-free yield on the reinvestment or refinancing of repricing cash flows, a credit institution shall, for each currency and scenario, determine a table of forward rates representative of the risk-free component of interest rates that is expected to be applied to risk-free loans starting at the repricing mid points of buckets referred to in Annex 1b, item 4 to this Decision, and with maturities corresponding to the reference term bucket mid points referred to in Annex 1b, item 3 to this Decision.

(2) A credit institution shall determine the forward rates referred to in paragraph 1 of this Article in accordance with the following formula:

$$FWD_{i,c}(t_k, t_k + REF_j) = - \frac{\ln[DF_{i,c}(t_k + REF_j)/DF_{i,c}(t_k)]}{REF_j},$$

where:

t_k is the midpoint of repricing bucket;

REF_j is the midpoint of reference term bucket *j*;

*FWD_{i,c}(t_k, t_k + *REF_j*)* is the forward rate for the respective scenario *i* and for currency *c* for a risk-free loan starting at the midpoint of repricing bucket *k* and maturing at the midpoint of reference term bucket *j*;

DF_{i,c}(t_k) is the discounting factor for the respective scenario *i* and for currency *c* and time *t_k* as referred to Article 78d paragraph 3 of this Decision.

(3) A credit institution shall determine the applicable risk-free interest rate, for each combination of a repricing bucket midpoint with a reference term bucket midpoint, by

multiplying the forward rates referred to in paragraph 1 of this Article with the remaining time up to the end of the time horizon of the net interest income calculation set out in Article 78 paragraph 7 of this Decision.

(4) The remaining time up to the end of a net interest income horizon shall be the net interest income horizon minus the relevant repricing mid points of the buckets referred to in Annex 1b, item 1 to this Decision.

(5) A credit institution shall calculate the contribution to the net interest income of the projected risk-free interest rate on the reinvestment or refinancing of repricing cash flows by multiplying the notional repricing cash flows referred to in Articles 78a paragraph 1 to 78d of this Decision, allocated in accordance with Article 78e paragraph 1 items 2 and 3 of this Decision, with the contribution of the corresponding applicable risk-free interest rate calculated in accordance with paragraph 3 of this Article.

Projected income from the commercial margin component

Article 78i

(1) A credit institution shall calculate the contribution to the net interest income of the projected commercial margin on the reinvestment or refinancing of repricing cash flows of the instruments referred to in Articles 78a paragraph 1 item 1 to 78č of this Decision by allocating these cash flows at the reset of commercial margins, and by estimating the applicable commercial margin rate and the remaining time up to the end of the net interest income horizon.

(2) The allocation referred to in paragraph 1 of this Article shall be performed in the repricing time buckets referred to in Annex 1b, item 4 to this Decision in accordance with Articles 78a paragraph 1 item 1 to 78č of this Decision.

(3) By way of derogation from Article 78a paragraph 1 item 2 of this Decision, in the case of floating rate instruments the part of repricing cash flows constituting a principal amount shall be allocated in accordance with its final contractual maturity date.

(4) To calculate the contribution of the projected commercial margin on the reinvestment of repricing cash flows to the net interest income, a credit institution shall allocate the evaluated positions into the following product types (further divided by geographical location), and currency denomination:

- 1) the product types of financial assets shall be:
 - Debt Securities;
 - Loans and advances – Non-Financial Corporates;
 - Loans and advances - Households – Mortgages;
 - Loans and advances - Households – Credit (non-mortgage);
 - Loans and advances – other counterparties;
 - Other products in the non-trading book;
- 2) the product types of financial liabilities shall be:
 - Deposits – Non-Financial Corporates;

- Deposits – Households;
- Deposits – other counterparties;
- Debt securities;
- Other liabilities in the non-trading book.

(5) To determine the commercial margin rate referred to in paragraph 1 of this Article, a credit institution shall apply the following:

- 1) in case of instruments traded in deep and active liquid markets where the value of the instrument is capable of being determined on the basis of widely disseminated and easily available market prices, the commercial margin rate shall be determined on the basis of the market price and the interest payments of the instrument with a deduction of the risk-free rate;
- 2) in case of other instruments, the commercial margin rate shall be determined by the weighted average of commercial margins received or paid in transactions during the last 360 days, having regard to the product type, geographical location and currency denomination referred to in paragraph 4 of this Article. In the absence of such transactions, the commercial margin rate shall be determined on the basis of assumptions relying on margins received or paid in comparable portfolios.

(6) The commercial margin rate determined in accordance with paragraph 5 of this Article in the baseline scenario shall also apply in a shock scenario.

(7) To take into account the remaining time in the net interest income horizon, a credit institution shall determine the percentage of commercial margin yield by multiplying the commercial margin calculated in accordance with paragraph 5 of this Article by the remaining time up to the end of the net interest income horizon. The remaining time up to the end of a net interest income horizon shall be the net interest income horizon minus the relevant repricing mid points of the buckets referred to in Annex 1b, item 1 to this Decision.

(8) A credit institution shall determine the contribution to the net interest income of the projected commercial margin on the reinvestment or refinancing of repricing cash flows by multiplying the cash flows calculated in accordance with paragraph 2 of this Article by the applicable commercial margin yield referred to in paragraph 7 of this Article.

Interest payments or part of interest payments that occur up to and including their reset date

Article 78j

(1) To determine the contribution to the net interest income of interest payments occurring up to the repricing date including that date, a credit institution shall additionally allocate exclusively these interest payments of the instruments referred to in Articles 78a paragraph 1 item 1 to 78d of this Decision into the repricing time buckets referred to in Annex 1b, item 4 to this Decision, provided these interest payments meet the following conditions:

- 1) the size of the interest payment is known and fixed, with no possibility for the payment to change due to a movement in interest rates.
- 2) the interest payment is expected to be paid within the net interest income horizon referred to in Article 78 paragraph 6 of this Decision.

(2) For instruments referred to in Article 78a paragraph 1 item 2 of this Decision, where the interest payment occurs after the interest repricing date, credit institution shall apply paragraph 1 of this Article only to the part of the interest payment that represents the commercial margin.

Market value changes for instruments held at fair value maturing beyond the net interest income horizon

Article 78k

(1) To calculate the market value changes beyond the net interest income horizon for instruments held at fair value, a credit institution shall perform the allocation in accordance with Article 78d paragraph 2 of this Decision, taking into account Article 78e paragraph 1 item 1 of this Decision, and with the following derogations:

- 1) the cash flows related to instruments not held at fair value shall be excluded;
- 2) the cash flows repricing in the net interest income time horizon shall be excluded by being set to zero in the repricing time buckets referred to in Annex 1b, item 4 to this Decision.

(2) To calculate the market value changes for instruments held at fair value that are maturing beyond the net interest income horizon, a credit institution shall apply Article 78d paragraphs 3 to 5 of this Decision to the allocation performed in accordance with paragraph 1 of this Article.

Net interest income add-on for basis risk

Article 78l

(1) Where the sum of floating rate instruments, other than those in the category "overnight", exceeds 5% of the positions referred to in Article 78 paragraph 4 of this Decision that are accounted for as an asset in accordance with the applicable accounting framework, the notional repricing cash flows of floating rate instruments shall be allocated, in addition to their allocation in accordance with Article 78a paragraph 1 item 2 of this Decision, for each currency by their repricing date, to the repricing time buckets referred to in Annex 1b, item 4 to this Decision.

(2) The notional repricing cash flows referred to in paragraph 1 of this Article shall, for the purpose of their allocation, be broken down into the following reference terms, which the floating rate instrument refers to:

- 1) Overnight;
- 2) 1 month;
- 3) 3 months;
- 4) 6 months;

5) 12 months.

(3) In the absence of a reference term, the notional repricing cash flows shall be assigned to the following categories:

- 1) "policy rate" in case the floating rate instrument refers to a central bank policy rate;
- 2) "other" in case of a floating rate instrument link to any other benchmark.

(4) Incoming notional repricing cash flows shall be allocated with a positive sign and outgoing notional repricing cash flows shall be allocated with a negative sign.

(5) For the purposes of paragraph 1 of this Article, a credit institution shall exclude embedded interest rate options and shall treat those options in accordance with paragraph 10 of this Article.

(6) A credit institution shall estimate tightening shocks and widening shocks, in a way that is consistently applied over time, for each reference term category referred to in paragraphs 2 to 4 of this Article for a given currency on the basis of historic observations of movements in the interest rates of the instruments in each category.

(7) The tightening shocks and widening shocks shall be determined by comparing interest rates with the overnight reference term referred to in paragraph 2 item 1 of this Article, to the other reference terms as set out in paragraph 2 items 2 to 5 and paragraphs 3 and 4 of this Article.

(8) A credit institution shall apply to the notional repricing cash flows for each currency the shocks referred to in paragraph 7 of this Article multiplied by the remaining time up to the end of a net interest income horizon. The remaining time up to the end of a net interest income horizon shall be the net interest income horizon minus the relevant repricing mid points of the buckets referred to in Annex 1b, item 1 to this Decision.

(9) A credit institution shall aggregate in one amount separately for the tightening and for the widening scenario the results from the calculations referred to in paragraph 8 of this Article.

(10) A credit institution shall calculate both in the tightening and in the widening scenario the pay-outs from automatic interest rate options that are explicit or embedded in floating rate instruments, and shall compare these pay-outs to the pay-outs calculated under the baseline scenario. The resulting difference in the pay-outs shall be added to the result calculated in accordance with paragraph 9 of this Article for the tightening scenario and the widening scenario separately, with a positive sign for incoming pay-outs and a negative sign for outgoing payouts. In this calculation, pay-outs shall not be discounted and no assumptions shall be made regarding changes in volatility.

(11) The net interest income add-on for basis risk shall be the lower result calculated in accordance with this Article in the tightening and the widening scenario.

Net interest income and delta net interest income calculation

Article 78Ij

(1) To calculate the net interest income, thereby excluding explicit and embedded automatic interest rate options up to the net interest income horizon, a credit institution shall take the sum of:

- 1) the projected risk-free yields calculated in accordance with Article 78h of this Decision;
- 2) the projected yield from commercial margins calculated in accordance with Article 78i of this Decision; and
- 3) the sum of interest payments up to their reset date including that date, calculated in accordance with Article 78j of this Decision, reduced by any material interest accrued at $t=0$.

(2) In the calculation of the previous paragraph, credit institution shall treat incoming cash flows with a positive sign and outgoing cash flows with a negative sign.

(3) To obtain the impact of a shock scenario on net interest income, credit institution shall take the sum of:

- 1) the difference between:
 - the calculation referred to in paragraph 1 of this Article relating to a shock scenario;
 - the calculation referred to in paragraph 1 of this Article relating to the baseline scenario;
- 2) the net interest income add-on for automatic options within the net interest income horizon calculated in accordance with Article 78f of this Decision;
- 3) the net interest income add-on for basis risk calculated in accordance with Article 78I of this Decision.

(4) A credit institution shall perform the calculation referred to in paragraph 3 items 1 and 2 of this Article using the same shock scenario, while it shall perform the calculation referred to in paragraph 3 item 3 of this Article using the tightening or widening scenario referred to in Article 78I paragraph 11 of this Decision that has the largest negative impact on the net interest income.

(5) When calculating the aggregate change for each shock scenario, credit institution shall add together any negative and positive changes occurring in each currency. In this calculation, currencies other than the reporting currency shall be converted to the reporting currency at the Central Bank spot FX rate on the reference date.

(6) Positive changes referred to in paragraph 5 of this Article shall be weighted by a factor of 50% or by a factor of 80% in the case of Exchange Rate Mechanism - ERM II currencies with a formally agreed fluctuation band narrower than the standard band of +/- 15% to offset losses in EUR.

(7) Weighted gains shall be recognized up to the greater of the following values:

- 1) the absolute value of negative changes in EUR or ERMII currencies; or
- 2) the result of applying a factor of 50% to the positive changes of ERMII currencies or EUR.

6.10 IRRBB measurement using simplified standardised approach by a credit institution

Economic value of equity and delta economic value of equity simplified calculation

Article 78m

(1) For each calculation of the economic value of equity and delta economic value of equity under the simplified standardised approach, a credit institution shall derogate from the standardised approach on EVE in a manner specified in paragraphs 2 to 4 of this Article.

(2) In the baseline scenario, by way of derogation from Article 78b paragraphs 2 to 8 of this Decision, a credit institution shall set the amount of core component of non-maturity deposits taking the following proportions:

- 1) 69.23%, for retail transactional non-maturity deposits referred to in Article 78b paragraph 1 item 1 of this Decision;
- 2) 53.85%, for retail non-transactional non-maturity deposits referred to in Article 78b paragraph 1 item 1 of this Decision;
- 3) 38.46%, for wholesale non-maturity deposits referred to in Article 78b paragraph 1 item 2 of this Decision;

(3) In the baseline scenario, by way of derogation from Article 78b paragraph 11 of this Decision, credit institution shall allocate the core component of non-maturity deposits evenly over time as set out in Annex 1b item 5.1 to this Decision.

(4) In scenarios prescribing a decrease of short-term interest rate, by way of derogation from Article 78b paragraphs 2 to 8, credit institution shall set the amount of core component of non-maturity deposits taking the following proportions:

- 1) 90%, for retail transactional non-maturity deposits referred to in Article 78b paragraph 1 item 1 of this Decision;
- 2) 70%, for retail non-transactional non-maturity deposits referred to in Article 78b paragraph 1 item 1 of this Decision;
- 3) 50%, for wholesale non-maturity deposits referred to in Article 78b paragraph 1 item 2 of this Decision.

(5) In scenarios prescribing a decrease of short-term interest rate, by way of derogation from Article 78b paragraph 11 of this Decision, credit institution shall allocate the core component of non-maturity deposits evenly over time as set out in Annex 1b, item 5.2 to this Decision.

(6) In scenarios prescribing an increase of short-term interest rate, by way of derogation from Article 78b paragraphs 2 to 8 of this Decision, credit institution shall set the amount of core component of non-maturity deposits taking the following proportions:

- (1) 48.46%, for retail transactional non-maturity deposits referred to in Article 78b paragraph 1 item 1 of this Decision;
- (2) 37.69%, for retail non-transactional non-maturity deposits referred to in Article 78b paragraph 1 item 1 of this Decision;
- (3) 26.92%, for wholesale non-maturity deposits referred to in Article 78b paragraph 1 item 2 of this Decision.

(7) In scenarios prescribing an increase of short-term interest rate, by way of derogation from Article 78b paragraph 11 of this Decision, credit institution shall allocate the core component of non-maturity deposits evenly over time as set out in Annex 1b, item 5.3 to this Decision.

(8) A credit institution shall perform the calculations of the change in value referred to in Article 78dž paragraphs 2 and 3 using the sum of the pay-outs in the baseline and shock scenarios and discounted by the applicable risk-free interest rates, whereby it shall disregard any effect of increased volatility multiply the pay-outs of automatic options under the shock scenario by 1.10.

Net interest income and delta net interest income simplified calculation

Article 78n

(1) For the calculation of the net interest income and delta net interest income under the simplified standardised approach, a credit institution shall derogate from the standardised approach on net interest income as follows:

- 1) a credit institution shall implement the simplification referred to in Article 78m paragraph 1 of this Decision;
- 2) a credit institution shall make no allocation in accordance with Article 78e paragraph 1 item 2 of this Decision. An average reference term for all fixed rate interest rate sensitive banking book assets and an average reference term for all fixed rate interest rate sensitive banking book liabilities shall be calculated for each product type category set out in Article 78i paragraph 4 of this Decision.
- 3) for the purpose of Article 78h of this Decision, the calculated average reference terms shall be applied instead of the mid points of the reference term buckets referred to in Annex 1b, item 3 to this Decision;
- 4) By way of derogation from Article 78i paragraphs 2 and 3 of this Decision, credit institution shall, when applying paragraph 4 item 2 of that Article, only separate the amounts referred to in Article 78i paragraphs 2 and 3 of this Decision by product types and shall not take into account the geographical location breakdown.
- 5) By way of derogation from Article 78j of this Decision, credit institution shall calculate interest payments or part of interest payments occurring up to their repricing date including that date, by the multiplication of:
 - the amount of principal of all instruments outstanding; with
 - the institution's estimate of average interest rate on instruments on the asset or

liability side as applicable; with

- the net interest income horizon, or, in case an instrument is repricing before the net interest income horizon, the mid-point of the applicable repricing time bucket referred to in Annex 1b, item 1 to this Decision applicable to the outstanding instrument.

(2) By way of derogation from Article 78dž paragraphs 2 and 3 of this Decision, credit institution shall calculate the market value changes of automatic options held at fair value maturing beyond the net interest income horizon referred to in Article 78g of this Decision by using the sum of the pay-outs in the baseline and shock scenarios discounted by the applicable risk-free interest rates. Institutions shall disregard any effect of increased volatility and multiply the pay-outs under the shock scenario by 1.10.

6.11 Supervisory outlier test

Supervisory shock scenarios

Article 78nj

(1) The supervisory outlier tests – SOTs as a part of the assessment of a credit institution's exposures to IRRBB and the process of supervisory review and evaluation, are envisaged to estimate whether such exposures of a credit institution have an impact on its economic value of equity (SIT on EVE) or its net interest income (SOT on NII) above certain thresholds.

(2) In determining the adverse impact of the changes in interest rates on the economic value of equity, a credit institution shall apply the following six supervisory shock scenarios:

- 1) parallel shock up, where there is a parallel upward shift of the yield curve with the same positive interest rate shock for all maturities;
- 2) parallel shock down, where there is a parallel downward shift of the yield curve with the same negative interest rate shock for all maturities;
- 3) steepener shock, where there is a steepening shift of the yield curve, with negative interest rate shocks for shorter maturities and positive interest rate shocks for longer maturities;
- 4) flattener shock, where there is a flattening shift of the yield curve, with positive interest rate shocks for shorter maturities and negative interest rate shocks for longer maturities;
- 5) short rates shock up, with larger positive interest rate shocks for shorter maturities to converge with the baseline for longer maturities; and
- 6) short rates shock down, with larger negative interest rate shocks for shorter maturities to converge with the baseline for longer maturities.

(3) In determining the adverse impact of the change in the interest rates on the net interest income, a credit institution shall apply the following two supervisory shock scenarios:

- 1) parallel shock up, where there is a parallel upwards shift of the yield curve with the same positive interest rate shocks for all maturities; and
- 2) parallel shock down, where there is a parallel downwards shift of the yield curve with the same negative interest rate shocks for all maturities.

(4) The supervisory shock scenarios referred to in paragraphs 2 and 3 of this Article shall be calculated on the basis of the currency-specific specified sizes of interest rate shocks set out in Table 1 of this Article and in Article 78o of this Decision, and shall apply at least to the exposure to the IRRBB, denominated in each currency separately for which the credit institution has positions where the accounting value of financial assets or liabilities denominated in a currency amounts to 5% or more of the total non-trading book financial assets or liabilities, or less than 5% if the sum of financial assets or liabilities included in the calculation is lower than 90% of total non-trading book financial assets (excluding tangible assets) or liabilities.

Table 1: Specified size of interest rate shocks $\bar{R}_{shocktype,c}$

	ARS	AUD	BGN	BRL	CAD	CHF	CNY	CZK	DKK	EUR	GBP
Parallel	400	300	250	400	200	100	250	200	200	200	250
Short	500	450	350	500	300	150	300	250	250	250	300
Long	300	200	150	300	150	100	150	100	150	100	150

	HKD	HRK	HUF	IDR	INR	JPY	KRW	MXN	PLN	RON	RUB
Parallel	200	250	300	400	400	100	300	400	250	350	400
Short	250	400	450	500	500	100	400	500	350	500	500
Long	100	200	200	350	300	100	200	300	150	250	300

	SAR	SEK	SGD	TRY	USD	ZAR
Parallel	200	200	150	400	200	400
Short	300	300	200	500	300	500
Long	150	150	100	300	150	300

ARS	Argentine Peso	IDR	Indonesian Rupiah
AUD	Australian Dollar	INR	Indian Rupee
BGN	Bulgarian Lev	JPY	Japanese Yen
BRL	Brazilian Real	KRW	South Korean Won
CAD	Canadian Dollar	MXN	Mexican Peso
CHF	Swiss Franc	PLN	Poland Zloty
CNY	Chinese Yuan	RON	Romanian Leu
CZK	Czech Koruna	RUB	Russian Ruble
DKK	Danish Krone	SAR	Saudi Riyal
EUR	Euro	SEK	Swedish Krona

GBP	Pound sterling	SGD	Singapore Dollar
HKD	Hong Kong Dollar	TRY	Turkish Lira
HRK	Croatian Kuna	USD	United States Dollar
HUF	Hungarian Forint	ZAR	South African Rand

Other currencies

Article 78o

- (1) To calibrate specified sizes for interest rate shocks for currencies not referred to in Table 1 referred to in Article 78nj of this Decision, the following shall apply:
- 1) a credit institution shall first calculate the daily average interest rate by collecting a 16-year time series of daily “risk-free” interest rates, without credit institution-specific or entity-specific credit spreads or liquidity spreads, for each currency for the maturities 3 months, 6 months, 1 year, 2 years, 5 years, 7 years, 10 years, 15 years and 20 years and then calculate the arithmetic average interest rate for each currency *c* across all observations in the time series and for all maturities. The result shall be a single measure per currency.
 - 2) if the average interest rate calculated as per item 1 of this paragraph for the first seven years is greater than 700 basis points, then data from the most recent 10 years or until when data is available shall be used; if not, the full 16-year time series of data shall be used;
 - 3) the parallel, short and long interest rate shock by currency shall be derived from applying the relevant global shock parameter from Table 2 to the average interest rate calculated as per item 1 of this paragraph.

Table 2: Baseline global interest rate shock parameters

Parallel	$\bar{\alpha}_{parallel}$	60%
Short	$\bar{\alpha}_{short}$	85%
Long	$\bar{\alpha}_{long}$	40%

- 4) a credit institution shall apply a floor of 100 basis points as well as variable caps of 500 basis points for the short-term shock, 400 basis points for the parallel shock and 300 basis points for the long-term shock, respectively.
 - 5) the set of interest rate shocks by currency shall then be rounded to the nearest 50 basis points.
- (2) The calibration referred to in paragraph 1 of this Article should be performed at least every five years.

Parametrisation of supervisory shock scenarios

Article 78p

For each currency *c* the specified size of the parallel, short and long shocks to the “risk-free” interest rate, the following parameterisations of the six supervisory shock scenarios shall be applied:

- 1) *parallel shock for currency c*: A constant parallel shock up or down across all time buckets:

$$\Delta R_{parallel,c}(t_k) = \pm \bar{R}_{parallel,c}$$

- 2) *short rate shock for currency c*:

$$\Delta R_{short,c}(t_k) = \pm \bar{R}_{short,c} \cdot e^{-\frac{t_k}{4}},$$

where t_k is the midpoint (in time) of the k^{th} time bucket.

- 3) *long rate shock for currency c*:

$$\Delta R_{long,c}(t_k) = \pm \bar{R}_{long,c} \cdot \left(1 - e^{-\frac{t_k}{4}}\right)$$

- 4) *rotation shocks for currency c*:

$$\Delta R_{steepener,c}(t_k) = -0.65 \cdot |\Delta R_{short,c}(t_k)| + 0.9 \cdot |\Delta R_{long,c}(t_k)|;$$

$$\Delta R_{flattener,c}(t_k) = +0.8 \cdot |\Delta R_{short,c}(t_k)| - 0.6 \cdot |\Delta R_{long,c}(t_k)|.$$

Changes in the economic value of equity (EVE)

Article 78r

A credit institution shall reflect in its calculation of the economic value of equity, the following common modelling and parametric assumptions:

- 1) all non-trading book positions from interest rate sensitive instruments shall be taken into account;
- 2) small trading book business, referred to in Article 103 of the Decision on Capital Adequacy of Credit Institutions, shall be included unless its IRRBB is captured in another risk measure;
- 3) all CET1 instruments and other perpetual instruments without any call dates shall be excluded from the calculation of the supervisory outlier test;
- 4) a credit institution shall reflect automatic and behavioural options in the calculation, whereby the key behavioural modelling assumptions of interest rate sensitive instruments shall be adjusted to the features of different interest rate scenarios taking into account the proportionality and materiality thresholds set out in Article 78b paragraph 12, Article 78c paragraph 2, Article 78č paragraph 4, Article 78d paragraph 3, and Article 78l paragraph 1 of this decision.;
- 5) pension obligations and pension plan assets shall be included unless their interest rate risk is captured in another risk measure;
- 6) the cash flows from interest rate sensitive instruments shall include any repayment of principal, any repricing of principal and any interest payments.

- 7) a credit institution with a non-performing exposures ratio of 2% or more shall include nonperforming exposures as general interest rate sensitive instruments whose modelling should reflect expected cash flows and their maturity; non-performing exposures shall be included net of value adjustments; for these purposes, non-performing exposures are determined by debt securities, loans and advances classified as non-performing in accordance with Article 35 of the Decision on Capital Adequacy of Credit Institutions, while the non-performing exposures ratio is calculated as the amount of non-performing exposures divided by the amount of total gross debt securities, loans and advances calculated at the level of the credit institution;
- 8) a credit institution shall include instrument-specific interest rate caps and floors;
- 9) commercial margins and other spread components in interest payments in terms of their exclusion from or inclusion in the cash flows shall be treated in accordance with the institutions' internal management and measurement approach for interest rate risk in the non-trading book;
- 10) the change in EVE shall be computed with the assumption of a run-off balance sheet, where existing positions mature and are not replaced;
- 11) a maturity-dependent post-shock interest rate floor shall be applied for each currency starting with -150 basis points for immediate maturity; this floor shall increase by 3 basis points per year, probably reaching 0% for maturities of 50 years and more; if the observed interest rates are lower than the post-shock interest rate floor, institutions shall apply the lower observed interest rate;
- 12) when calculating the aggregate change for each interest rate shock scenario, institutions shall add together any negative and positive changes occurring in each currency; currencies other than the reporting currency shall be converted to the reporting currency at the Central Bank spot FX rate; positive changes shall be weighted by a factor of 50% or a factor of 80% in the case of Exchange Rate Mechanism - ERM II currencies with a formally agreed fluctuation band narrower than the standard band of +/- 15%; weighted gains shall be recognised up to the greater of the following two values:
 - the absolute value of negative changes in EUR or ERMII currencies; or
 - the result of applying a factor of 50% to the positive changes of ERMII currencies or EUR.
- 13) for discounting, an appropriate general "risk-free" yield curve per currency shall be applied (e.g., an OIS curve); that yield curve shall not include instrument-specific, sector-specific or entity-specific credit spreads or liquidity spreads;
- 14) in assessing the risk of interest rate-sensitive products that are linked to inflation or other market factors, prudent assumptions shall be applied. These assumptions shall be based on the current/last observed value, on forecasts of a reputable economic research institute or on other generally accepted market practices and shall be generally scenario-independent.

Changes in the net interest income

Article 78s

- (1) A credit institution shall reflect in their calculations of the net interest income the

following common modelling and parametric assumptions: interest income and interest expenses over a one-year horizon shall be considered regardless of the maturity and the accounting treatment of the relevant interest rate sensitive non-trading book instruments.

(2) The assumptions established in Article 78r of this Decision, except its items 9 and 10, shall apply here.

(3) A credit institution shall include commercial margins and other spread components.

(4) A credit institution shall compute the change in the net interest income under the assumption of a constant balance sheet, where its total size and composition, including on- and off-balance sheet items, shall be maintained by replacing maturing or repricing cash flows with new instruments that have comparable features with regard to the currency, amount and repricing period of the instruments generating the repricing cash flows. Margins of the new instruments shall be based on the margins from recently bought or sold products with similar characteristics. In the case of instruments with observable market prices, recent market spreads shall be used and not historical market spreads.

Large decline

Article 78t

(1) A decline of a credit institution's one-year net interest income by more than 2.5% of its Tier 1 Capital, resulting from a sudden and unexpected change in interest rates as set out in any of the two supervisory shock scenarios set out in Article 78nj of this Decision, shall constitute a large decline for the purpose of Article 246 paragraph 5 of the Law.

(2) For the decline set out in paragraph 1 of this Article to be calculated, the following formulae shall be applied:

$$\frac{NII_{shock} - NII_{baseline\ scenario}}{Tier\ 1\ Capital} < -2,5\%$$

Article 18

After Article 78t, a new chapter and four new Articles shall be added, worded as follows:

“VI.a CREDIT SPREAD RISK FROM NON-TRADING BOOK ACTIVITIES (CSRBB)

Credit spread risk from non-trading book activities (CSRBB)

Article 78u

(1) Credit spread risk from non-trading book activities (CSRBB) is a risk driven by changes of the market price for credit risk, for liquidity and for potentially other characteristics of credit-risky instruments, which is not captured by another existing prudential framework such as IRRBB or by expected credit/(jump-to-) default risk.

(2) CSRBB captures the risk of an instrument's changing spread while assuming the same level of creditworthiness, i.e. how the credit spread is moving within a certain rating/PD range.

(3) CSRBB captures a combination of two elements:

- 1) the changes of the "market credit spread" or "market price of credit risk" (distinct from the idiosyncratic credit spread) representing the credit risk premium required by market participants for a given credit quality;
- 2) the changes of the "market liquidity spread" representing the liquidity premium that sparks market appetite for investments and presence of willing buyers and sellers.

(4) CSRBB does not include the effect of credit quality changes during the observation period (i.e., rating category downgrade/upgrade of a specific counterparty or instrument, considered as migration risk). In particular, the deterioration of a credit institution's credit quality should not have any positive impact on the credit spread risk measure. A credit institution should avoid any overlap with the credit valuation adjustment risk management framework when assessing the CSRBB.

(5) CSRBB shall exclude non-performing exposures.

(6) When assessing changes in credit risk premium and liquidity premium movements, a credit institution may consider currency specific dimensions (i.e., EUR, USD, etc.) as a relevant dimension for market credit spread and market liquidity margin.

(7) A credit institution should not exclude any instrument in the banking book from the perimeter of CSRBB *ex ante*, including assets, liabilities, derivatives and other off-balance sheet items such as loan commitments, irrespective of their accounting treatment. Any potential exclusion of instruments from the relevant perimeter should be done in the case of the absence of sensitivity to credit spread risk and should be appropriately documented and justified. In any case, a credit institution should not exclude assets accounted at fair value.

(8) A credit institution shall include small trading book business, as defined by Article 103 of the Decision on Capital Adequacy of Credit Institutions, unless its credit spread risk is captured in another risk measure.

CSRBB assessment framework and responsibilities

Article 78v

(1) A credit institution shall have in place a CSRBB management framework that establishes a clear line of responsibilities and that consists of policies, processes and internal controls including regular independent reviews and evaluations of the effectiveness of the framework.

(2) A credit institution shall ensure that the arrangements, processes and mechanisms referred for the assessment of CSRBB are comprehensive and proportionate to the

nature, scale and complexity of the risks inherent in the business model of the credit institution.

(3) The CSRBB strategy of the credit institution, including the risk appetite for CSRBB should be part of the overall strategy, in particular the strategic objectives and risk objectives, which the management body must approve.

(4) A credit institution shall implement robust internal measurement systems (IMs) that capture all components and sources of CSRBB which are relevant for the credit institution's business model.

(5) A credit institution shall monitor its exposure to CSRBB in terms of potential changes to the different CSRBB measures.

(6) A credit institution shall use complementary features of the different approaches to capture the complex nature of CSRBB over the short-term and long-term time horizons.

(7) In particular, a credit institution should measure and monitor:

- 1) the overall impact of key modelling assumptions on the different CSRBB measures, and
- 2) the CSRBB of its banking book derivatives where relevant for the business model.

Methods for monitoring CSRBB

Article 78z

(1) A credit institution shall develop and use its own assumptions and calculation methods for the assessment of CSRBB, whereby the choice of measurement methodology must be adequate for the complexity of the credit institution itself.

(2) The limitations of each quantitative tool and model used shall be fully understood by the credit institution, and these limitations should be taken into account in the CSRBB risk management process.

(3) In assessing the CSRBB, a credit institution shall be aware of the risks that may arise as a consequence of accounting treatment of transactions in the non-trading book..

(4) By way of an exception, in the practical implementation of Article 78u paragraph 3 of this Decision and for proportionality reasons, a credit institution may include idiosyncratic credit spread components for the monitoring of CSRBB, as long as it is ensured that the measures will yield more conservative results.

CSRBB monitoring assumptions

Article 78ž

(1) When measuring CSRBB, a credit institution shall fully understand and document key modelling assumptions that should be aligned with business strategies and be

regularly tested.

(2) A credit institution shall take into account the implications of accounting practices for the measurement of CSRBB, in particular for net interest income measures plus market value changes.

(3) If the reliability and stability of diversification assumptions are appropriately validated and documented, diversification between CSRBB and IRRBB may be possible. Under the same condition, diversification assumptions between CSRBB and other risks may be possible. The diversification effects should be estimated conservatively enough to be assumed to be sufficiently stable even in economic downturns and under market conditions that are unfavourable for the credit institution's business and risk structure. In any case institutions must have separate assessments of CSRBB and other risks (including IRRBB).

(4) As market conditions, competitive environments and strategies change over time, a credit institution must review significant measurement assumptions at least annually, and more frequently during rapidly changing market conditions.

(5) For the purpose of CSRBB, a credit institution shall set-up prudent documentation supporting its policies assumptions and procedures, and introduce a process for keeping them under review.

(6) A credit institution shall understand, for the purpose of CSRBB, the impact of the chosen CSRBB-related investment strategies."

Article 19

After Annex 1 two new annexes shall be added, worded as follows:

IRRBB MEASUREMENT METHODS (NON-EXHAUSTIVE LIST)

Cash flow modelling	Metric	Description	Risks captured	Limitations of metric
<p>Unconditional cash flows (it is assumed that the maturity of cash flows is independent of the specific interest rate scenario)</p>	<p>Net Interest Income-based:</p> <ul style="list-style-type: none"> • Gap analysis: Repricing gap • Focus on net interest income (NII) component: Change of NII 	<p>Gap analysis allocates all relevant interest rate sensitive instruments into predefined time buckets according to their repricing or maturity dates, which are either contractually fixed or based on behavioural assumptions. It calculates the net positions ('gaps') in each time bucket. It approximates the change in net interest rate income ensuing from a yield curve shift by multiplying each net position with the corresponding interest rate change.</p>	<p>Gap risk (only parallel risk)</p>	<ul style="list-style-type: none"> • The metric approximates the gap risk only linearly. • It is based on the assumption that all positions within a particular time bucket mature or reprice simultaneously. • It fails to measure basis and option risk.
	<p><u>Economic value:</u></p> <ul style="list-style-type: none"> • Duration analysis: Modified duration/PV01 of equity 	<p>The modified duration approximates the relative change in the net present value of a financial instrument due to a marginal parallel shift of the yield curve by one percentage point. The modified duration of equity measures the exposure of an institution to gap risk in its non-trading book. PV01 of equity is derived from the modified duration of equity and measures the absolute change of the</p>	<p>Gap risk (only parallel risk)</p>	<ul style="list-style-type: none"> • The metric only applies to marginal shifts of the yield curve. In the presences of convexities, it may underestimate the effect of larger interest rate movements. • It only applies to parallel shifts of the yield curve.. • It fails to measure option risk and captures basis risk at best partially.

Cash flow modelling	Metric	Description	Risks captured	Limitations of metric
		<p>equity value resulting from a 1 basis point (0.01%) parallel shift of the yield curve.</p> <p>The starting point is the allocation of all cash flows of interest rate sensitive instruments into time buckets. For each instrument type, an appropriate yield curve is selected. The modified duration of each instrument is calculated from the change of its net present value due to a 1 percentage point parallel shift of the yield curve. The modified duration of equity is determined as the modified duration of assets times assets divided by equity minus the modified duration of liabilities times liabilities divided by equity.</p> <p>PV01 of equity is obtained by multiplying the modified duration of equity by the value of equity (i.e., assets minus liabilities) and dividing by 10 000 to arrive at the value change per basis point.</p>		

Cash flow modelling	Metric	Description	Risks captured	Limitations of metric
	Partial modified duration/partial PV01	<p>The partial modified duration of an instrument for a specific time bucket is calculated as the modified duration above, except that not the entire yield curve is shifted in parallel, but only the yield curve segment corresponding to the time bucket. These partial measures show the sensitivity of the market value of the banking book to a marginal shift of the yield curve in particular maturity segments. To each time bucket's partial measure a different magnitude of a shift can be applied, such that the effect of a change of the yield curve's shape can be computed for the entire portfolio.</p>	Gap risk (parallel and non-parallel risk)	<ul style="list-style-type: none"> • The metric only applies to marginal interest rate changes. In the presence of convexity, the metric may underestimate the effect of larger interest rate movements.. • It fails to measure the basis and option risk..
<p>Cash flows partially or fully conditional on interest rate scenario (it is assumed that the timing of cash flows of options, of instruments with embedded, explicit options and – in more sophisticated approaches – of instruments of which the maturity depends on clients' behaviour, is</p>	<p><u>Net Interest Income-based:</u> <u>Focus on net interest income (NII) component:</u></p> <ul style="list-style-type: none"> • Change of NII 	<p>The change of NII is an earnings-based metric and measures the change of the net interest income over a particular time horizon (usually 1-5 years) resulting from a sudden or gradual interest rate movement. The starting point is the mapping of all cash flows of interest rate sensitive instruments to (granular) time buckets (or using the exact repricing dates of individual positions in more sophisticated systems).</p> <p>The base scenario for the calculations reflects the institution's current</p>	Gap risk (parallel and non-parallel), basis risk and, provided all cash flows are modelled scenario dependent, also option risk	<ul style="list-style-type: none"> • Sensitivity of the outcome to the modelling and behavioural assumptions. • Complexity.

Cash flow modelling	Metric	Description	Risks captured	Limitations of metric
<p>modelled conditional on the interest rate scenario)</p>		<p>corporate plan to project the volume, pricing and repricing dates of future business transactions. The interest rates used to calculate future cash flows in the base scenario are derived from forward rates, appropriate spreads or market expected rates for different instruments.</p> <p>In assessing the possible extent of NII changes, banks use assumptions and models to predict the path of interest rates, the maturing of existing assets, liabilities and off-balance-sheet items, and their potential replacement.</p> <p>Net interest income-based metrics can be differentiated according to the sophistication of projecting future cash flows: simple run-off models assume that existing assets and liabilities mature without replacement; constant balance sheet models assume that maturing assets and liabilities are replaced by comparable instruments; while the most complex dynamic cash flow models reflect business responses to differing interest rate environments in the size and composition of the banking book.</p> <p>All earnings-based metrics can be used in a</p>		

Cash flow modelling	Metric	Description	Risks captured	Limitations of metric
		scenario or stochastic analysis. Earnings at risk (EaR) is an example of the latter, which measures the maximum NII change at a given confidence level.		
	<p><u>Economic value:</u> Focus on economic value of equity (EVE)</p> <ul style="list-style-type: none"> • Change in EVE 	<p>The change in EVE is the change in the net present value of all cash flows originating from banking book assets, liabilities and off-balance-sheet items resulting from a change in interest rates, assuming that all banking book positions run off. The interest rate risk can be assessed by the ΔEVE for specific interest rate scenarios or by the distribution of ΔEVE using Monte Carlo or historical simulations. Economic value at risk (EVaR) is an example of the latter, which measures the maximum equity value change for a given confidence level.</p>	<p>Gap risk (parallel and non-parallel), basis risk and, if all cash flows are modelled scenario dependent, also option risk</p>	<ul style="list-style-type: none"> • Sensitivity of the outcome to the modelling and behavioural assumptions. • Stochastic metrics, which apply distributional assumption, may fail to capture tail risks and nonlinearities. • Full revaluation Monte Carlo approaches are computationally demanding and may be difficult to interpret ('black-box'). • Complexity

ANNEX 1b

1. Repricing time buckets:

- 1) An overnight time bucket, with the mid-point of 1 day, or approximately 0.0028 years.
- 2) A time bucket exceeding 1 day and up to and including 1 month, with the midpoint of 15 days.
- 3) A time bucket exceeding 1 month and up to and including 3 months, with the mid-point of 60 days.
- 4) A time bucket exceeding 3 months and up to and including 6 months, with the mid-point of 135 days.
- 5) A time bucket exceeding 6 month and up to and including 9 months, with the mid-point of 225 days.
- 6) A time bucket exceeding 9 month and up to and including 12 months, with the mid-point of 315 days.
- 7) A time bucket exceeding 1 year and up to and including 1.5 year, with the midpoint of 1 year and 90 days.
- 8) A time bucket exceeding 1.5 year and up to and including 2 years, with the midpoint of 1 year and 270 days.
- 9) A time bucket exceeding 2 years and up to and including 3 years, with the midpoint of 2 years and 180 days.
- 10) A time bucket exceeding 3 years and up to and including 4 years, with the midpoint of 3 years and 180 days.
- 11) A time bucket exceeding 4 years and up to and including 5 years, with the midpoint of 4 years and 180 days.
- 12) A time bucket exceeding 5 years and up to and including 6 years, with the midpoint of 5 years and 180 days.
- 13) A time bucket exceeding 6 years and up to and including 7 years, with the midpoint of 6 years and 180 days.
- 14) A time bucket exceeding 7 years and up to and including 8 years, with the midpoint of 7 years and 180 days.
- 15) A time bucket exceeding 8 years and up to and including 9 years, with the midpoint of 8 years and 180 days.
- 16) A time bucket exceeding 9 years and up to and including 10 years, with the midpoint of 9 years and 180 days.
- 17) A time bucket exceeding 10 years and up to and including 15 years, with the midpoint of 12 years and 180 days.
- 18) A time bucket exceeding 15 years and up to and including 20 years, with the midpoint of 17 years and 180 days.
- 19) A time bucket exceeding 20 years, with the mid-point of 25 years.

2. Length of time buckets referred to in Article 78c paragraph 4 item 2 of this Decision are as follows:

- 1) 0 year.
- 2) 1/12 year.
- 3) 2/12 year.
- 4) 3/12 year.
- 5) 3/12 year.
- 6) 3/12 year.
- 7) 6/12 year.
- 8) 6/12 year.
- 9) 1 year.
- 10) 1 year.
- 11) 1 year.
- 12) 1 year.
- 13) 1 year.
- 14) 1 year.
- 15) 1 year.
- 16) 5 years.
- 17) 5 years.
- 18) 5 years.
- 19) 10 years.

3. Reference term time buckets:

- 1) A time bucket exceeding overnight up to and including 12 months, with the midpoint of 12 months.
- 2) A time bucket exceeding 1 year and up to and including 1.5 year, with the midpoint of 1 year and 90 days.
- 3) A time bucket exceeding 1.5 year and up to and including 2 years, with the midpoint of 1 year and 270 days.
- 4) A time bucket exceeding 2 years and up to and including 3 years, with the midpoint of 2 years and 180 days.
- 5) (e) A time bucket exceeding 3 years and up to and including 4 years, with the midpoint of 3 years and 180 day.
- 6) A time bucket exceeding 4 years and up to and including 5 years, with the midpoint of 4 years and 180 days.
- 7) A time bucket exceeding 5 years and up to and including 6 years, with the midpoint of 5 years and 180 days.
- 8) A time bucket exceeding 6 years and up to and including 7 years, with the midpoint of 6 years and 180 days.
- 9) A time bucket exceeding 7 years and up to and including 8 years, with the midpoint of 7 years and 180 days.
- 10) A time bucket exceeding 8 years and up to and including 9 years, with the midpoint of 8 years and 180 days.

- 11) A time bucket exceeding 9 years and up to and including 10 years, with the midpoint of 9 years and 180 days.
 - 12) A time bucket exceeding 10 years and up to and including 15 years, with the midpoint of 12 years and 180 days.
 - 13) A time bucket exceeding 15 years and up to and including 20 years, with the midpoint of 17 years and 180 days.
 - 14) A time bucket exceeding 20 years, with the mid-point of 25 years
4. For the purposes of Articles 78d paragraph 1, 78h paragraph 2, 78i paragraph 1, 78j paragraph 1 item 2 and 78l paragraph 1, the following repricing time buckets referred to in item 1 of this Annex shall be used in case of different net interest rate horizons:
- 1) Bucket (1) to (f) in case of a net interest horizon of 1 year.
 - 2) Bucket (1) to (g) in case of a net interest horizon of 1.5 year.
 - 3) Bucket (a) to (h) in case of a net interest horizon of 2 years.
 - 4) Bucket (a) to (i) in case of a net interest horizon of 3 years.
 - 5) Bucket (a) to (j) in case of a net interest horizon of 4 years.
 - 6) Bucket (a) to (k) in case of a net interest horizon of 5 years.
 - 7) Bucket (a) to (l) in case of a net interest horizon of 6 years.
 - 8) Bucket (a) to (m) in case of a net interest horizon of 7 years.
 - 9) Bucket (a) to (n) in case of a net interest horizon of 8 years.
 - 10) Bucket (a) to (o) in case of a net interest horizon of 9 years.
 - 11) Bucket (a) to (p) in case of a net interest horizon of 10 years.
 - 12) Bucket (a) to (q) in case of a net interest horizon of 15 years.
 - 13) Bucket (a) to (r) in case of a net interest horizon of 20 years.
 - 14) Bucket (a) to (s) in case of a net interest horizon of 25 years.

5. Prescribed slotting simplified standardised approach.

1) Baseline scenario:

- Up to 5 years, for the category of retail transactional non-maturity deposits referred to in Article 78b of this Decision, resulting in 30.77%, 1.15%, 2.31%, 3.46%, 3.46%, 3.46%, 6.92%, 6.92%, 13.85%, 13.85% and 13.85% of non-maturity deposits of this category being slotted into time buckets 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11 referred to in item 1 of this Annex;
- Up to 4.5 years, for the category of retail non-transactional non-maturity deposits referred to in Article 78b of this Decision, resulting in 46.15%, 1.00%, 2.00%, 2.99%, 2.99%, 2.99%, 5.98%, 5.98%, 11.97%, 11.97% and 5.98% of non-maturity deposits of this category being slotted into time buckets 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11 referred to in item 1 of this Annex;
- Up to 4 years, for the category of wholesale non-financial non-maturity deposits referred to in Article 78b of this Decision, resulting in 61.54%, 0.80%, 1.60%, 2.40%, 2.40%, 2.40%, 4.81%, 4.81%, 9.62%, and 9.62% of non-maturity

deposits of this category being slotted into time buckets 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 referred to in item 1 of this Annex.

2) Decrease of short-term interest rates:

- Up to 5 years, for the category of retail transactional non-maturity deposits referred to in Article 78b of this Decision, resulting in 10.00%, 1.50%, 3.00%, 4.50%, 4.50%, 4.50%, 9.00%, 9.00%, 18.00%, 18.00% and 18.00% of non-maturity deposits of this category being slotted into time buckets 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11 referred to in item 1 of this Annex;
- Up to 4.5 years, for the category of retail non-transactional non-maturity deposits referred to in Article 78b of this Decision, resulting in 30.00%, 1.30%, 2.59%, 3.89%, 3.89%, 3.89%, 7.78%, 7.78%, 15.55%, 15.55% and 7.78% of non-maturity deposits of this category being slotted into time buckets 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11 referred to in item 1 of this Annex;
- Up to 4 years, for the category of wholesale non-financial non-maturity deposits referred to in Article 78b of this Decision, resulting in 50.00%, 1.04%, 2.08%, 3.12%, 3.12%, 3.12%, 6.25%, 6.25%, 12.51%, and 12.51% of non-maturity deposits of this category being slotted into time buckets 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 referred to in item 1 of this Annex.

3) Increase of short-term interest rates:

- Up to 5 years, for the category of retail transactional non-maturity deposits referred to in Article 78b of this Decision, resulting in 51.54%, 0.81%, 1.62%, 2.42%, 2.42%, 2.42%, 4.85%, 4.85%, 9.69%, 9.69% and 9.69% of non-maturity deposits of this category being slotted into time buckets 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11 referred to in item 1 of this Annex;
- Up to 4.5 years, for the category of retail non-transactional non-maturity deposits referred to in Article 78b of this Decision, resulting in 62.31%, 0.70%, 1.39%, 2.09%, 2.09%, 2.09%, 4.19%, 4.19%, 8.38%, 8.38% and 4.19% of non-maturity deposits of this category being slotted into time buckets 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11 referred to in item 1 of this Annex;
- Up to 4 years, for the category of wholesale non-financial non-maturity deposits referred to in Article 78b of this Decision, resulting in 73.08%, 0.56%, 1.12%, 1.68%, 1.68%, 1.68%, 3.37%, 3.37%, 6.73% and 6.73% of non-maturity deposits of this category being slotted into time buckets 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11 referred to in item 1 of this Annex. “

Article 20

This Decision shall enter into force on the eighth day following that of its publication in the "Official Gazette of Montenegro", and it shall apply as of 1 July 2025.

THE COUNCIL OF THE CENTRAL BANK OF MONTENEGRO

Decision number: 0101-5224-2/2024
Podgorica, 26 June 2024

**CHAIRPERSON
GOVERNOR,**

Irena Radović m.p.