

EBA/CP/2021/37

2 December 2021

Consultation Paper

Draft Guidelines issued on the basis of Article 84 (6) of Directive 2013/36/EU specifying aspects of the identification, evaluation, management and mitigation of the risks arising from potential changes in interest rates and of the assessment and monitoring of credit spread risk, of institutions' non-trading book activities

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1. Responding to this consultation

The EBA invites comments on all proposals put forward in this paper and in particular on the specific questions summarised in 5.2.

Comments are most helpful if they:

- respond to the question stated;
- indicate the specific point to which a comment relates;
- contain a clear rationale;
- provide evidence to support the views expressed / rationale proposed; and
- describe any alternative regulatory choices the EBA should consider.

Submission of responses

To submit your comments, click on the 'send your comments' button on the consultation page by 4 April 2022. A public consultation period of four months is proposed on an exceptional basis, considering the concomitant publication of 3 different regulatory products on the same topic. Please note that comments submitted after this deadline, or submitted via other means may not be processed.

Publication of responses

Please clearly indicate in the consultation form if you wish your comments to be disclosed or to be treated as confidential. A confidential response may be requested from us in accordance with the EBA's rules on public access to documents. We may consult you if we receive such a request. Any decision we make not to disclose the response is reviewable by the EBA's Board of Appeal and the European Ombudsman.

Data protection

The protection of individuals with regard to the processing of personal data by the EBA is based on Regulation (EU) 1725/2018 of the European Parliament and of the Council of 23 October 2018. Further information on data protection can be found under the Legal notice section of the EBA website.

2. Executive Summary

Article 84(6) of the Directive 2013/36/EU¹ (Capital Requirements Directive – CRD) mandates the EBA to issue Guidelines to specify the criteria for the evaluation by an institution's internal system of the interest rate risk of an institution's non-trading book activities (IRRBB) as well as the criteria for the identification, management and mitigation by institutions of the IRRBB either if it implements internal systems, the standardised approach or the simplified standardised approach.

The EBA published in July 2018 Guidelines “on the management of interest rate risk arising from non-trading book activities” that apply from June 2019 with dedicated provisions on these aspects. The draft Guidelines included in this consultation paper will replace the 2018 EBA Guidelines as some of its parts will be covered by dedicated RTS and the amended mandate includes new aspects as explained below. The new draft Guidelines maintain continuity with the previous Guidelines as far as possible, while updating some elements.

The Guidelines are broadly consistent with the Basel standards with some further elaborated sections following the CRD mandate, particularly on CSRBB assessment and monitoring and non-satisfactory IRRBB internal systems.

The EBA is mandated to specify in these Guidelines additional criteria for the assessment and monitoring by institutions of their credit spread risk arising from their non-trading book activities (CSRBB). The draft Guidelines provide a definition and the scope of application of CSRBB. They contain dedicated sections for CSRBB with specific provisions on the identification, assessment and monitoring of CSRBB.

Finally, the amended mandate requests the inclusion of criteria for determining whether the internal systems implemented by institutions for the purpose of evaluating IRRBB are not satisfactory, in which case a competent authority may require an institution to use the standardised methodology.

After some general provisions, the new Guidelines contain separate specific chapters for IRRBB and for CSRBB.

Next steps

The guidelines will be translated into the official EU languages and published on the EBA website. The deadline for competent authorities to report whether they comply with the guidelines will be two months after the publication of the translations. The EBA will finalise these guidelines once the consultation responses have been assessed. Upon publication of the final Guidelines, the existing

¹ Directive (EU) 2019/878 of the European Parliament and of the Council of 20 May 2019 amending Directive 2013/36/EU as regards exempted entities, financial holding companies, mixed financial holding companies, remuneration, supervisory measures and powers and capital conservation measures

Guidelines on the management of interest risk arising from non-trading book activities published in 2018 will be repealed and replaced.

3. Background and rationale

1. On 18 July 2018 the EBA issued Guidelines on the management of interest rate risk arising from non-trading book activities. They updated the previous EBA Guidelines from 22 May 2015 and set up the first phase to implement within the EU the Standards on interest rate risk in the banking book published by the Basel Committee on Banking Supervision (BCBS Standards) in April 2016².
2. The second phase of the implementation of the Basel Standards within the EU takes place with the revision of Directive 2013/36/EU³ (Capital Requirements Directive – CRD) and Regulation (EU) No 575/2013 (Capital Requirements Regulation - CRR) and the upcoming enactment of a number of technical standards that the EBA is mandated to draft in the revised CRD and CRR.
3. Paragraph 1 of Article 84 of Directive 2013/36/EU establishes that institutions shall use either internal systems, the standardised methodology or the simplified standardised methodology⁴ **to identify, evaluate, manage and mitigate** interest rate risk of an institution's non-trading book activities. Paragraph 3 empowers competent authorities to require an institution the use of the standardised methodology to evaluate that risk where its internal systems for the purposes of such evaluation are not satisfactory.
4. In this context, Directive 2013/36/EU sets out a number of mandates to the EBA, namely:
 - (a) Following point (a) of paragraph 6 of Article 84 of Directive 2013/36/EU, these Guidelines will specify the criteria **to evaluate** interest rate risk of an institution's non-trading book activities **when the institutions implement internal systems**⁵. In this context Section 4.3 of these Guidelines specify the necessary criteria for the measurement of the risk.
 - (b) For the purposes of paragraph 3 of Article 84 of Directive 2013/36/EU, these Guidelines will specify criteria for the determination of internal systems that are not satisfactory to evaluate interest rate risk of an institution's non-trading book

² Available online: <http://www.bis.org/bcbs/publ/d368.htm>.

³ Directive (EU) 2019/878 of the European Parliament and of the Council of 20 May 2019 amending Directive 2013/36/EU as regards exempted entities, financial holding companies, mixed financial holding companies, remuneration, supervisory measures and powers and capital conservation measures

⁴ The simplified standardised methodology is envisaged for small and non-complex institution as defined in point (145) of Article 4(1) of Regulation (EU) No 575/2013. However, following paragraph 4 of Article 84 Directive 2013/36/EU, competent authorities may require them to use the standardised methodology if the simplified standardised methodology is not adequate to capture interest rate risk arising from non-trading book activities. The mandate for these Guidelines does not encompass the assessment of this adequacy.

⁵ The regulatory technical standards envisaged in paragraph 5 of Article 84 of Directive 2013/36/EU will specify the standardised methodology or the simplified standardised methodology that institutions may apply to evaluate interest rate risk of their non-trading book activities.

activities, as established under point (d) of paragraph 6 of Article 84 of Directive 2013/36/EU. This is developed in Section 4.4 of these Guidelines.

- (c) As per point (b) of paragraph 6 of Article 84 of Directive 2013/36/EU, these Guidelines will specify the criteria **to identify, manage and mitigate** interest rate risk of an institution's non-trading book activities **if the institutions implement internal systems or use the standardised methodology or the simplified standardised methodology**. In this context Sections 4.2 and 4.3 of these Guidelines specify the necessary criteria for this.

- 5. Paragraph 2 of Article 84 of Directive 2013/36/EU sets out that institutions shall implement systems **to assess and monitor** the credit spread risk on an institution's non-trading book activities.
- 6. Following point (c) of paragraph 6 of Article 84 Directive 2013/36/EU these Guidelines will include criteria to specify how to assess and monitor the credit spread risk on an institution's non-trading book. In this regard, sections 4.5 and 4.6 of the Guidelines provide a definition of the risk, the identification of the perimeter of exposures to this risk as well as guiding principles for its assessment and monitoring.
- 7. In summary, these Guidelines provide the legal framework for institutions' IRRBB internal systems and for the supervisory outlier tests (SOT) calculations if not specified in the relevant Regulatory Technical Standards on SOT. The Guidelines are also applicable, as regards the identification, management and mitigation of IRRBB, in case the internal systems are replaced by the use of the IRRBB standardised methodology (SA), in which case the relevant Regulatory Technical Standards on SA provide the necessary specifications for IRRBB evaluation aspects as well as for the purposes of SOT calculations if not specified in the relevant Regulatory Technical Standards on SOT⁶. The Guidelines also provide the legal framework for assessing and monitoring CSRBB.

Main policy choices

- 8. The Guidelines are strongly inspired by the 2018 EBA Guidelines on the management of interest rate risk arising from non-trading book activities. As explained in the following paragraphs, these draft Guidelines generally maintain continuity to the 2018 Guidelines in the identification, management and measurement of IRRBB under internal systems. However, some new elements are introduced like prudent behavioral assumption on non-maturity deposits from non-financial counterparties. The Guidelines also incorporate criteria to identify non-satisfactory IRRBB internal systems and add specific chapters to CSRBB identification, assessment and monitoring.

⁶ Both Regulatory Technical Standards are under public consultation at the moment together with these Guidelines.

9. In the context of the measurement of the impact of IRRBB under internal systems, interest income, interest expenses and market value changes should be considered. This ensures a comprehensive assessment of the impact of all interest rate sensitive items.
10. Furthermore, in this context, a five year cap on weighted average repricing maturity is introduced now for retail and non-financial wholesale deposits without a specified maturity. This behavioural assumption targets to ensure a minimum level playing field and prudent treatment of these deposits which prove to be a material item in the calculation of the impact of changes of interest rates.
11. In the determination of non-satisfactory IRRBB internal systems implemented by institutions, the Guidelines seek to provide minimum specific criteria to be assessed by the relevant competent authority. This approach targets to ensure that minimum harmonised criteria are used for these purposes while ensuring competent authorities' 'may' power to require the application of the standardised approach as envisaged in paragraph 3 of Article 84 Directive 2013/36/EU remains and any automatism here is avoided. The referred specific criteria mainly build on the compliance with the Guidelines and on a minimum comprehensive management of IRRBB that should be guaranteed.
12. These draft Guidelines elaborate on the definition of CSRBB following the provisions of the Basel rules text. In the identification of the perimeter of application, the Guidelines include assets recognised at fair value as well as any other assets, liabilities or off-balance sheet items that can be exposed to CSRBB. The Guidelines elaborate on the expected assessment and monitoring of CSRBB in the context of adequate and proportionate governance related aspects, processes to identify, manage, monitor and report and internal control mechanisms as envisaged by paragraphs 1 and 2 of Article 74 of Directive 2013/36/EU.

4. Draft Guidelines

EBA/GL/20XX/XX

DD Month YYYY

draft Guidelines issued on the basis of Article 84 (6) of Directive 2013/36/EU

specifying aspects of the identification,
evaluation, management and mitigation
of the risks arising from potential
changes in interest rates and of the
assessment and monitoring of credit
spread risk, of institutions' non- trading
book activities

Abbreviations

ALCO	asset and liability management committee
ALM	asset and liability management
BCBS	Basel Committee on Banking Supervision
BSG	Banking Stakeholder Group
CET1	Common Equity Tier 1
CSRBB	credit spread risk from the banking book (referred to in CRD as credit spread risk arising from non-trading book activities)
CRD	Capital Requirements Directive (Directive 2013/36/EU)
CRR	Capital Requirements Regulation (Regulation (EU) No 575/2013)
EBA	European Banking Authority
EaR	earnings at risk
EV	economic value
EVaR	economic value at risk
EVE	economic value of equity
FVOCI	fair value through other comprehensive income
ICAAP	Internal Capital Adequacy Assessment Process
IFRS 9	International Financial Reporting Standard 9 – Financial instruments
IMS	internal measurement system
IR	interest rate
IRRBB	interest rate risk arising from the banking book (referred to in CRD as interest rate risk arising from non-trading book activities)
IT	information technology
MIS	management information system
NII	net interest income
NMD	non-maturity deposit
NPE	non-performing exposure
P&L	profit and loss
QIS	quantitative impact study
SREP	supervisory review and evaluation process

1. Compliance and reporting obligations

Status of these Guidelines

1. This document contains Guidelines issued pursuant to Article 16 of Regulation (EU) No 1093/2010⁷. In accordance with Article 16(3) of Regulation (EU) No 1093/2010, competent authorities and financial institutions must make every effort to comply with the Guidelines.
2. Guidelines set the EBA view of appropriate supervisory practices within the European System of Financial Supervision or of how Union law should be applied in a particular area. Competent authorities as defined in Article 4(2) of Regulation (EU) No 1093/2010 to whom Guidelines apply should comply by incorporating them into their practices as appropriate (e.g. by amending their legal framework or their supervisory processes), including where Guidelines are directed primarily at institutions.

Reporting requirements

3. According to Article 16(3) of Regulation (EU) No 1093/2010, competent authorities must notify the EBA as to whether they comply or intend to comply with these Guidelines, or otherwise with reasons for non-compliance, by ([dd.mm.yyyy]). In the absence of any notification by this deadline, competent authorities will be considered by the EBA to be non-compliant. Notifications should be sent by submitting the form available on the EBA website with the reference 'EBA/GL/201x/xx'. Notifications should be submitted by persons with appropriate authority to report compliance on behalf of their competent authorities. Any change in the status of compliance must also be reported to EBA.
4. Notifications will be published on the EBA website, in line with Article 16(3).

⁷ Regulation (EU) No 1093/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Banking Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/78/EC, (OJ L 331, 15.12.2010, p.12).

2. Subject matter, scope and definitions

Subject matter and scope of application

5. These Guidelines specify, in accordance with paragraph 6 of Article 84 of Directive 2013/36/EU, :
- (a) The criteria for the identification, management and mitigation by institutions of IRRBB either if they implement internal systems or use the standardised methodology or the simplified standardised methodology for the evaluation of IRRBB.
 - (b) The criteria for the evaluation – measurement of IRRBB if an institution implements internal systems for it.
 - (c) The criteria for the assessment and monitoring by institutions' internal systems of CSRBB.
 - (d) The criteria for determining which of the IRRBB internal systems implemented by institutions are not satisfactory for the purposes of paragraph 3 of Article 84 of Directive 2013/36/EU.

Addressees

6. These Guidelines are addressed to competent authorities referred to in point (i) of Article 4(2) of Regulation (EU) No 1093/2010, and to financial institutions referred to in Article 4(1) of that regulation which are also institutions in accordance with point 3 of Article 4(1) of Regulation (EU) No 575/2013.

Definitions

7. Unless otherwise specified, terms used and defined in Directive 2013/36/EU⁸ and in Regulation (EU) No 575/2013⁹ have the same meaning in the Guidelines. In addition, for the purposes of these Guidelines, the following definitions apply:

Interest rate risk arising from non-trading book activities	The current or prospective risk to both the net interest income and the economic value of an institution arising from adverse movements in interest rates that affect interest rate sensitive
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⁸ Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC (1) - OJ L 176, 27.6.2013.

⁹ Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012 – OJ L 176, 27.6.2013.

	instruments, including gap risk, basis risk and option risk.
Interest rate sensitive instruments	Assets, liabilities and off-balance-sheet items in the non-trading book which are sensitive to interest rate changes (excluding assets deducted from CET1 capital, e.g. real estate or intangible assets or equity exposures in the non-trading book).
Credit spread sensitive instruments	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).
Gap risk	Risk resulting from the term structure of interest rate sensitive instruments that arises from differences in the timing of their rate changes, covering changes to the term structure of interest rates occurring consistently across the yield curve (parallel risk) or differentially by period (non-parallel risk).
Basis risk	Risk arising from the impact of relative changes in interest rates on interest rate sensitive instruments that have similar tenors but are priced using different interest rate indices. Basis risk arises from the imperfect correlation in the adjustment of the rates earned and paid on different interest rate sensitive instruments with otherwise similar rate change characteristics.
Option risk	Risk arising from options (embedded and explicit), where the institution or its customer can alter the level and timing of their cash flows, namely 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).
Credit spread risk from non-trading book activities (CSRBB)	The 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 IRRBB or by expected credit/(jump-to-) default risk.

	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.
Net interest income measures	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, interest expenses and market value changes.
Economic value (EV) measures	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. EV 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.
Economic value of equity (EVE) measures	A specific form of EV measure where equity is excluded from the cash flows.
Conditional cash flow modelling	Cash flow modelling under the assumption that the timing or amount of cash flows is dependent on the specific interest rate scenario.
Unconditional cash flow modelling	Cash flow modelling under the assumption that the timing and amount of cash flows is independent of the specific interest rate scenario.
Run-off balance sheet	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.
Dynamic balance sheet	A balance sheet including on- and off-balance-sheet items incorporating future business expectations, adjusted for the relevant scenario in a consistent manner.
Constant balance sheet	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.

Retail

A natural person or an SME, where the natural person or the SME would qualify for the retail exposure class under the Standardised or IRB approaches for credit risk, or by a company which is eligible for the treatment set out in Article 153(4) of Regulation (EU) No 575/2013 and where the aggregate deposits by that SME or company on a group basis do not exceed EUR 1 million.

Transactional deposit and accounts

Transactional deposits and transactional accounts are those retail 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.

Other retail deposits shall be considered as held in a non-transactional account.

3. Implementation

Date of application

8. Competent authorities should ensure that institutions apply these Guidelines from XX XX XXXX. ***[The EBA sees merits in seeking for coherence between the application date of these Guidelines and the application date of the RTS on Supervisory Outlier Tests and the RTS on the Standardised Approach, whose draft versions are under public consultation in parallel as well]***

Transitional provisions

9. [To be determined if needed]

Repeal

10. The following Guidelines are repealed with effect from xx month xxxx. Guidelines on the management of interest rate risk arising from non-trading book activities (EBA/GL/2018/02)¹⁰

¹⁰https://www.eba.europa.eu/sites/default/documents/files/document_library/Guidelines%20on%20the%20management%20of%20interest%20rate%20risk%20arising%20from%20non-trading%20activities%20%28EBA-GL-2018-02%29.pdf

4. Guidelines on the management of interest rate risk and on the assessment and monitoring of credit spread risk, arising from non-trading book activities

4.1 General provisions

4.1.1 IRRBB and CSRBB

(i) IRRBB

11. Institutions should treat IRRBB as an important risk and always assess it solely, explicitly, and comprehensively in their risk management processes and internal capital assessment processes.
12. Institutions should identify their IRRBB exposures and ensure that they are adequately measured, monitored and controlled. Institutions should manage risks arising from their IRRBB exposures and, if necessary, mitigate risks that affect both their net interest income and economic value.

(ii) CSRBB

13. Institutions should assess and monitor CSRBB explicitly and comprehensively in their risk management processes and internal capital assessment processes.
14. Institutions should identify their CSRBB exposures and ensure that they are adequately assessed, monitored, and controlled both under net interest income and under economic value measures.

(iii) Net interest income

15. For the purposes of these Guidelines, the net interest income upon which to calculate the impact of interest rate or credit spread movements should be determined by the interest income and expenses, and the market value changes of instruments — depending on accounting treatment — either shown in the profit and loss account or directly in equity (e.g. via other comprehensive income). Institutions should 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 or credit spread movements.

Explanatory box:

The EBA considers that interest income, interest expenses and market value changes of fair value instruments should be considered in the assessment of the impact on the net interest income that a change of the interest rate or credit spread might have. With the consideration of all these elements, the EBA targets to ensure a comprehensive assessment of this impact, in the shorter and longer term, under the internal management systems of institutions. In case that any of these elements is not considered, banks might not be capturing a material part of their IRRBB or CSRBB exposures and therefore, in the case of IRRBB, competent authorities might assess the possibility to require the institution to apply the standardised methodology in the context of non-satisfactory internal systems for the purposes of Article 84(3) of the CRD.

The CRD does not establish an explicit definition of net interest income for the purposes of IRRBB or CSRBB. The EBA here gives continuity to the current 2018 EBA IRRBB Guidelines that envisages an earnings perspective for IRRBB management. The Basel standards also follow an earnings perspective approach. These Guidelines should constitute the final implementation of the Basel standards on IRRBB and CSRBB internal management systems.

16. The change in the 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 scenario¹¹.

4.1.2 Other aspects, proportionality

17. When implementing the Guidelines, institutions should identify their existing and prospective exposures to IRRBB and CSRBB in a proportionate manner, depending on the level, complexity and riskiness of their non-trading book positions, taking into account their business model, their strategies and the business environment they operate in or intend to operate in.
18. Based upon the assessment of their existing and prospective exposure to IRRBB and CSRBB, institutions should consider elements and expectations stipulated in this section 4.1 of the Guidelines and in the sections on capital identification, calculation and allocation for the purposes of IRRBB (section 4.2.2), IRRBB and CSRBB governance strategy (sections 4.2.3 and 4.5.2), measurement of IRRBB by an IMS (section 4.3.) and monitoring of CSRBB (section 4.6) and implement them in a way that is commensurate with existing and prospective exposures to IRRBB and CSRBB.
19. In addition to the existing and prospective exposure to IRRBB and CSRBB, when implementing the Guidelines, institutions should also consider their general level of sophistication and internal approaches to risk management to make sure that their approaches, processes and

¹¹ From an EVE viewpoint, the change in the economic value of equity should be the difference between the expected economic value of equity under a shock or stress scenario and the expected economic value of equity under a base scenario.

systems for the management of IRRBB and CSRBB are coherent with their general approach to risk management and their specific approaches, processes and systems implemented for the purpose of the management of other risks.

4.2 Identification and management of IRRBB

4.2.1 Perimeter of IRRBB

20. Institutions should 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).
21. Institutions should consider non-performing exposures¹² (net of provisions) as interest rate sensitive instruments reflecting expected cash flows and their timing.
22. Without prejudice to paragraph 11, small trading book business, as defined by paragraph 1 of Article 94 of Regulation (EU) No 575/2013, shall be included unless its interest rate risk is captured in another risk measure.

4.2.2 Capital identification, calculation and allocation for the purpose of IRRBB

23. When evaluating the amounts, types and distributions of internal capital pursuant to Article 73 of Directive 2013/36/EU, institutions should base the contribution of IRRBB to the overall internal capital assessment on the institution's internal measurement systems outputs, taking account of key assumptions and risk limits. The overall level of capital should be commensurate with both the institution's actual measured level of risk (including for IRRBB) and its risk appetite, and be duly documented in its report on the Internal Capital Adequacy Assessment Process (ICAAP report).
24. Institutions should demonstrate that their internal capital is commensurate with the level of IRRBB, taking into account the impact on internal capital of potential changes in the institution's economic value and future net interest income resulting from changes in interest rates. Institutions should evaluate both risk measures in their internal capital determination particularly noting that economic value and net interest income measures capture IRRBB in a complementary manner (e.g. considering IRRBB from a different time horizon). Institutions are not expected to double-count their internal capital for EV and net interest income measures, nonetheless the internal capital allocation methodology should consider both risk measures and explicitly assess their potential impact on internal capital.

¹² Non-performing exposures as defined in Annex V of Regulation (EU) 680/2014.

25. In their ICAAP analysis of the amount of internal capital required for IRRBB, institutions should consider:

- (a) internal capital held for risks to economic value that could arise from adverse movements in interest rates; and
- (b) internal capital needs arising from the impact of rate changes on future net interest income capacity, and the resultant implications for internal capital buffer levels.

26. Institutions should not only rely on the supervisory assessments of capital adequacy for IRRBB or on the outcome of the supervisory outlier test, but should develop and use their own methodologies for capital allocation, based on their risk appetite, level of risk and risk management policies. In determining the appropriate level of capital, institutions should consider both the amount and the quality of capital needed.

27. Capital adequacy assessments for IRRBB should take into account the following:

- (a) the size and tenor of internal limits on IRRBB exposures, and whether or not these limits are reached at the point of capital calculation;
- (b) the expected cost of hedging open positions that are intended to take advantage of internal expectations of the future level of interest rates;
- (c) the sensitivity of the internal measures of IRRBB to key or imperfect modelling assumptions;
- (d) the impact of shock and stress scenarios on positions priced with different interest rate indices (basis risk);
- (e) the impact on economic value and net interest income (including effects on the fair value through other comprehensive income (FVOCI) portfolio) of mismatched positions in different currencies;
- (f) the impact of embedded losses and embedded gains;
- (g) the distribution of capital relative to risks across legal entities included in the group's prudential perimeter of consolidation, in addition to the adequacy of overall capital on a consolidated basis;
- (h) the drivers of the underlying risk; and
- (i) the circumstances under which the risk may materialise.

28. The outcomes of the capital adequacy for IRRBB should be considered in an institution's ICAAP and flow through to the assessments of capital associated with business lines.

29. To calibrate the amount of internal capital to be held for IRRBB, institutions should use measurement systems and a range of interest rate shock and stress scenarios, which are adapted to the risk profile of the institution in order to quantify the potential scale of any IRRBB effects under adverse conditions.
30. Institutions that operate internal capital models should ensure that the internal capital allocation for IRRBB is properly factored into the overall internal capital allocation and that any assumptions on diversification are documented and their reliability as well as stability is verified using historical data appropriate for the individual institution and the markets in which it operates. Internal capital costs may be allocated back to the business units and products to ensure that the full costs of the underlying business units or products are properly understood by those responsible for managing them.
31. In considering whether or not an allocation of internal capital should be made in respect of IRRBB to net interest income, institutions should take into account the following:
- (a) The relative importance of net interest income to total net income, and therefore the impact of significant variations in net interest income from year to year;
 - (b) The actual levels of net interest income achievable under different scenarios (i.e. the extent to which margins are wide enough to absorb volatility arising from interest rate positions and changes in the cost of liabilities);
 - (c) The potential for actual losses to be incurred under stressed conditions, or as a result of secular changes in the market environment, e.g. where it might become necessary to liquidate positions that are intended as a long-term investment to stabilise net interest income;
 - (d) The relative importance of interest rate sensitive instruments (including interest rate derivatives) in the non-trading book, with potential effects shown either in the profit and loss account or directly in equity (e.g. via other comprehensive income); and
 - (e) The fluctuation of net interest income, the strength and stability of the net interest income stream and the level of income needed to generate and maintain normal business operations. Institutions with a high level of IRRBB that could, under a plausible range of market scenarios, result in losses, in curtailing normal dividend distribution, or in a decrease in business operations should ensure that they have sufficient capital to withstand the adverse impact of these scenarios.
32. Institutions should consider internal capital buffer adjustments where the results of their stress testing highlight the potential for reduced net interest income (and therefore reduced capital generation capacity) under stress scenarios.

4.2.3 IRRBB Governance strategy

33. The IRRBB strategy of the 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, which the management body must approve as laid down in subparagraph (2), letter (a) of Article 88(1) of Directive 2013/36/EU.
34. The institution's risk appetite for IRRBB should be expressed in terms of the acceptable impact of fluctuating interest rates on both net interest income and economic value and should be reflected in limits. Institutions with significant exposures to gap risk, basis risk or option risk should determine their risk appetite in relation to each of these material sub-types of IRRBB.
35. 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.
36. Institutions should duly assess proposals to use new products, or engage in new activities, risk-taking or hedging strategies, prior to acquisition or implementation to ensure that the resources required to establish sound and effective IRRBB management of the product or activity have been identified, that the proposed activities are in line with the institution's overall risk appetite, and that procedures to identify, measure, monitor and control the risks of the proposed product or activity have been established. It should be ensured that the IRRBB characteristics of these new products and activities are well understood.
37. Institutions using derivative instruments to mitigate IRRBB exposures should possess the necessary knowledge and expertise. Each institution should demonstrate that it understands the consequences of hedging with interest rate derivatives.
38. Institutions 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.
39. When making decisions on hedging activities, institutions should be aware of the effects of accounting policies, but the accounting treatment should not drive their risk management approach.
40. Consolidating institutions should 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.

4.2.4 IRRBB risk management framework and responsibilities

41. In view of having internal governance arrangements pursuant to Article 74 and 88 of Directive 2013/36/EU, institutions should, in relation to IRRBB, ensure the following:

- (a) That their management body bears the ultimate responsibility for the oversight of the IRRBB management framework, the institution's risk appetite framework and the amounts, types and distribution of internal capital to adequately cover the risks. The management body should determine the institution's overall IRRBB strategy and approve the corresponding policies and processes. The management body may, however, delegate the monitoring and management of IRRBB to senior management, expert individuals or an asset and liability management committee under the conditions further specified in paragraph 43.
- (b) That they have in place an IRRBB management framework that establishes clear lines of responsibilities and that consists of a limit system, policies, processes and internal controls including regular independent reviews and evaluations of the effectiveness of the framework.
- (c) That the arrangements, processes and mechanisms referred for the assessment of IRRBB are comprehensive and proportionate to the nature, scale and complexity of the risks inherent in the business model and the institution's activities.

42. The management body should, in particular, be responsible for the following:

- (a) Understanding the nature and the level of the IRRBB exposure. The management body should ensure that there is clear guidance regarding the risk appetite for IRRBB in respect of the institution's business strategies.
- (b) Establishing that the appropriate actions are taken to identify, measure, monitor and control IRRBB, consistent with the approved strategies and policies. In this regard, the management body or its delegates are responsible for setting:
 - i. appropriate limits on IRRBB, including the definition of specific procedures and approvals necessary for exceptions, and ensuring compliance with those limits;
 - ii. systems and standards for measuring IRRBB, valuing positions and assessing performance, including procedures for updating interest rate shocks, parameters and stress scenarios and key underlying assumptions driving the institution's IRRBB analysis;
 - iii. a comprehensive IRRBB reporting and review process; and
 - iv. effective internal controls and management information systems (MISs).

- (c) Approving major hedging or risk-taking initiatives in advance of implementation. Positions related to internal risk transfers between the non-trading book and the trading book should be properly documented.
 - (d) Carrying out the oversight of the approval, implementation and review of IRRBB management policies, procedures and limits. The level of and changes in the institution's IRRBB exposure should be provided regularly to the management body (at least quarterly).
 - (e) Ensuring that the validation of IRRBB measurement methods and assessment of corresponding model risk are included in a formal policy process that should be reviewed and approved by the management body or its delegates.
 - (f) Understanding and assessing the functioning of its delegates in monitoring and controlling IRRBB, consistent with policies approved by the management body, on the basis of regular reviews of timely and sufficiently detailed information.
 - (g) Understanding the implications of the institution's IRRBB strategies and their potential linkages with market, liquidity, credit and operational risk but without requiring all the management body members to be experts in the area. Some of the members should have sufficient technical knowledge to question and challenge the reports made to the management body. The institution should establish that management body members are responsible for ensuring that senior management has the competence to understand IRRBB and that IRRBB management is provided with adequate resources.
43. Institutions should have delegation arrangements and procedures in place for any delegation by the management body of the monitoring or management of IRRBB, including, but not limited to, the following:
- (a) Persons or committees to which tasks of the management body are delegated for developing IRRBB policies and practices, such as senior management, expert individuals or an ALCO, should be identified and have objectives clearly set out by the management body.
 - (b) The management body should ensure that there is an adequate separation of responsibilities in the risk management process for IRRBB. The IRRBB identification, measurement, monitoring and control functions should have clearly defined responsibilities, should be independent from risk-taking functions on IRRBB and should report IRRBB exposures directly to the management body or its delegates.
 - (c) The institution should ensure that the management body's delegates have clear lines of authority over the units responsible for risk taking on IRRBB. The communication channel to convey the delegates' directives to these line units should be clear.
 - (d) The management body should establish that the institution's structure enables its delegates to carry out their responsibilities, and facilitates effective decision-making and governance. In this regard an ALCO, or its equivalent, should meet regularly and its

composition should reflect each major department linked to IRRBB. The management body should foster discussion regarding the IRRBB management process, both between its members and its delegates and between its delegates and others in the institution. The management body should also ensure that regular communication between the risk management and strategic planning areas facilitate the monitoring of the risk arising from future business.

4.2.5 IRRBB risk appetite and policy limits

44. Institutions should articulate their risk appetite for IRRBB in terms of the risk to both economic value and net interest income in particular:

- (a) Institutions should have clearly defined risk appetite statements that are approved by their management body and implemented through comprehensive risk appetite frameworks, i.e. policies and procedures for limiting and controlling IRRBB.
- (b) Their risk appetite frameworks should:
 - a. delineate delegated powers, lines of responsibility and accountability over IRRBB management decisions; and
 - b. list the instruments, hedging strategies and risk-taking opportunities authorised for IRRBB.
- (c) In defining their risk appetites, institutions should take account of net interest income risks that may arise as a consequence of the accounting treatment of transactions in the non-trading book. The risk to net interest income may not be limited to interest income and expenses: the effects of changes in interest rates on the market value of instruments that, depending on accounting treatment, are reflected either through the profit and loss account or directly in equity (via other comprehensive income), should be taken into account separately. Institutions should particularly take into account the impact related to embedded optionalities in fair value instruments under ongoing interest rate shocks and stress scenarios. Institutions should also take into account the potential impact on the P&L accounts of hedging interest rate derivatives if their effectiveness was hampered by interest rate changes.

45. Institutions should implement limits that target maintaining IRRBB exposures consistent with their risk appetite and with their overall approach for measuring IRRBB, in particular the following:

- (a) Aggregate risk limits that clearly articulate the amount of IRRBB acceptable to the management body should be applied on a consolidated basis and, as appropriate, at the level of individual affiliates.

- (b) 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.
 - (c) Policy limits should be appropriate to the nature, size, complexity and capital adequacy of the institution, as well as its ability to measure and manage its risks.
 - (d) Depending on the nature of an institution's activities and business model, sub-limits may also be identified 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.
 - (e) Systems should be in place to ensure that positions that exceed, or are likely to exceed, limits defined by the management body or its delegates receive prompt management attention and are escalated without delay. There should be a clear policy on who will be informed, how the communication will take place and the actions which will be taken in response.
 - (f) The reporting of risk measures to the management body or its delegates should have at least a quarterly frequency and should compare current exposure with policy limits.
- 46.A framework should be in place to monitor the evolution of hedging strategies that rely on instruments such as derivatives, and to control mark-to-market risks in instruments that are accounted for at fair-value.

4.2.6 IRRBB risk policies, processes and controls

Risk policies and processes

- 47.The management body should, based on its overall IRRBB strategy, adopt robust risk policies, processes and systems which should ensure that:
- (a) procedures for updating scenarios for the measurement and assessment of IRRBB are set up;
 - (b) the measurement approach and the corresponding assumptions for measuring and assessing IRRBB, including the allocation of internal capital to IRRBB risks, are appropriate and proportional;
 - (c) the assumptions of the models used are regularly reviewed and, if necessary, amended;
 - (d) standards for the evaluation of positions and the measuring of performance are defined;
 - (e) appropriate documentation and control over permissible hedging strategies and hedging instruments exist; and

(f) the lines of authority and responsibility for managing IRRBB exposures are defined.

48. The policies should be well reasoned, robust and documented and should address all IRRBB components that are important to the institution's individual circumstances. Without prejudice to the proportionality principle, the IRRBB policies should include the following:

- (a) The application of the boundary between 'non-trading book' and 'trading book'. Internal risk transfers between the banking book and the trading book should be properly documented and monitored within the broader monitoring of the IRRBB originated by interest rate derivatives instruments.
- (b) The more detailed definition of economic value and its consistency with the method used to value assets and liabilities (e.g. based on the discounted value of future cash flows, and on the discounted value of future net interest income) adopted for internal use.
- (c) The more detailed definition of net interest income and its consistency with the institution's approach to developing financial plans and financial forecasts adopted for internal use.
- (d) The size and the form of the different interest rate shocks to be used for internal IRRBB calculations.
- (e) The use of conditional or unconditional cash flow modelling approaches.
- (f) The treatment of 'pipeline transactions'¹³ (including any related hedging).
- (g) The aggregation of multicurrency interest rate exposures.
- (h) The measurement and management of basis risk resulting from different interest rate indexes.
- (i) Whether or not non-interest-bearing assets and liabilities of the non-trading book (including capital and reserves) are included in calculations measuring IRRBB for the ICAAP.
- (j) The behavioural treatment of current and savings accounts (i.e. the maturity assumed for liabilities with short contractual maturity but long behavioural maturity).
- (k) The measurement of IRRBB arising from behavioural and automatic options in assets or liabilities, including convexity effects and non-linear payoff profiles.
- (l) The degree of granularity employed in measurement calculations (e.g. use of time buckets).

¹³ Pipeline exposures (e.g. where a loan has been agreed and the customer can choose whether to draw down or not) effectively provide the customer with an option that will most likely be exercised when market conditions least suit the institution (negative convexity). Management of pipeline exposures relies on accurate data on applications received, and modelling of expected drawdowns.

- (m) The internal definition of commercial margins and adequate methodology for internal treatment of commercial margins.

49. All IRRBB policies should be reviewed regularly, at least annually, and revised as needed.

50. To ensure that the institution's IRRBB management policies and procedures remain appropriate and sound, the management body or its delegates should review the IRRBB management policies and procedures in the light of the outcomes of regular reports.

51. The management body or its delegates should ensure that analysis and risk management activities related to IRRBB are conducted by sufficient and competent staff with technical knowledge and experience, consistent with the nature and scope of the institution's activities.

Internal controls

52. With regard to IRRBB control policies and procedures, institutions should have appropriate approval processes, exposure limits, reviews and other mechanisms designed to provide a reasonable assurance that risk management objectives are being achieved.

53. Institutions should undertake regular reviews and evaluations of their internal control systems and risk management processes, seeking assurance that personnel 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. The reviews and evaluations should be conducted regularly by individuals or units that are independent of the function under review. When revisions or enhancements to internal controls are warranted, there should be an internal review mechanism in place to ensure that these are implemented in a timely manner.

54. Institutions should have their IRRBB identification, measurement, monitoring and control processes reviewed by an independent auditing function, which may be an internal or external auditor, on a regular basis. In such cases, reports written by internal or external auditors or other equivalent external parties should be made available to relevant competent authorities.

IRRBB IT system and data quality

55. The IT systems and applications used by the institution to carry out, process and record operations, to identify, measure and aggregate IRRBB exposures, and to generate reports should be capable of supporting the management of IRRBB in a timely and accurate manner. In particular, the systems should:

- (a) Capture interest rate risk data on all the institution's material IRRBB exposures including exposures to gap, basis, and option risk. This should support the institution's measurement system to identify, measure and aggregate the major sources of IRRBB exposures.

- (b) Be capable of fully and clearly recording all transactions made by the institution, taking into account their IRRBB characteristics.
- (c) Be tailored to the complexity and number of transactions creating IRRBB.
- (d) Offer sufficient flexibility to accommodate a reasonable range of IRRBB shock and stress scenarios and any additional scenarios.
- (e) Enable the institutions to fully measure, assess and monitor the contribution of individual transactions to their overall exposure.
- (f) Be able to compute economic value and net interest income-based measures of IRRBB, as well as other measures of IRRBB prescribed by their competent authorities, based on the interest rate shock and stress scenarios set out in sections 4.3.3 and 4.3.4.
- (g) Be sufficiently flexible to incorporate supervisory-imposed constraints on institutions' internal risk parameter assumptions.

56. The IT system and transaction system should be capable of recording the repricing profile, interest rate characteristics (including spread) and option characteristics of the products to enable measurement of gap risk, basis risk and option risk. In particular, the transaction system should be able to gather detailed information on the repricing date(s) of a given transaction, interest rate type or index, any options (including early repayment or redemption) and the fees relating to the exercise of these options. The systems used to measure IRRBB should be capable of capturing the IRRBB characteristics of all products. The systems should also allow the disaggregation of the impact of individual IRRBB instruments and portfolios at the risk level of the non-trading book.

57. For complex, structured products in particular, the transaction system should be able to gather information about the separate parts of the product and to capture their IRRBB characteristics (e.g. the characteristics of assets and liabilities grouped by certain characteristics such as repricing dates or optionality elements). The institution should ensure that the IT system is able to keep pace with the introduction of new products.

58. Adequate organisational controls of IT systems should be in place to prevent the corruption of data used by IRRBB computer systems and applications, and to control changes to the coding used in those applications, so as to ensure, in particular:

- (a) the reliability of data used as input, and the integrity of processing systems for IRRBB models;
- (b) that the likelihood of errors occurring in the IT system, including those occurring during data processing and aggregation, is minimised; and
- (c) that adequate measures are taken if market disruptions or slumps occur.

59. Risk measures should be based on reliable market and internal data. Institutions should scrutinise the quality of external sources of information used to establish the historical databases of interest rates, as well as the frequency at which databases are updated.
60. To ensure the high quality of data, institutions should implement appropriate processes that ensure that the data entered into the IT system is correct. Data inputs should be automated as much as possible to reduce administrative errors, and data mapping should be periodically reviewed and tested against an approved model version. In addition, there should be sufficient documentation of the major data sources used in the institution's risk measurement process. Institutions should also establish appropriate mechanisms to verify the correctness of the aggregation process and the reliability of model results. These mechanisms should confirm the accuracy and reliability of data.
61. Where institutions slot cash flows into different time buckets (e.g. for gap analyses) or assign the cash flows to different vertex points to reflect the different tenors of the interest rate curve, the slotting criteria should be stable over time to allow a meaningful comparison of risk figures over different periods.
62. Institutions should identify potential reasons for discrepancies and irregularities that may arise at the time of data processing. Institutions should have procedures in place to handle those discrepancies and irregularities, including procedures for the mutual reconciliation of positions to enable these discrepancies and irregularities to be eliminated.
63. Institutions should set up appropriate processes to ensure that the data used to feed models measuring the IRRBB across the group — e.g. for simulating net interest income — is consistent with the data used for financial planning.

Internal reporting

64. Institutions' internal risk-reporting systems should provide timely, accurate and comprehensive information about their exposures to IRRBB. The frequency of internal reports should be at least quarterly.
65. The internal reports should be provided to the management body or its delegates with information at relevant levels of aggregation (by consolidation level and currency), and reviewed regularly. The reports should contain a level of information adapted to the particular management level (e.g. management body, senior management) and to the specific situation of the institution and the economic environment.
66. The IRRBB reports should provide aggregate information as well as sufficient supporting detail to enable the management body or its delegates to assess the sensitivity of the institution to changes in market conditions and other important risk factors. The content of the reports should reflect changes in the risk profile of the institution and in the economic environment, and compare current exposure with policy limits.

67. The IRRBB reports should, on a regular basis, include the results of the model reviews and audits as well as comparisons of past forecasts or risk estimates with actual results to inform potential modelling shortcomings. In particular, institutions should assess the modelled prepayment losses against historical realised losses. Portfolios that may be subject to significant mark-to-market movements should be clearly identified and the impact should be monitored within the institution's MIS and subject to oversight in line with any other portfolios exposed to market risk.

68. While the types of reports prepared for the management body or its delegates will vary based on the institution's portfolio composition, they should include, taking into account paragraphs 66 and 67, the following:

- (a) Summaries of the institution's aggregate IRRBB exposures, including information on exposures to gap, basis and option risk. Assets, liabilities, cash flows, and strategies that are driving the level and direction of IRRBB should be identified and explained.
- (b) Reports demonstrating the institution's compliance with policies and limits.
- (c) Key modelling assumptions and parameters, such as characteristics of non-maturity deposits (NMDs), prepayments on fixed rate loans, early withdrawals of fixed term deposits, drawing of commitments, currency aggregation and treatment of commercial margins.
- (d) Details of the impact of key modelling assumptions on the measurement of IRRBB in terms of both economic value measures and net interest income measures, including changes in assumptions under various interest rate scenarios.
- (e) Details of the impact of interest rate derivatives on the measurement of IRRBB, in terms of both economic value measures and net interest income measures.
- (f) Details of the impact of fair value instruments, including Level 3 assets and liabilities, on the measurement of IRRBB in terms of both economic value measures and net interest income measures.
- (g) Results of stress tests as referred to in section 4.3.4, the shocks as referred to in section 4.3.3, the supervisory outlier tests as referred to in paragraph 5 of Article 98 of Directive 2013/36/EU, and assessments of sensitivity to key assumptions and parameters; and
- (h) Summaries of the reviews of IRRBB policies, procedures and adequacy of the measurement systems, including any findings of internal and external auditors or other equivalent external parties (such as consultants).

69. Based on these reports, the management body or its delegates should be able to assess the sensitivity of the institution to changes in market conditions and other important risk factors,

with particular reference to portfolios that may potentially be subject to significant mark-to-market movements.

70. The internal measurement system should generate reports in a format that allows the different levels of the institution's management to understand the reports easily and to make appropriate decisions in a timely manner. The reports should constitute the basis for regular monitoring of whether or not the institution operates in line with its strategy and the interest rate risk limits it has adopted.

Model governance

71. Institutions should ensure that the validation of IRRBB measurement methods — which should be reviewed and validated independently of their development — and the assessment of corresponding model risk are included in a formal policy process that should be reviewed and approved by the management body or its delegates. The policy should be integrated within the governance processes for model risk management and should specify:

- (a) the management roles and designate who is responsible for the development, validation, documentation, implementation and use of models; and
- (b) the model oversight responsibilities as well as policies including the development of initial and ongoing validation procedures, evaluation of results, approval, version control, exception, escalation, modification and decommission processes.

72. The validation framework should include the following five core elements:

- (a) evaluation of conceptual and methodological soundness, including developmental evidence;
- (b) ongoing model monitoring, including process verification and benchmarking;
- (c) outcomes analysis, including back-testing of key internal parameters (e.g. stability of deposits, loan prepayment rates, early redemptions of deposits, pricing of instruments);
- (d) thorough assessment of any expert opinions and judgements used in internal models; and
- (e) Validation of diversification assumptions.

73. In addressing the expected initial and ongoing validation activities, the policy should establish a hierarchical process for determining model risk soundness based on both quantitative and qualitative dimensions such as size, impact, past performance and staff expertise with the modelling technique employed.

74. Model risk management for IRRBB measures should follow a holistic approach that begins with motivation, development and implementation by model owners and users. Prior to receiving

internal approval for usage, the process for determining model inputs, assumptions, modelling methodologies and outputs should be reviewed and validated independently of the development of IRRBB models.

75. The review and validation results and any recommendations on model usage should be presented to and approved by the management body or its delegates. Upon approval, the model should be subject to ongoing review, process verification and validation at a frequency that is consistent with the level of model risk determined and approved by the institution.
76. The ongoing review process should establish a set of exception trigger events that obligate the model reviewers to notify the management body or its delegates in a timely fashion, in order to determine corrective actions and restrictions on model usage. Clear version control authorisations should be designated, where appropriate, to model owners.
77. On the basis of observations and new information gained over time, an approved model may be modified or withdrawn. Institutions should articulate policies for model transition, including change and version control authorisations and documentation.
78. Institutions may rely on third-party IRRBB models to manage and control IRRBB, provided that these models are adequately customised to properly reflect the specific characteristics of the institution in question. Institutions are expected to fully understand the underlying analytics, assumptions and methodologies of the third-party models and to ensure that they are adequately integrated into the institutions' overall risk management systems and processes. Where third parties provide input for market data, behavioural assumptions or model settings, the institution should have a process in place to determine if those inputs are reasonable for its business and the risk characteristics of its activities. Institutions should ensure there is adequate documentation of their use of third-party models, including any specific customisation.
79. Model inputs or assumptions, whether stemming from internal model processes or from third parties, should be included in the validation process. The institution should document and explain model specification choices as part of the validation process.

4.3 Measurement of IRRBB by an institution's internal system

4.3.1 General approach to measurement of IRRBB

80. Institutions should implement robust internal measurement systems (IMSS) that capture all components and sources of IRRBB which are relevant for the institution's business model.
81. Institutions should measure their exposure to IRRBB in terms of potential changes to both the economic value and net interest income. Institutions should use complementary features of both approaches to capture the complex nature of IRRBB over the short-term and long-term time horizons. In particular, institutions should measure and monitor (i) the overall impact of key modelling assumptions on the measurement of IRRBB in terms of both economic value

measures and net interest income measures, and (ii) the IRRBB of their banking book interest rate derivatives where relevant for the business model.

82.If commercial margins and other spread components are excluded from economic value measures, institutions should (i) use a transparent methodology for identifying the risk-free interest rate at inception of each instrument; and (ii) use a methodology that is applied consistently across all interest rate sensitive instruments and all business units.

83.When calculating net interest income measures to evaluate IRRBB exposures, institutions should include commercial margins.

84.Institutions should consider non-performing exposures (net of provisions) as interest rate sensitive instruments reflecting expected cash flows and their timing.

85.When measuring their exposure to IRRBB, institutions should not purely rely on the calculation and outcomes of the supervisory outlier tests described in paragraph 5 of Article 98 of Directive 2013/36/EU, or any additional outlier test developed by the competent authority, but should develop and use their own assumptions and calculation methods. However, the supervisory outlier tests should be fully integrated into the internal framework for the management of IRRBB and should be used as complementary tools for measuring exposure to IRRBB.

4.3.2 Methods for measuring IRRBB

86.Institutions should not rely on a single measure of risk but should instead use the range of quantitative tools and models that corresponds to their specific risk exposure. To that end, institutions should consider the application of the methods listed in Annex I but not limited to those, to ensure that various aspects of interest rate risk are captured adequately.

87.The limitations of each quantitative tool and model used should be fully understood by the institution, and these limitations should be taken into account in the IRRBB risk management process. In assessing IRRBB, institutions should be aware of the risks that may arise as a consequence of accounting treatment of transactions in the non-trading book.

88.Institutions should identify and measure all components of IRRBB. In order to identify different components of IRRBB, institutions should at least consider those approaches as shown in Table 1.

Table 1: Identification of sub-components of interest rate risk in the non-trading book

Component	Method	Focus
Gap risk	Gap analysis	The volume of mismatches in different time bands
		The dispersion and concentration of mismatches in different time bands

Component	Method	Focus
	Partial duration for yield curve risk	
Basis risk	Inventory of instrument groups based on different interest rates	Use of derivatives and other hedging instruments in terms of different bases, convexity and timing difference neglected by gap analysis
Option risk (automatic and behavioural options)	Inventory of all instruments with embedded or explicit options	Behavioural options 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 Automatic interest rate options Caps and floors embedded in assets and liabilities; swaptions or prepayment options embedded in wholesale assets and liabilities; and explicit caps, floors and swaptions

89. For measuring and monitoring of IRRBB, institutions should use at least one —net interest income based measure and at least one economic value measurement method that, in combination, capture all components of IRRBB. Large institutions with cross-border activities, in particular institutions under categories 1 and 2 of the SREP Guidelines, and institutions with complex or sophisticated business models, should use multiple measurement methods for IRRBB, as further specified in Annex II.

4.3.3 Interest rate shock scenarios for ongoing management

90. Institutions should regularly, at least quarterly and more frequently in times of increased interest rate volatility or increased IRRBB levels, measure their exposure to IRRBB in terms of changes in economic value and net interest income under various interest rate shock scenarios for potential changes in the level and shape of the interest rate yield curves, and to changes in the relationship between different interest rates (i.e. basis risk).

91. Institutions should consider whether to apply a conditional or unconditional cash flow modelling approach. Larger and more complex institutions, in particular institutions under categories 1 and 2 of the SREP Guidelines, should also take into account scenarios where different interest rate paths are computed and where some of the assumptions (e.g. relating to behaviour, contribution to risk, and balance sheet size and composition) are themselves functions of changing interest rate levels.

92. Institutions should assess exposures in each currency in which they have positions. For the material currency exposures, the interest rate shock scenarios should be currency-specific and consistent with the underlying economic characteristics. Under the IRRBB internal measurement system (IMS), currency-specific interest rate shock scenarios, should be considered, at least, for each currency where the accounting value of assets or liabilities denominated in a currency amounts to 5% or more of the total non-trading book financial assets (excluding tangible assets as defined under Article 4(10) of Directive 86/635/EEC) 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. Institutions should include in their internal measurement systems methods to aggregate their IRRBB across different currencies. Where institutions make use of assumptions about dependencies between interest rates in different currencies, they should have the necessary level of skills and sophistication to do so. Institutions should take into account the impact of assumptions regarding dependencies between interest rates across different currencies.

93. When selecting interest rate shock scenarios, institutions should consider the following:

- (a) That their own internally developed interest rate shock scenarios be commensurate with the nature, scale and complexity of their activities as well as their risk profile, taking into account sudden and gradual parallel and non-parallel shifts and changes in the yield curves. Scenarios should be based on the historical movements and behaviour of interest rates, as well as simulations of future interest rates;
- (b) Interest rate scenarios that reflect changes in the relationships between key market rates in order to address basis risk;
- (c) The prescribed interest rate shock scenarios as referred to in paragraph 5 of Article 98 of Directive 2013/36/EU.
- (d) Any additional interest rate-shock scenarios required by supervisors;
- (e) That the validity of diversification assumptions are appropriately stressed.; and
- (f) In low interest rate environments, institutions should also consider negative interest rate scenarios and the possibility of asymmetrical effects of negative interest rates on their interest rate sensitive instruments.

94. The results of shock scenarios should feed into the decision-making at appropriate management level. This includes strategic or business decisions, the allocation of internal capital, and risk management decisions by the management body or its delegates. The results should also be considered when establishing and reviewing the policies and limits for IRRBB.

4.3.4 Interest rate stress scenarios

95. IRRBB stress testing should be considered in the ICAAP, where institutions should undertake rigorous, forward-looking stress testing that identifies the potential adverse consequences of severe changes in market conditions on their capital or net interest income. For the purpose of IRRBB stress testing institutions should include changes in the behaviour of their customer base. Stress testing for IRRBB should be integrated into institutions' overall stress-testing framework, including reverse stress testing, and should be commensurate with their nature, size and complexity, as well as their business activities and overall risk profile.
96. IRRBB stress testing should be performed regularly, at least annually and more frequently in times of increased interest rate volatility and increased IRRBB levels.
97. The IRRBB stress-testing framework should include clearly defined objectives, scenarios tailored to the institution's businesses and risks, well-documented assumptions and sound methodologies.
98. In enterprise-wide stress tests, the interaction of IRRBB with other risk categories (credit risk, liquidity risk, market risk, etc.), and any material second-round effects, should be computed.
99. Institutions should perform reverse stress tests in order to (i) identify interest rate scenarios that could severely threaten an institution's capital, economic value and net interest income; and (ii) reveal vulnerabilities arising from its hedging strategies and the potential behavioural reactions of its customers.
100. For IRRBB assessment purposes, in testing vulnerabilities under stressed conditions, institutions should use larger and more extreme shifts and changes in interest rates than those used for the purpose of ongoing management, including at least the following:
- a) Substantial changes in the relationships between key market rates (basis risk);
 - b) Sudden and substantial shifts in the yield curve (both parallel and non-parallel);
 - c) Breakdowns of key assumptions about the behaviour of asset and liability classes;
 - d) Changes in key interest rate correlation assumptions;
 - e) Significant changes to current market and macro conditions and to the competitive and economic environment, and their possible development; and
 - f) Specific scenarios that relate to the individual business model and profile of the institution.
101. The results of stress scenarios should feed into the decision-making at the appropriate management level. This includes strategic or business decisions, the allocation of internal

capital, and risk management decisions by the management body or its delegates. The results should also be considered when establishing and reviewing the policies and limits for IRRBB.

102. For the purpose of sensitivity analysis under stress scenarios, institutions should evaluate, in the economic value metrics, the limitations associated with the use of a run-off assumption and the ability of the institution to capture the long-term interest rate risk.
103. In cases where balance sheet instruments have significant repricing restrictions (e.g caps and floors) institutions should prudently consider, if material, the effect that the renewal of said instruments would have when replaced with others with comparable features, regardless of the run-off assumption. This must be done for a prudent time horizon and considering the business model of the bank.

Explanatory box

In the asset side, instruments subject to floors are typically floating rate loans with long maturity and short repricing date. In the liability side, instruments subject to floors are typically retail deposits (term deposits and non-maturity deposits) with shorter maturity. This provision seeks to ensure that institutions take into account the interest rate floor that any refunding of the asset side might be subject to after the maturity of the current liability. This aspect is particularly relevant now as floors are materializing in the context of the current low interest rate environment.

4.3.5 IRRBB measurement assumptions

104. When measuring IRRBB, institutions should fully understand and document key behavioural and modelling assumptions. These assumptions should be aligned with business strategies and be regularly tested.
105. In assessing the risk of interest rate-sensitive products that are linked to inflation or other market factors, prudent assumptions should be applied. These assumptions can be based, for instance, on the current/last observed value, on forecasts of a reputable economic research institute or on other generally accepted market practices (in the case of inflation: forward inflation expectation curves, for instance) and should be generally scenario-independent.
106. When measuring IRRBB, pension obligations and pension plan assets should be included unless their interest rate risk is captured in another risk measure.
107. Institutions should, in relation to both economic value and net interest income based measures of IRRBB, where applicable, take into account assumptions made for the purpose of risk quantification in relation to at least the following areas:
- a) The exercise of interest rate options (automatic or behavioural) by both the institution and its customer under specific interest shock and stress scenarios;

- b) The treatment of balances and interest flows arising from NMDs;
- c) The treatment of fixed term deposits with risk of early redemption;
- d) The treatment of fixed rate loans and fixed rate loan commitments;
- e) The treatment of own equity in internal economic value measures;
- f) The implications of accounting practices for the measurement of IRRBB, and in particular hedge-accounting effectiveness; and
- g) Validation of diversification assumptions.

108. As market conditions, competitive environments and strategies change over time, institutions should review significant measurement assumptions at least annually, and more frequently during rapidly changing market conditions.

a) Behavioural assumptions for customer accounts with embedded customer optionality for the purpose of IRRBB

109. In assessing the implications of optionality, institutions should take into account:

- (a) The potential impact on current and future loan prepayment speeds arising from the interest rate scenario, underlying economic environment and contractual features. Institutions should take into account the various dimensions influencing the embedded behavioural options.
- (b) The elasticity of adjustment of product rates to changes in market interest rates.
- (c) The migration of balances between product types as a result of changes in their features, terms and conditions.

110. Institutions should have policies in place governing the setting of, and the regular assessment of, the key assumptions for the treatment of on- and off-balance-sheet items that have embedded options in their interest rate risk framework. This means that institutions should:

- (a) Identify all material products and items subject to embedded options that could affect either the interest rate charged or the behavioural repricing date (as opposed to contractual maturity date) of the relevant balances;
- (b) Have appropriate pricing and risk mitigation strategies (e.g. use of derivatives) to manage the impact of optionality within the risk appetite, which may include early redemption penalties chargeable to the customer as an offset to the potential break costs (where permitted);

- (c) Ensure that modelling of key behavioural assumptions is justifiable in relation to the underlying historical data, and based on prudent hypotheses;
 - (d) Be able to demonstrate that they have accurate modelling (back-tested against experience);
 - (e) Maintain appropriate documentation of assumptions in their policies and procedures, and have a process for keeping them under review;
 - (f) Understand the sensitivity of the institution's risk measurement outputs to these assumptions, including undertaking stress testing of the assumptions and taking the results of such tests into account in internal capital allocation decisions; and
 - (g) Perform regular internal validation of these assumptions to verify their stability over time and to adjust them if necessary.
111. The assumed behavioural repricing date for retail and non-financial wholesale deposits without any specific repricing dates (non-maturity deposits) should be constrained to a maximum weighted average repricing date of 5 years. The 5-year cap applies individually for each currency. Non-maturity deposits from financial customers should not be subject to behavioural modelling.

Explanatory box:

The EBA would like to ensure a prudent approach for the assumptions on the repricing date of non-maturity deposits. The EBA considered the possibility that the Guidelines would simply envisage an expectation of a prudent assumption in a generic manner. However, due to the sensitivity and materiality of these instruments, a more harmonised solution seems more appropriate. The EBA suggests 5 years as a cap for the assumption on the maturity of the repricing date of non-maturity deposits from non-financials.

This five year cap is proposed to apply to the full amount of non-financial deposits. This is a less strict approach than the Basel standardised approach where a five year cap is set out for the core part of those deposits only, the non-core part being considered as overnight.

Question 1: In the context of the measurement of the impact of IRRBB under internal systems, paragraph 111 envisages a five year cap repricing maturity for retail and non-financial wholesale deposits without a specified maturity. Would you foresee any unintended consequence or undesirable effect from this behavioural assumption in particular on certain business models or specific activities? If this is the case, please kindly provide concrete examples of it.

112. In making behavioural assumptions about accounts without specific repricing dates for the purposes of interest rate risk management, institutions should:

- (a) Be able to identify 'core' balances, i.e. deposits that are stable and unlikely to reprice even under significant changes in interest rate environment, and/or other deposits whose limited elasticity to interest rate changes could be modelled by banks.
- (b) Modelling assumptions for these deposits should reflect depositor characteristics (e.g. retail/wholesale) and account characteristics (e.g. transactional/non-transactional). A high-level description of the above categories can be found below:
 - i. Retail transactional deposits include non-interest-bearing and other retail accounts whose remuneration component is not relevant in the client's decision to hold money in the account.
 - ii. Retail non-transactional deposits include retail accounts (including regulated ones) whose remuneration component is relevant in the client's decision to hold money in the account.
 - iii. Wholesale deposits include accounts from corporate and other wholesale clients, excluding interbank accounts or other fully price-sensitive ones.
- (c) 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.
- (d) Consider potential constraints on the repricing of retail deposits in low or negative interest rate environments and the effect that such constraints may have on the stability of deposits under different interest rate scenarios.
- (e) Ensure that assumptions about the decay of core and other modelled balances are prudent and appropriate in balancing the benefits to net interest incomes 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.
- (f) Emphasising the importance of statistical or quantitative methods to determine the behavioural repricing dates and the cash flow profile of NMDs, the determination of appropriate modelling assumptions for NMDs may require (i.e. in a forward looking perspective) the complementary contribution from different experts within an institution (e.g. risk management and risk control department, sales and treasury).
- (g) Have appropriate documentation of these assumptions in their policies and procedures, and a process for keeping them under review.
- (h) Understand the impact of the assumptions on the institution's own chosen risk measurement outputs and internal capital allocation decisions, including by periodically calculating sensitivity analyses on key parameters (e.g. percentage and maturity of core

balances on accounts and pass-through rate) and the measures using contractual terms rather than behavioural assumptions to isolate the impact of assumptions on both economic value and net interest income.

- (i) Undertake stress testing to understand the sensitivity of the chosen risk measures to changes in key assumptions, taking the results of such tests into account in internal capital allocation decisions.

b) Corporate planning assumptions for own equity capital for the purpose of IRRBB

113. Where institutions decide to adopt a policy intended to stabilise earnings arising from their own equity, they should:

- (a) Have an appropriate methodology for determining what elements of equity capital should be considered eligible for such treatment;
- (b) Determine what would be a prudent investment maturity profile for the eligible equity capital that balances the benefits of income stabilisation arising from taking longer-dated fixed-return positions against the additional economic value sensitivity of those positions under an interest rate stress, and the risk of earnings underperformance should rates rise;
- (c) Include appropriate documentation of these assumptions in their policies and procedures, and include a process for keeping them under review;
- (d) Understand, the impact of the chosen maturity profile on the institution's own chosen risk measurement outputs, including by regular calculation of the measures without inclusion of the equity capital to isolate the effects on both EVE and net interest income perspectives; and
- (e) Undertake stress testing to understand the sensitivity of risk measures to changes in key assumptions for equity capital, taking the results of such tests into account in their IRRBB internal capital allocation decisions.

114. In deciding the investment term assumptions for equity capital, institutions should avoid taking income stabilisation positions that significantly reduce their capability to adjust to significant changes in the underlying economic and business environment.

115. The investment term assumptions used to manage the risks to net interest income and economic value sensitivity arising from equity capital should be considered as part of the normal corporate planning cycle, and such assumptions should not be altered just to reflect a change in the institution's expectations of the path of future interest rates. Any use of derivative or asset portfolios to achieve the desired investment profile should be clearly documented and recorded.

116. Where an institution has not set explicit assumptions for the investment term of equity capital or sets assumptions that are explicitly short-term, the institution should make sure that

its systems and management information can identify the implications of its chosen approach for the volatility of both interest income and economic value.

4.4 Non-satisfactory IRRBB internal systems

Explanatory box

The EBA is mandated to specify the criteria for the determination of an IRRBB internal system as non-satisfactory. Ultimately competent authorities may require institutions to use the standardised methodology if the internal systems are not satisfactory. The EBA has identified specific items that should be considered for the consideration of an internal systems as non-satisfactory. The EBA very much builds on the way institutions implement specific key aspects in their internal systems. The EBA has tried to find a balance between the specification of those key aspects and the necessary flexibility to supervisors in their assessment on a case by case basis.

The approach basically builds on a high level principle being that the IMS used, and assessed on a case by case basis, would be seen as non-satisfactory if contravening compliance with the IRRBB Guidelines. In addition to it, the Guidelines identify as non-satisfactory specific cases where the material components of the interest rate risk (gap risk, basis risk, option risk) are not covered or the measures used do not capture material exposures. The Guidelines illustrate these potential limitations in the context of a number of measurement methods. Furthermore, in this context, the Guidelines point out to the minimum required validation, review and control of IRRBB exposures in specific provisions of the Guidelines.

Question 2: Do respondents find that the criteria to identify non-satisfactory IRRBB internal models provide the minimum elements for supervisors' assessment?

117. Paragraph 3 of Article 84 of Directive 2013/36/EU empowers competent authorities to require an institution to use the standardised methodology referred to in paragraph 1 of Article 84 CRD *“where the internal systems implemented by that institution for the purpose of evaluating the risks referred to in that paragraph are not satisfactory”*.
118. As a minimum, satisfactory internal systems should be implemented in compliance with these Guidelines, taking into account the principle of proportionality.
119. More specifically, internal systems should be considered as not satisfactory in the following cases at least:
 - (a) An IMS should be considered non-satisfactory for the purposes of paragraph 3 of Article 84 CRD if competent authorities assess, on a case by case basis, that the implemented methods do not cover all the material components of the interest rate risk (gap risk, basis risk, option risk), and/or measures do not capture in a robust and

economically justified manner all material dimensions of risks for significant assets, liabilities and off-balance sheet type instruments (e.g. NMD, loans, options) of the bank's non-trading book.

Annex I describes a non-restrictive list of methods for IRRBB measurement with an indication of their limitations.

When measuring their exposure to IRRBB, institutions should not limit themselves to the methods listed in Annex I in order to ensure that material aspects of interest rate risk are captured adequately.

- (b) IMS should be considered as non-satisfactory if they are not calibrated, back-tested and reviewed in all their relevant parameters on an appropriate frequency and supported by a due governance and documentation that considers the nature, scale and complexity of the IRRBB inherent in the business model and the institution's activities.

Institutions should duly comply with para. 71 to 79 of these Guidelines in particular with review and validation (at their appropriate frequency, including back testing), governance, risk policies as well as controls.

4.5 Identification and assessment of CSRBB

Explanatory box

In the assessment and monitoring of CSRBB, the EBA starts by introducing specific provisions that develop the identification of CSRBB by elaborating on its definition and the perimeter of application. Furthermore, the Guidelines basically capture general governance related aspects, outlining the expectations in terms of responsibilities, IT systems and internal reporting framework, without setting any specific internal exposures limits. It also includes some general assumptions for an adequate monitoring of the impact of CSRBB exposures to net interest income and economic value of equity under internal systems.

4.5.1 Perimeter of CSRBB

120. CSRBB captures a combination of two elements:

- (a) The changes of the “market credit spread” or “market price of credit risk” (distinct from the idiosyncratic credit spread¹⁴) representing the credit risk premium required by market participants for a given credit quality¹⁵;
- (b) The changes of the “market liquidity spread” representing the liquidity premium that sparks market appetite for investments and presence of willing buyers and sellers;

121. 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 an institution’s credit quality should not have any positive impact on the credit spread risk measure

122. CSRBB excludes instruments under default situation.

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

Explanatory box

The EBA follows the definition of CSRBB in Basel and in the current 2018 EBA Guidelines and introduces some clarifications. Particularly the definition does not include idiosyncratic credit spread elements. However, the Guidelines provide some relief in its practical implementation, for proportionality reasons, in that institutions 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 (paragraph 157).

Question 3: Is there any specific element in the definition of CSRBB that is not clear enough for the required assessment and monitoring of CSRBB by institutions?

¹⁴ Idiosyncratic credit spread reflects the specific credit risk associated with the credit quality of the individual borrower (which will also reflect assessments of risks arising from the sector and geographical location of the borrower) and the specifics of the credit instrument (eg whether a bond or a derivative).

¹⁵ For instance the additional yield that a debt instrument issued by an AA-rated entity must produce over a risk-free alternative.

124. Institutions 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, institutions should not exclude assets accounted at fair value.

Explanatory box

The 2018 EBA Guidelines focused the CSRBB perimeter on the asset side of the non-trading book. Feedback received from banks allude to assets accounted at fair value as the identified exposures to CSRBB. In the QIS, banks have also provided input that they identify CSRBB exposures being concentrated on assets at fair value. However, other items, including liabilities, are also reported as exposed to CSRBB in some cases. With this in mind the EBA acknowledges that non-trading book assets at fair value should always be considered in the CSRBB perimeter. However, the EBA does not rule out that other non-trading book assets as well as liabilities could indeed be exposed to CSRBB. The EBA follows a pragmatic approach here and the Guidelines require banks to demonstrate in each case if other than assets at fair value should be excluded.

Question 4: As to the suggested perimeter of items exposed to CSRBB, would you consider any specific conceptual or operational challenge to implement it?

125. Without prejudice to paragraph 13, small trading book business, as defined by paragraph 1 of Article 94 of Regulation (EU) No 575/2013, shall be included unless its credit spread risk is captured in another risk measure.

4.5.2 CSRBB governance and strategy

126. The CSRBB strategy of the 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 as laid down in subparagraph (2), letter (a) of Article 88(1) of Directive 2013/36/EU.
127. The institution's risk appetite for CSRBB should be expressed in terms of the impact of fluctuating credit spreads on both net interest income and economic value. Institutions significantly exposed to CSRBB should reflect this appropriately within their risk appetite.
128. Institutions should ensure that procedures to identify, measure and monitor CSRBB have been established when proposing new products or activities. It should be ensured that the CSRBB characteristics of these new products and activities are well understood.

129. Consolidating institutions should ensure that internal governance arrangements and processes for the management of CSRBB are consistent and well integrated on a consolidated and a sub-consolidated basis.

4.5.3 CSRBB risk assessment framework and responsibilities

130. In view of having internal governance arrangements pursuant to Article 74 and 88 of Directive 2013/36/EU, institutions should, in relation to CSRBB, ensure the following:

- (a) That their management body bears the ultimate responsibility for the oversight of the CSRBB management framework and the institution's risk appetite framework to adequately cover the risks.
- (b) That they have in place a CSRBB management framework that establishes clear lines of responsibilities and that consists of policies, processes and internal controls including regular independent reviews and evaluations of the effectiveness of the framework.
- (c) 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 and the institution's activities.

131. The management body should, in particular, be responsible for the following:

- (a) Understanding the nature and the level of the CSRBB exposure. The management body should ensure that there is clear guidance regarding the risk appetite for CSRBB in respect of the institution's business strategies.
- (b) Establishing that the appropriate actions are taken to assess and monitor CSRBB, consistent with the approved strategies and policies. In this regard, the management body or its delegates are responsible for setting:
 - i. Systems and standards for monitoring CSRBB, valuing positions and assessing performance, including procedures for updating shock, parameters and stress scenarios and key underlying assumptions driving the institution's CSRBB analysis;
 - ii. A comprehensive CSRBB reporting and review process; and
 - iii. Effective internal controls and management information systems (MISs).
- (c) Approving major CSRBB risk-taking initiatives in advance of implementation. Positions related to internal risk transfers between the non-trading book and the trading book should be properly documented.
- (d) Carrying out the oversight of the approval, implementation and review of CSRBB management policies and procedures. The level of and changes in the institution's CSRBB exposure should be provided regularly to the management body.

- (e) Ensuring that the validation of CSRBB measurement methods and assessment of corresponding model risk are included in a formal policy process that should be reviewed and approved by the management body or its delegates.
 - (f) Understanding and assessing the functioning of its delegates in monitoring and controlling CSRBB, consistent with policies approved by the management body, on the basis of regular reviews of timely and sufficiently detailed information.
 - (g) Understanding the implications of the institution's CSRBB strategies and their potential linkages with market, liquidity, credit and operational risk but without requiring all the management body members to be experts in the area. Some of the members should have sufficient technical knowledge to question and challenge the reports made to the management body. The institution should establish that management body members are responsible for ensuring that senior management has the competence to understand CSRBB and that CSRBB management are provided with adequate resources.
132. Institutions should have delegation arrangements and procedures in place for any delegation by the management body of the assessment and monitoring of CSRBB, including, but not limited to, the following:
- (a) Persons or committees to which tasks of the management body are delegated for developing CSRBB policies and practices, such as senior management, expert individuals or an ALCO, should be identified and have objectives clearly set out by the management body;
 - (b) The management body should ensure that there is an adequate separation of responsibilities in the risk management process. The CSRBB identification, assessment, monitoring and control functions should have clearly defined responsibilities, should be independent from risk-taking functions on CSRBB and should report CSRBB exposures directly to the management body or its delegates;
 - (c) The institution should ensure that the management body's delegates have clear lines of authority over the units responsible for risk taking on CSRBB. The communication channel to convey the delegates' directives to these line units should be clear; and
 - (d) The management body should establish that the institution's structure enables its delegates to carry out their responsibilities, and facilitates effective decision-making and governance. In this regard, an ALCO, or its equivalent, should meet regularly and its composition should reflect each major department linked to CSRBB. The management body should foster discussion regarding the CSRBB management process, both between its members and its delegates and between its delegates and others in the institution. The management body should also ensure that regular communication between the risk management and strategic planning areas facilitate the monitoring of the risk arising from future business.

4.5.4 CSRBB risk policies, processes and controls

Risk policies and processes

133. The management body should, based on its overall CSRBB strategy, adopt robust risk policies, processes and systems which should ensure that:
- (a) Procedures for updating scenarios for the assessment and monitoring of CSRBB are set up;
 - (b) the measurement approach and the corresponding assumptions for assessing and monitoring CSRBB risks, are appropriate and proportional;
 - (c) the assumptions of the models used are regularly reviewed and, if necessary, amended;
 - (d) standards for the evaluation of positions and the measuring of performance are defined; and
 - (e) the lines of authority and responsibility for managing CSRBB exposures are defined.
134. The policies should be well reasoned, robust and documented and should address all CSRBB components that are important to the institution's individual circumstances. Without prejudice to the proportionality principle, the CSRBB policies should include the following:
- (a) The application of the boundary between 'non-trading book' and 'trading book'. Internal risk transfers between the banking book and the trading book should be properly documented and monitored;
 - (b) The size and the form of the spread shocks to be used for internal CSRBB calculations respectively;
135. To ensure that the institution's CSRBB management policies and procedures remain appropriate and sound, the management body or its delegates should review the CSRBB management policies and procedures in the light of the outcomes of regular reports.
136. The management body or its delegates should ensure that analysis and risk management activities related to CSRBB are conducted by sufficient and competent staff with technical knowledge and experience, consistent with the nature and scope of the institution's activities.

Internal controls

137. With regard to CSRBB control policies and procedures, institutions should have appropriate approval processes, reviews and other mechanisms designed to provide a reasonable assurance that risk management objectives are being achieved.
138. Institutions should have their CSRBB identification, measurement, monitoring and control processes reviewed by an independent auditing function, which may be an internal or external

auditor, on a regular basis. In such cases, reports written by internal or external auditors or other equivalent external parties should be made available to relevant competent authorities.

CSRBB IT system and data quality

139. The IT systems and applications used by the institution to carry out, process and record operations, to identify, measure and aggregate CSRBB exposures, and to generate reports should be capable of supporting the management of CSRBB in a timely and accurate manner. In particular, the systems should:
- (a) Capture credit spread data on all the institution's CSRBB exposures. This should support the institution's measurement system to identify, measure and aggregate the major sources of CSRBB exposures;
 - (b) Be capable of fully and clearly recording all transactions made by the institution, taking into account their CSRBB characteristics;
 - (c) Be tailored to the complexity and number of transactions creating CSRBB;
 - (d) Offer sufficient flexibility to accommodate a reasonable range of CSRBB shock and stress scenarios and any additional scenarios;
 - (e) Enable the institutions to fully measure, assess and monitor the contribution of individual transactions to their overall exposure.
 - (f) Be able to compute economic value and net interest income-based measures of CSRBB; and
140. The IT system should be capable of recording the credit spread characteristics of the products.
141. The systems used to measure CSRBB should be capable of capturing the CSRBB characteristics of all products.
142. Risk measures should be based on reliable market and internal data. Institutions should scrutinise the quality of external sources of information used to establish the historical databases of credit spreads, as well as the frequency at which databases are updated.
143. To ensure the high quality of data, institutions should implement appropriate processes that ensure that the data entered into the IT system is correct. Data inputs should be automated as much as possible to reduce administrative errors, and data mapping should be periodically reviewed and tested against an approved model version. In addition, there should be sufficient documentation of the major data sources used in the institution's risk measurement process. Institutions should also establish appropriate mechanisms to verify the correctness of the aggregation process and the reliability of model results. These mechanisms should confirm the accuracy and reliability of data.

Internal reporting

144. Institutions' internal risk-reporting systems should provide timely, accurate and comprehensive information about their exposures to CSRBB. The frequency of internal reports should be at least quarterly.
145. The internal reports should be provided to the management body or its delegates with information at relevant levels of aggregation (by consolidation level), and reviewed regularly. The reports should contain a level of information adapted to the particular management level (e.g. management body, senior management) and to the specific situation of the institution and the economic environment.
146. The CSRBB reports should provide aggregate information as well as sufficient supporting detail to enable the management body or its delegates to assess the sensitivity of the institution to changes in market conditions and other important risk factors. The content of the reports should reflect changes in the risk profile of the institution and in the economic environment, and compare current exposure with policy limits.
147. The CSRBB reports should, on a regular basis, include the results of the model reviews and audits as well as comparisons of past forecasts or risk estimates with actual results to inform potential modelling shortcomings. Portfolios that may be subject to significant mark-to-market movements should be clearly identified and the impact should be monitored within the institution's MIS and subject to oversight in line with any other portfolios exposed to market risk.
148. While the types of reports prepared for the management body or its delegates will vary based on the institution's portfolio composition, they should include, taking into account paragraphs 146 and 147, the following:
- (a) Summaries of the institution's aggregate CSRBB exposures in terms of economic value and net interest income. Assets, liabilities and off-balance-sheet exposures and strategies that are driving the level and direction of CSRBB should be identified and explained;
 - (b) Key modelling assumptions;
149. Based on these reports, the management body or its delegates should be able to assess the sensitivity of the institution to changes in market conditions and other important risk factors, with particular reference to portfolios that may potentially be subject to significant mark-to-market movements.
150. The internal measurement system should generate reports in a format that allows the different levels of the institution's management to understand the reports easily and to make appropriate decisions in a timely manner. The reports should constitute the basis for regular monitoring of whether or not the institution operates in line with its strategy.

Model governance

151. Institutions should ensure that the validation of CSRBB measurement methods — which should be reviewed and validated independently of their development — and the assessment of corresponding model risk are included in a formal policy process that should be reviewed and approved by the management body or its delegates. The policy should be integrated within the governance processes for model risk management and should specify:

- (a) the management roles and designate who is responsible for the development, validation, documentation, implementation and use of models; and
- (b) the model oversight responsibilities as well as policies including the development of initial and ongoing validation procedures, evaluation of results, approval, version control, exception, escalation, modification and decommission processes.

4.6 Monitoring of CSRBB

4.6.1 General approach for the monitoring of CSRBB

152. Institutions should implement robust internal measurement systems (IMSs) that capture all components and sources of CSRBB which are relevant for the institution's business model.
153. Institutions should monitor their exposure to CSRBB in terms of potential changes to both the economic value and net interest income. Institutions should use complementary features of both approaches to capture the complex nature of CSRBB over the short-term and long-term time horizons. In particular, institutions should measure and monitor (i) the overall impact of key modelling assumptions on the measurement of CSRBB in terms of both economic value measures and net interest income measures, and (ii) the CSRBB of their banking book derivatives where relevant for the business model.
154. Institutions should develop and use their own assumptions and calculation methods for the assessment of CSRBB.

4.6.2 Methods for monitoring CSRBB

155. Institutions should develop and use their own assumptions and calculation methods for the assessment of CSRBB. The choice of measurement methodology should be adequate for the complexity of the bank itself.
156. The limitations of each quantitative tool and model used should be fully understood by the institution, and these limitations should be taken into account in the CSRBB risk management process. In assessing CSRBB, institutions should be aware of the risks that may arise as a consequence of accounting treatment of transactions in the non-trading book.

157. As an exception, in the practical implementation of paragraph 120 and for proportionality reasons, institutions 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.

4.6.3 CSRBB monitoring assumptions

158. When measuring CSRBB, institutions should fully understand and document key modelling assumptions. These assumptions should be aligned with business strategies and be regularly tested.
159. Institutions should, in relation to both economic value and net interest income based measures of CSRBB, take into account the implications of accounting practices for the measurement of CSRBB, and in particular hedge-accounting effectiveness.
160. 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 institution's business and risk structure. In any case institutions should have separate assessments of CSRBB and IRRBB.
161. As market conditions, competitive environments and strategies change over time, institutions should review significant measurement assumptions at least annually, and more frequently during rapidly changing market conditions.
162. For the purpose of CSRBB, institutions should set-up prudent documentation supporting their policies assumptions and procedures, and include a process for keeping them under review. Institutions should understand, for the purpose of CSRBB, the impact of the chosen CSRBB-related investment strategies.

Explanatory box. Examples of CSRBB identification and measurement:

Perimeter

Institutions should analyse their banking book and identify the instruments sensitive to CSRBB (i.e. no presumptive exclusion). The EBA expects institutions to consider generally all items, irrespective of their accounting category ex-ante. As a minimum requirement, institutions should always include fair-value items in their CSRBB assessment and monitoring perimeter.

EVE perspective

Under the EVE perspective, institutions can state all instruments subject to market credit spread or market liquidity spread changes over their remaining life (i.e. until all positions have run off) are included.

As such, under the EVE perspective, institutions should assess and monitor on the above-described items, for different credit worthiness (AAA, AA, etc.) and maturity (1 month, 6 months, etc.), the sensitivity of instruments to market credit spread and market liquidity spread changes.

Net Interest Income

Institutions can state all instruments subject to market credit spread and market liquidity spread changes for which credit spread changes can impact the expected future NII of the bank within a given time horizon, are included. This perspective will consider the renewal of maturing positions.

In the NII perspective, institutions should analyse their banking book and identify, for different credit worthiness (AAA, AA, etc.) and maturity (1 month, 6 months, etc.), the instruments sensitive to CSRBB. The EBA expects that, considering the remaining life of instruments in the Banking Book and their renewal within a given time horizon, banks internal analysis will lead to consider in the perimeter of CSRBB, instruments when they mature and have to be renewed (i.e. through the impact on revised spreads, coupons and premiums paid).

As such, in the NII perspective, CSRBB will embed changes in coupon payments caused by changes in credit spreads stemming from existing positions and new business assumptions (i.e. through the impact on revised spreads, coupons and premiums paid). Additionally, institutions should also consider the effects of changes in the fair-value due to credit spread changes.

Question 5: Is the separation of IRRBB and CSRBB sufficient to understand where the Guidelines apply to:

- IRRBB only
- CSRBB only
- Both IRRBB and CSRBB?

Annex I — IRRBB measurement methods (non-exhaustive list)

Cash flow modelling	Metric	Description	Risks captured	Limitations of metric
Unconditional cash flows (it is assumed that the <i>timing</i> of cash flows is independent of the specific interest rate scenario)	<u>Net Interest Income-based:</u> <ul style="list-style-type: none"> Gap analysis: Repricing gap 	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.	Gap risk (only parallel risk)	<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.
	<u>Economic value:</u> <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 <i>modified duration of equity</i> 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 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>	Gap risk (only parallel risk)	<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
		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.		
	• Partial modified duration/partial PV01	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.	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.
Cash flows partially or fully conditional on interest rate scenario (it is assumed that the <i>timing</i> 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 modelled conditional on the interest rate scenario)	Net Interest Income-based: Focus on net interest income (NII) component: • 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.</p> <p>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 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>	Gap risk (parallel and non-parallel), basis risk and, provided <i>all</i> 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>Net interest income-based metrics can be differentiated according to the sophistication of projecting future cash flows: simple <i>run-off models</i> assume that existing assets and liabilities mature without replacement; <i>constant balance sheet models</i> assume that maturing assets and liabilities are replaced by comparable instruments; while the most <i>complex dynamic cash flow models</i> 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 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>		
	<p><u>Economic value:</u> Focus on economic value of equity (EVE) • Change in EVE</p>	<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.</p> <p>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 <i>all</i> 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 non-linearities • Full revaluation Monte Carlo approaches are computationally demanding and may be difficult to interpret ('black-box') • Complexity

Annex II – Sophistication matrix for IRRBB measurement

Institutions should apply at least the level of sophistication in their risk measures shown in the table below corresponding to their categorisation under the SREP Guidelines. Where the complexity or scope of an institution's business model is significant, the institution should, notwithstanding its size, apply and implement risk measures that correspond to its specific business model and adequately capture all sensitivities. All material sensitivities to the interest rate changes should be adequately captured, including sensitivity to behavioural assumptions.

Institutions that offer financial products containing embedded optionalities should use measurement systems that can adequately capture the dependence of options to interest rate changes. Institutions with products that provide behavioural optionalities to clients should use adequate conditional cash flow modelling approaches to quantify IRRBB with regard to the changes in client behaviour that could occur under different interest rate stress scenarios.

The four categories referred to in the sophistication table below reflect the categorisation of institutions laid down in the EBA SREP Guidelines. The different categories reflect different size, structure and the nature, scope and complexity of activities of institutions; with Category 1 corresponding to the most sophisticated institutions.

<u>IRRBB metric and modelling</u>		Indicative supervisory expectations regarding IRRBB metric and modelling depending on the institution's sophistication category			
Cash flow modelling	Metric	Category 4 institution	Category 3 institution	Category 2 institution	Category 1 institution
Unconditional cash flows (it is assumed that the <i>timing</i> of cash flows is independent of the specific interest rate scenario)	<u>Net Interest Income-based:</u> Gap analysis: • Repricing gap	Time buckets advised in the Basel Committee on Banking Supervision's Standards 'Principles for the Management and Supervision of Interest Rate Risk in the banking book' from April 2016 BCBS Standards.		<i>[Gap based on evolving size and composition of the banking book due to business responses to differing interest rate environments. Including projected commercial margins consistent with the interest rate scenario (see section 4.4, 'Measurement').]*</i>	
	<u>Economic value:</u> Duration analysis: • Modified duration/PV01 of equity • Partial modified duration/partial PV01	Time buckets advised in BCBS Standards. Application of standard shocks. Yield curve model with tenors corresponding to the time buckets.	Time buckets advised in BCBS Standards, application of partial duration weights. Application of standard shocks and other interest rate shock and stress scenarios (see section 4.4, 'Measurement'). Yield curve model with tenors corresponding to the time buckets.	<i>[Partial duration computed per instrument type and time bucket. Application of standard and other interest rate shock and stress scenarios (see section 4.4, 'Measurement'). Yield curve model with tenors corresponding to the time buckets.]*</i>	<i>[Partial duration computed per transaction and time bucket. Application of standard and other interest rate shock and stress scenarios (see section 4.4, 'Measurement'). Yield curve model with tenors corresponding to the time buckets.]*</i>

<u>IRRBB metric and modelling</u>		Indicative supervisory expectations regarding IRRBB metric and modelling depending on the institution's sophistication category			
Cash flows partially or fully conditional on interest rate scenario <i>(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 modelled conditional on the interest rate scenario)</i>	<u>Net Interest Income-based:</u> •Net interest income (NII)	Standard shocks applied to earnings under a constant balance sheet. Based on time buckets advised in the BCBS Standards.	Standard and other interest rate shock and stress scenarios for the yield curve (see section 4.4, 'Measurement') applied to earnings, reflecting constant balance sheet or simple assumptions about future business development.	Standard and other interest rate shock and stress scenarios for the yield curve and between key market rates separately (see section 4.4, 'Measurement') applied to earnings projected by business plan or constant balance sheet. Including projected commercial margins consistent with the interest rate scenario (see section 4.4, 'Measurement').	Comprehensive interest rate and stress scenarios, combining shifts of yield curves with changes in basis and credit spreads, as well as changes in customer behaviour, are applied to reforecast business volumes and earnings to measure the difference compared with the underlying business plan. Including projected commercial margins consistent with the interest rate scenario (see section 4.4, 'Measurement').

IRRBB metric and modelling**Indicative supervisory expectations regarding IRRBB metric and modelling depending on the institution's sophistication category****Economic value:**

- Economic value of equity (EVE)

Application of standard and other interest rate shock and stress scenarios for the yield curve (see section 4.4, 'Measurement'), using time buckets as advised in the BCBS Standards; yield curve tenors corresponding to the time buckets.

Measure computed on transaction or cash flow basis. Application of standard and other interest rate shock and stress scenarios for the yield curve and between key market rates separately (see section 4.4, 'Measurement'). Adequate tenors in yield curves. Full optionality valuation.

Comprehensive interest rate and stress scenarios, combining shifts of yield curves with changes in basis and credit spreads, as well as changes in customer behaviour. Adequate tenors in all yield curves. Full optionality valuation. Scenario analysis complemented by Monte Carlo or historical simulations on portfolios with material optionality. Daily updating of risk factors.

* For category 1 and category 2 institutions, unconditional cash flow modelling approaches do not reflect supervisory expectations

5. Accompanying documents

5.1 Draft cost-benefit analysis / impact assessment

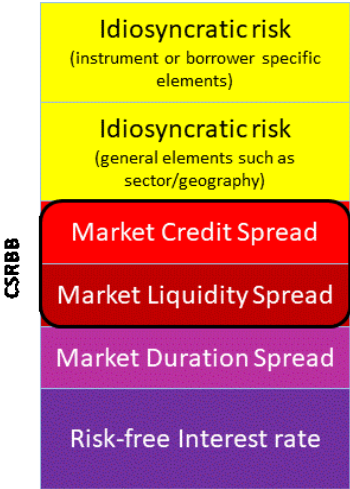
1. Article 16(2) of the EBA Regulation (Regulation (EU) No 1093/2010 of the European Parliament and of the Council) provides that, where appropriate, the EBA should analyse ‘the related potential costs and benefits’ of Guidelines issued by the EBA. Such analysis shall be proportionate in relation to the scope, nature and impact of the Guidelines. The following section provides an impact assessment of the Guidelines. It includes an overview of the findings regarding the problems to be dealt with, options available to tackle the problems, and cost-benefit analysis compared with the baseline scenario.
2. Following paragraph 6 of Article 84 Directive 2013/36/EU, the Guidelines cover a wide number of items included in the EBA/GL/2018/02, Guidelines on the management of interest rate risk arising from non-trading book activities published on 18 July 2018 and generally applicable from 30 June 2019. Therefore relevant items, mainly related to the identification, management and evaluation of IRRBB are maintained, with slight amendments as appropriate, and expanded to CSRBB to the extent that it seems necessary. These Guidelines mainly introduce a further developed analysis of the definition and perimeter of the CSRBB. Therefore this impact assessment focuses on these aspects. The analysis is mainly of qualitative nature but also builds on the QIS run during the first half of 2021 where some quantitative input on CSRBB has been collected.

5.1.1 Policy options

a. Definition of CSRBB

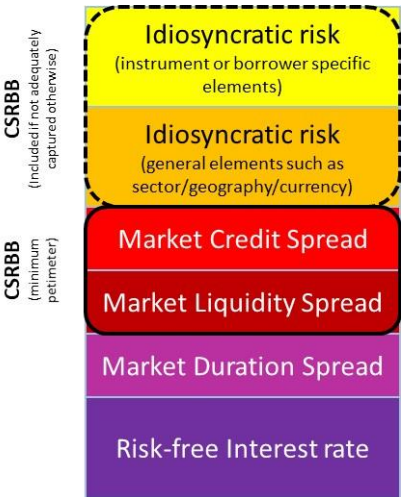
Policy option 1:

3. CSRBB relates to the changes of market credit and market liquidity spreads as components of the yield (curve) for instruments of a specific credit worthiness/rating. They are considered as a general market risk premium paid to access the capital markets and pricing of instruments.
4. More specifically the CSRBB targets to capture the changes of the “market credit spread” and the changes of the “market liquidity spread”. It does not include the effect of rating changes situations during the observation period or instruments under default situation. This is illustrated as follows:



Policy option 2:

- 5. Option 2 would follow the approach on the CSRBB definition envisaged in Option 1 and would add some idiosyncratic elements.
- 6. The argument to include some idiosyncratic elements here is that they would not be covered in other risk framework. For example, under Option 1, the CSRBB in the case of a AAA bond would be explained by the changes in the spread of the bond, remaining as AAA, due to market credit and market liquidity reasons. However, in the definition proposed under Option 2, the CSRBB would also be explained by idiosyncratic factors that are not covered in other risk framework. This is illustrated as follows:



b. Perimeter of CSRBB

Policy option A:

7. Under Option A institutions should not exclude any instruments in the banking book from the perimeter of CSRBB ex ante. Any potential exclusion of instruments from the relevant perimeter should be appropriately documented. The perimeter is not dependent on accounting treatment, but rather on sensitivity of an instruments to credit spread changes. The deterioration of a bank's creditworthiness should not have any positive impact on the credit spread risk measure.
8. In summary, in order to derive the relevant perimeter of instruments subject to credit spread volatility, institutions should perform a top-down approach of their own:
 - (a) Institutions should identify all instruments in the banking book subject to credit spread volatility. No specific assets or liabilities should be excluded from the relevant perimeter ex ante.
 - (b) The perimeter is not dependent on accounting treatment, but rather on the sensitivity of an instrument to credit spread changes and its impact on the institution. In general, institutions are expected to include in the perimeter instruments sensitive, or expected to be sensitive, to volatility in credit spreads that may potentially impact the institutions income and / or capital;
 - (c) In the determination of the perimeter, a worsening of credit worthiness of the institution should not have any positive impact on the credit spread risk measure;
 - (d) Any potential exclusion of instruments from the relevant perimeter should be appropriately documented;

Policy option B

9. Policy option B would be identical to option A but would introduce an additional element to ensure a minimum harmonization.
10. A minimum harmonization is ensured by requiring that assets accounted at fair value would always be included in the perimeter of CSRBB. Any exclusion of other asset or any liability should still be demonstrated to be insensitive to CSRBB.

5.1.2 QIS Analysis

11. The EBA undertook a QIS referred to December 2020 which included data on the CSRBB exposures banks have.
12. 121 banks participated in this QIS but only 48 banks provided sufficient CSRBB related data for an analysis. For these reasons, the EBA has made an assessment on a best effort basis to inform



its policy alternatives. Nevertheless, the EBA will reopen a submission period of data where institution will be able to complement/provide data for the benefit of the final decisions.

13. From the data received, banks consider that their CSRBB exposures are concentrated in the asset side and particularly in debt securities. On average, exposures to CSRBB in the form of debt securities represent more than 90% of all the assets exposed to CSRBB. Still it is relevant to show that banks report liabilities exposed to CSRBB, mainly under the categories of debt securities issued and other liabilities, including deposits taken.
14. In addition to this, the banks participating in the QIS report that, on average, basically all (more than 99%) of their debt securities that are exposed to CSRBB are accounted at fair value.
15. Most of the debt securities exposed to CSRBB, on average around 77% of them, are instruments whose pricing is based on direct market observation, i.e. instruments that can be priced using quoted prices, or quoted prices of financial instruments with similar characteristics.
16. Banks were asked about their own appreciation, from a qualitative point of view and to be assessed between 0% and 100%, of their degree of exposure towards CSRBB for all their exposure categories. Debt securities in the asset side are assessed here by 48% on average. Participants also provide assessment on other asset categories like securitisations on exposures and debt securities and credit derivatives, in the liability side.
17. Banks also provided data on the impact of a 1 basis point parallel upward shift of the credit spread curve on the present value of the respective exposures. Generally the impact reported is negligible except for some outlier.
18. On a more qualitative basis, 12 out of 23 banks, explained that in their current assessment and monitoring of CSRBB exposures they include and find it difficult to disentangle the idiosyncratic component. This is relevant input for the exception envisaged in the Guidelines for including idiosyncratic elements in the monitoring of CSRBB as long as the results are more conservative.
19. 30 out of 40 banks explained that they apply internal limits on exposures to CSRBB. Generally banks explained that they reduce their positions when breaching the limits rather than setting up hedging strategies.

5.1.3 Preferred option

20. The EBA takes note that the majority of the exposures to CSRBB, as communicated by banks, are in the form of debt securities in the asset side and accounted at fair value. The EBA



understands that this might be very much linked to the fact that the current EBA GL on IRRBB and the EBA GL on SREP envisage precisely this exposure category in the CSRBB framework¹⁶.

21. Based on this, the EBA understands that assets at fair value constitute a category that should always be included in the perimeter of CSRBB. This is in line with the current GL and also has practical evidence. This provides as well a minimum harmonisation in the definition of the perimeter.
22. However, the EBA considers that CSRBB exposures should not be confined upfront to these categories only. Indeed, and despite the perimeter in the current EBA GL, banks report other categories as exposed to CSRBB in practice and therefore banks should pay attention to all potential exposures to CSRBB irrespective of the asset or liability category they are. For these reasons the EBA considers Policy option B as the preferred one for the definition of the perimeter.
23. As regards the definition of CSRBB itself, the EBA considers that idiosyncratic elements should not be included since they are generally covered in other risk framework, mainly the credit risk. Considering these elements in the definition could trigger double counting issues. Also from a conceptual perspective, CSRBB is purely market related and therefore market and liquidity related elements should conform its definition. From a practical implementation perspective and taking into account proportionality aspects and the qualitative QIS input mentioned in the previous item, the GL might envisage some flexibility as long as the results are more conservative. This would be a good balance in the implementation between the pure definition of CSRBB and the operational difficulties that some banks might find in disentangling the idiosyncratic elements of credit spread risk.

¹⁶ Paragraph 18 of the EBA GL on IRRBB states that *"Institutions should monitor and assess their CSRBB-affected exposures, by reference to the asset side of the non-trading book, where CSRBB is relevant for the risk profile of the institution."*

Paragraph 4 of the EBA GL on SREP provide a definition of 'Credit spread risk' as *"the risk arising from changes in the market value of debt financial instruments due to fluctuations in their credit spread."*

5.2 Overview of questions for consultation

Question 1: In the context of the measurement of the impact of IRRBB under internal systems, paragraph 111 envisages a five year cap repricing maturity for retail and non-financial wholesale deposits without a specified maturity. Would you foresee any unintended consequence or undesirable effect from this behavioural assumption in particular on certain business models or specific activities? If this is the case, please kindly provide concrete examples of it.

Question 2: Do respondents find that the criteria to identify non-satisfactory IRRBB internal models provide the minimum elements for supervisors' assessment?

Question 3: Is there any specific element in the definition of CSRBB that is not clear enough for the required assessment and monitoring of CSRBB by institutions?

Question 4: As to the suggested perimeter of items exposed to CSRBB, would you consider any specific conceptual or operational challenge to implement it?

QUESTION 5: IS THE SEPARATION OF IRRBB AND CSRBB SUFFICIENT TO UNDERSTAND WHERE THE GUIDELINES APPLY TO:

- IRRBB only
- CSRBB only
- Both IRRBB and CSRBB?