

EBA/CP/2017/19

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31/10/2017

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# Consultation Paper

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Draft Guidelines on the management of interest rate risk arising from non-trading book activities

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# 1. Responding to this consultation

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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 31.01.2018. 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 (EC) N° 45/2001 of the European Parliament and of the Council of 18 December 2000 as implemented by the EBA in its implementing rules adopted by its Management Board. Further information on data protection can be found under the Legal notice section of the EBA website.

## 2. Executive Summary

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The European Banking Authority (EBA) has updated its Guidelines on the management of interest rate risk arising from non-trading activities which were published on 22 May 2015<sup>1</sup>.

According to Article 84 of Directive 2013/36/EU (CRD)<sup>2</sup> competent authorities shall ensure that institutions implement systems to identify, evaluate and manage the risk arising from potential changes in interest rates that affect an institution's non-trading activities.

The aim of these guidelines is to set out supervisory expectations regarding the management of interest rate risk arising from non-trading book activities (IRRBB). These guidelines build upon the EBA Guidelines published on 22 May 2015 and take account of existing supervisory expectations and practices including the Standards on Interest rate risk in the banking book published by the Basel Committee on Banking Supervision (BCBS Standards) in April 2016<sup>3</sup>.

The BCBS Standards will be implemented within the EU in two phases. Firstly, through this update of the EBA Guidelines, and, secondly, through the ongoing revision of the CRD and the CRR and the enactment of a number of technical standards that are expected to be mandated to the EBA in the revised CRD and CRR.

The updated guidelines are structured into six main sections:

- Definitions;
- General provisions;
- Internal capital;
- Governance;
- Measurement; and
- Supervisory outlier test.

The guidelines highlight that institutions should develop and use their own internal arrangements to identify, measure, monitor and control IRRBB, while respecting supervisory expectations set out in these guidelines.

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<sup>1</sup> EBA/GL/2015/08. Available online: <http://www.eba.europa.eu/regulation-and-policy/supervisory-review-and-evaluation-srep-and-pillar-2/guidelines-on-technical-aspects-of-the-management-of-interest-rate-risk-arising-from-non-trading-activities>.

<sup>2</sup> 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.

<sup>3</sup> <http://www.bis.org/bcbs/publ/d368.htm>

The supervisory outlier test is a supervisory tool whose objective is to inform supervisors about the exposure of institutions to IRRBB by obtaining comparable information for all institutions.

## Next steps

The guidelines will be finalised following the completion of the public consultation. 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.

Institutions and competent authorities are expected to apply these guidelines from 31.12.2018, taking into account longer transitional arrangements for the provisions on CSRBB and for the application of the new threshold of 15% of Tier 1 as an “early warning signal” for the supervisory outlier test calculated based on the six shock scenarios as set out in Annex III.

## 3. Background and rationale

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### Background

1. Interest rate risk arising from non-trading book activities (IRRBB) is an important financial risk for credit institutions, which is considered under Pillar 2. Thus, the supervisory framework assumes that banks develop their own methodologies and processes for identification, measurement, monitoring and control of this risk. These methodologies and internal processes, including the assumptions used, are subject to the supervisory review and evaluation process carried out by supervisory authorities.
2. In order to set out supervisory expectations regarding the management of IRRBB, the EBA published Guidelines on the management of IRRBB in May 2015. These guidelines took into account existing supervisory expectations and practices including the Principles for the management and supervision of interest rate risk published by the Basel Committee on Banking Supervision (BCBS) in 2004.
3. In April 2016, the BCBS published an updated version of its standards on the management of IRRBB (BCBS Standards) to reflect changes in markets and supervisory practices experienced since 2004. The BCBS Standards have confirmed the Pillar 2 approach to IRRBB and introduced some new elements in the management of IRRBB. BCBS Standards are expected to be implemented by 2018.
4. In November 2016, the European Commission published its legislative proposals to amend both the CRD and the CRR<sup>4</sup>. The proposals introduce amendments also to the existing provisions on IRRBB. Moreover, it is also proposed that the EBA will be mandated to develop several technical standards on IRRBB.
5. Therefore, the new BCBS Standards will be implemented at EU level through a number of policy products including EBA guidelines and technical standards which are expected to be mandated to the EBA in the revised CRD/CRR.
6. Given its mandate to foster supervisory convergence, the EBA has decided to implement a transitional and progressive approach in developing different IRRBB related regulatory products in order to bridge the timing gaps and ensure consistency between those products. In the first phase, the revised EBA Guidelines would initiate the implementation of the new BCBS Standards, while also improving the existing guidelines, in particular in those areas where the supervisors feel the need for a more practical approach.

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<sup>4</sup> Proposal to amend Directive 2013/36/EU on banking prudential requirements. Proposal to amend Regulation (EU) No 575/2013 on banking prudential requirements. Available online: [https://ec.europa.eu/info/business-economy-euro/banking-and-finance/financial-supervision-and-risk-management/managing-risks-banks-and-financial-institutions/prudential-requirements\\_en](https://ec.europa.eu/info/business-economy-euro/banking-and-finance/financial-supervision-and-risk-management/managing-risks-banks-and-financial-institutions/prudential-requirements_en).

7. In the near future, more detailed requirements would then be included in the technical standards developed following the enactment of the ongoing CRD/CRR revision. The European Commission's legislative proposals of 23 November 2016<sup>5</sup> include several mandates for the EBA to develop regulatory technical standards with specific reference to the standardised methodology, the parameters for the supervisory outlier test, and disclosure requirements related to IRRBB.

## Update of the Guidelines

8. The updated guidelines introduce changes to both the structure of the guidelines and their content.
9. As far as the structure is concerned, two specific amendments have been proposed. First, the Glossary and Definitions sections have been merged creating a single section of definitions. Second, the existing guidelines are structured as high-level guidelines followed by the detailed guidelines. In this new version the high-level and the detailed guidelines have been merged in order to ensure their internal consistency and any overlaps are eliminated as much as possible.
10. While the new BCBS Standards are addressed to both competent authorities and institutions, the approach taken was to include the principles addressed to institutions in these guidelines, whereas those addressed to competent authorities are included in the revised SREP Guidelines<sup>6</sup>.
11. The main changes have been reflected in the content of the guidelines which are now structured into six main sections:
  - (a) Definitions;
  - (b) General provisions;
  - (c) Capital identification, calculation and allocation;
  - (d) Governance;
  - (e) Measurement; and
  - (f) Supervisory outlier test.
12. While the current guidelines explicitly state that they do not apply to credit spread risk from non-trading book activities (CSRBB), the scope of these updated guidelines has been expanded, thus

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<sup>5</sup> European Commission, Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EU) No 575/2013 as regards the leverage ratio, the net stable funding ratio, requirements for own funds and eligible liabilities, counterparty credit risk, market risk, exposures to central counterparties, exposures to collective investment undertakings, large exposures, reporting and disclosure requirements and amending Regulation (EU) No 648/2012, 23.11.2016, COM(2016) 850 final.

European Commission, Proposal for a Directive of the European Parliament and of the Council 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, 23.11.2016, COM(2016) 854 final.

<sup>6</sup> The EBA SREP Guidelines have been developed according to Article 107(3) of the capital Requirements Directive (CRD) and aim at promoting common procedures and methodologies for the supervisory review and evaluation process (SREP) referred to in Article 97 of the CRD and for the supervisory assessment of the organisation and treatment of risks referred to in Articles 76 to 87 of the CRD (including IRRBB risk referred to in Article 84). The initial guidelines issued in December 2014 have been revised in 2017.

covering also CSRBB in line with the BCBS standards. The updated guidelines provide a definition of CSRBB and a high level expectation for institutions to identify their CSRBB exposures and ensure that CSRBB is adequately measured, monitored and controlled.

13. For the section on the internal capital allocation for IRRBB, the existing expectations have been retained. Some more detailed guidance is provided in the updated guidelines on the elements to be taken into account for the capital adequacy assessments of IRRBB. More detailed guidance is provided also for the two measures, which should be taken into account for the determination of internal capital adequacy for IRRBB, the risks to economic value and to future earnings that could arise from adverse movements in interest rates.
14. The section on governance builds upon the existing guidelines as well as principles specified in the BCBS Standards. As such, the updated guidelines bring new guidance on the appropriate assessment of new products and activities in terms of IRRBB, delegation of monitoring and management of IRRBB, risk appetite and policy limits, internal controls, and model validation.
15. For the section on measurement, the existing guidelines have been retained. In addition, some additional expectations originating in the BCBS Standard have been added, e.g. a provision on currency specific shocks for material currencies and an explicit provision for institutions to consider negative interest rates in low interest rate environments. Guidance for banks to measure and monitor the IRRBB originated by interest rate (IR) derivatives has also been added.
16. Whereas all of the above sections provide qualitative guidance for institutions to manage their IRRBB exposures following their own internal Pillar 2 approaches, the focus of the guidance for the supervisory outlier test is aimed at increasing comparability of the results. The supervisory outlier test is an important tool for competent authorities to monitor this risk and perform peer reviews.
17. The supervisory outlier test is a supervisory tool whose objective is to inform supervisors about the exposure of institutions to IRRBB by obtaining comparable information for all institutions. In the interest of increasing the comparability of results among institutions, these guidelines introduce a set of principles institutions should use when calculating the test:
  - (a) All interest rate sensitive instruments not deducted from own funds should be included;
  - (b) Small trading book business should be included unless its interest rate risk is captured in another risk measure;
  - (c) CET 1 and other perpetual own funds without any call dates/options should be excluded;
  - (d) Automatic and behavioural options should be considered;
  - (e) Pension obligations should be included unless their interest rate risk is captured in another measure;
  - (f) Consideration of repayments and repricing of principal as well as of interest rate payments;
  - (g) NPEs should be net of provisions and should reflect the expected cash flow associated to these assets.
  - (h) Instrument-specific interest rate floors, especially for retail deposits, should be considered;



- (i) The conditions for the treatment of commercial margins and other spread components;
- (j) Run-off balance sheet to be applied;
- (k) Lower bound of -150 basis points (linear function between -150 (0 year) and 0 bps (30+ years)) to be applied;
- (l) Material currencies to be considered;
- (m) For exposures in various currencies – aggregation of losses to be applied;
- (n) One risk-free yield curve to be applied per currency ;
- (o) Non-maturity deposits: maximum average maturity to be used of 5 years.

18. The updated guidelines include two thresholds to measure the change in economic value of equity. The first threshold stems from the CRD and assumes that institutions calculate the impact of parallel changes in interest rates of +/- 200 basis points on their own funds. If the decline in economic value is greater than 20% of institution's own funds, the institution should inform the competent authority.

19. The second threshold originates from the BCBS Standards. The institutions are expected to calculate the impact of six predefined shock scenarios on their own funds. If the decline in economic value is greater than 15% of Tier 1, the institution should inform the competent authority.

20. The BCBS threshold of 15% of Tier 1 calculated based on the six shock scenarios as set out in Annex III will act as an "early warning signal" on top of the existing threshold of 20% of institution's own funds initially only for SREP category 1 and 2 institutions<sup>7</sup>.

21. The new threshold of 15% of Tier 1 will only apply to SREP category 3 and 4 institutions 6 months after the guidelines enter into force. This is in line with the transitional approach allowing for a timely preparation for the calculation of the new outlier test and providing the smaller institutions with a longer phase-in period.

22. It is not expected for new regular reporting requirements to be put in place, nor will there be any automatic supervisory measures linked to the breaches of the 15% threshold which is not introduced as a hard threshold but as a trigger for an enhanced supervisory dialogue.

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<sup>7</sup> As prescribed by the EBA SREP Guidelines, competent authorities should categorize all institutions under their supervisory remit into four categories, based on the institution's size, structure and internal organisation, and the nature, scope and complexity of its activities. **Category 1 institutions** include global systemically important institutions (G-SIIs) and other systemically important institutions (O-SIIs) and, as appropriate, other institutions determined by competent authorities, based on an assessment of their size and internal organisation and the nature, scope and complexity of their activities. **Category 2 institutions** include medium to large institutions other than those included in category 1 that operate domestically or with sizable cross-border activities. **Category 3 institutions** include small to medium institutions that do not qualify for category 1 or 2, operating domestically or with non-significant cross-border operations, and operating in a limited number of business lines. **Category 4 institutions** include all other small non-complex domestic institutions that do not fall into categories 1 to 3 (e.g. with a limited scope of activities and non-significant market shares in their lines of business).

The SREP Guidelines are available on the EBA website: <http://www.eba.europa.eu/documents/10180/935249/EBA-GL-2014-13+%28Guidelines+on+SREP+methodologies+and+processes%29.pdf>.



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## 4. Draft Guidelines

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on the management of interest rate risk  
arising from non-trading book activities

# Abbreviations

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<b>ALCO</b>	Asset-Liability Committee
<b>ALM</b>	Asset and Liability Management
<b>BCBS</b>	Basel Committee on Banking Supervision
<b>BSG</b>	Banking Stakeholder Group
<b>CET1</b>	Common Equity Tier 1
<b>CSRBB</b>	Credit Spread Risk from non-trading book activities
<b>CRD</b>	Capital Requirements Directive (Directive 2013/36/EU)
<b>CRR</b>	Capital Requirements Regulation (Regulation (EU) No 575/2013)
<b>EBA</b>	European Banking Authority
<b>EV</b>	Economic Value measures
<b>EVE</b>	Economic Value of Equity measures
<b>FVOCI</b>	Fair Value through Other Comprehensive Income
<b>ICAAP</b>	Internal Capital Adequacy Assessment Process
<b>IMS</b>	Internal Measurement System
<b>IR</b>	Interest Rate
<b>IRRBB</b>	Interest Rate Risk arising from the Banking Book (referred to in CRD as Interest rate risk arising from non-trading book activities)
<b>IT</b>	Information Technology
<b>MIS</b>	Management Information System
<b>NII</b>	Net Interest Income
<b>NMD</b>	Non-Maturity Deposits
<b>NPE</b>	Non-Performing Exposures
<b>P&amp;L</b>	Profit and Loss
<b>SREP</b>	Supervisory Review and Evaluation Process



# 1. Compliance and reporting obligations

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## Status of these guidelines

1. This document contains guidelines issued pursuant to Article 16 of Regulation (EU) No 1093/2010<sup>8</sup>. 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 to [compliance@eba.europa.eu](mailto:compliance@eba.europa.eu) with the reference 'EBA/GL/2017/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).

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<sup>8</sup> 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

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### Subject matter and scope of application

5. These guidelines specify:

- (a) The systems to be implemented by institutions for the identification, evaluation and management of the interest rate risk arising from the non-trading book activities, also referred to as interest rate risk arising from the banking book, (IRRBB) referred to in Article 84 of Directive 2013/36/EU;
- (b) Institutions' internal governance arrangements in relation to the management of IRRBB;
- (c) Sudden and unexpected changes in the interest rate in accordance with Article 98(5) of Directive 2013/36/EU for the purposes of the review and evaluation performed by competent authorities;
- (d) General expectations for the identification and management of credit spread risk in the non-trading book (CSRBB).

### Addressees

6. These guidelines are addressed to financial institutions as defined in Article 4(1) of Regulation No 1093/2010 and to competent authorities as defined in point (i) of Article 4(2) of Regulation (EU) No 1093/2010.

### Definitions

7. Unless otherwise specified, terms used and defined in Directive 2013/36/EU<sup>9</sup> and in Regulation (EU) No 575/2013<sup>10</sup> have the same meaning in the guidelines. In addition, for the purposes of these guidelines, the following definitions apply:

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Interest rate risk arising from non-trading book activities	The current or prospective risk to both the earnings and economic value of institution arising from adverse movements in interest rates that affect interest rate sensitive
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<sup>9</sup> 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.

<sup>10</sup> 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.

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	instruments, including gap risk, basis risk and option risk.
Interest rate sensitive instruments	Interest rate sensitive assets, liabilities and off-balance sheet items in the non-trading book which are either interest rate sensitive or have an impact on IRRBB.
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. It 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)	Any kind of spread risk of interest rate sensitive instruments that is not IRRBB or credit risk.
Earnings measures	Measures of changes in expected future profitability within a given time horizon resulting from interest rate movements.
Economic value (EV) measures	Measures of changes in the net present value of the interest rate sensitive instruments over their remaining life resulting from interest rate movements. EV measures reflect changes in value over the remaining life of the interest rate sensitive instruments, 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 and 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 where existing non-trading book positions amortise and are not replaced by any new business.
Dynamic balance sheet	A balance sheet incorporating future business expectations, adjusted for the relevant scenario in a consistent manner.
Constant balance sheet	A balance sheet in which the total balance sheet size and composition are maintained by assuming like-for-like replacement of assets and liabilities as they run off.

**Question**

**Question 1:** Are the definitions sufficiently clear? If not, please provide concrete suggestions and justify your answer.

## 3. Implementation

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### Date of application

8. Competent authorities should ensure that institutions apply these guidelines from 31 December 2018 and reflect the guidelines in the 2018 ICAAP cycle, i.e. ICAAP reports presented in 2019, based on end-year 2018 data, should take the guidelines into account.

### Transitional provisions

9. These specific provisions of the guidelines are subject to the following transitional arrangements
  - (a) For institutions which fall under SREP category 3 and 4 as set out in the *EBA Guidelines on common procedures and methodologies for the supervisory review and evaluation process (SREP Guidelines)*<sup>11</sup> paragraph 18 will apply as from 30 June 2019. [*6 months after the application date of the guidelines*];
  - (b) For SREP category 3 and 4 institutions paragraph 112 will apply as from 30 June 2019. [*6 months after the application date of the guidelines*].

### Repeal

10. The following guidelines are repealed with effect from 31 December 2018 Guidelines on the management of interest rate risk arising from non-trading activities (EBA/GL/2015/08).<sup>12</sup>

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<sup>11</sup> EBA/GL/2014/13.

<sup>12</sup> Available online: <http://www.eba.europa.eu/regulation-and-policy/supervisory-review-and-evaluation-srep-and-pillar-2/guidelines-on-technical-aspects-of-the-management-of-interest-rate-risk-arising-from-non-trading-activities>.



## 4. Guidelines on the management of interest rate risk arising from non-trading book activities

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### 4.1. General provisions

11. Institutions should treat IRRBB as an important risk and always assess it explicitly and comprehensively in their risk management processes and internal capital assessment processes. A different approach should be fully documented and justified in the course of the supervisory dialogue.
12. Institutions should identify their IRRBB exposures and ensure that IRRBB is adequately measured, monitored and controlled.
13. Institutions should manage and mitigate risks arising from their IRRBB exposures that affect both earnings and the economic value.
14. When calculating the impact of interest rate movements in the earnings perspective, institutions should consider not only the effects on interest income and expenses, but also the effects of 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 earnings and capital over a short- and medium-term horizon resulting from interest rate movements.
15. The change in earnings should be the difference between expected earnings under a base scenario and earnings under an alternative, more adverse shock or stress scenario under a going-concern perspective.
16. Institutions should consider non-performing exposures (net of provisions) as interest rate sensitive instruments reflecting expected cash flows and their timing.
17. Institutions should consider interest rate derivatives as well as off-balance sheet items such as interest rate sensitive loan commitments as interest rate sensitive instruments.
18. Institutions should identify, monitor and measure their CSRBB exposures and ensure that CSRBB is adequately controlled, if relevant for the risk profile of the institution.
19. When implementing the guidelines institutions should identify their existing and prospective exposure to IRRBB depending on the level, complexity, and riskiness of the non-trading book positions they face or an increasing risk profile taking into account their business model, strategies and the business environment they operate in or intend to operate in.



20. Based upon the assessment of the existing and prospective exposure to IRRBB, institutions should consider all elements and expectations stipulated in this section and in the sections on Capital identification, calculation and allocation (section 4.2.), Governance (section 4.3.), and Measurement (section 4.4.) and implement them in a way commensurate with existing and prospective exposure to IRRBB.

21. In addition to the existing and prospective exposure to IRRBB, 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 systems for the management of IRRBB are coherent with the general approach to risk management and specific approaches, processes and systems implemented for the purpose of the management of other risks.

#### Questions

**Question 2:** Are the guidelines in section 4.1. regarding the general provisions sufficiently clear? If not, please provide concrete suggestions.

**Question 3:** Do you agree that cash flows from non-performing exposures (NPEs) should be net of provisions and treated as general interest rate sensitive instruments whose modelling should reflect expected cash flows and their timing for the purpose of EV and earnings measures? If not, please provide concrete suggestions and justify your answer.

## 4.2. Capital identification, calculation and allocation

22. 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).

23. 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 economic value and future earnings resulting from changes in interest rates. Institutions are not expected to double count their internal capital for EV and earning measures.

24. 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 earnings capacity, and the resultant implications for internal capital buffer levels.

25. Institutions should not only rely on the supervisory assessments of capital adequacy for IRRBB or on the outcome of the supervisory outlier test (see Section 4.5.), 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.

26. Capital adequacy assessments for IRRBB should factor in the following:

- (a) The size and tenor of internal limits on IRRBB exposures, and whether these limits are reached at the point of capital calculation;
- (b) The effectiveness and 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 earnings (including effects on the Fair Value through Other Comprehensive Income (FVOCI) portfolio) of mismatched positions in different currencies;
- (f) The impact of embedded losses;
- (g) The distribution of capital relative to risks across legal entities included in the prudential perimeter of consolidation of the group, in addition to the adequacy of overall capital on a consolidated basis;
- (h) The drivers of the underlying risk;
- (i) The circumstances under which the risk may materialise.

27. 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.

28. 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.



29. Institutions that operate economic capital models should ensure that the internal capital allocation for IRRBB is properly factored into the overall economic capital allocation and that any assumptions on diversification are documented and their reliability as well as stability is verified from historical data which are appropriate for the individual institution and the markets in which it operates. Economic 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.

30. In considering whether an allocation of internal capital should be made in respect of IRRBB to earnings, 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, 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 earnings;
- (d) The relative importance of interest rate sensitive instruments (including interest rate derivatives) in the non-trading book with potential effects either shown in the profit and loss account or directly in equity (e.g. via other comprehensive income);
- (e) The fluctuation of net interest income, the strength and stability of the earnings 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 the revision of the dividend policy, or decrease in business operations should ensure that they have sufficient capital to withstand the adverse impact of these scenarios.

31. Institutions should consider internal capital buffer adjustments where the results of their stress testing highlight the potential for reduced earnings (and therefore reduced capital generation capacity) under stress scenarios.

#### Questions

**Question 4:** Are the guidelines in section 4.2. regarding the capital identification, calculation, and allocation sufficiently clear? If not, please provide concrete suggestions and justify your answer.

**Question 5:** Do you agree with the list of elements to be considered for the internal capital allocation in respect of IRRBB to earnings in paragraph 30? If not, please provide concrete suggestions. Please justify your answer.

## 4.3. Governance

### 4.3.1. Overall IRRBB strategy

32. 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.
33. The institution's risk appetite for IRRBB should be expressed in terms of the maximum acceptable short-term and long-term impact of fluctuating interest rates on both earnings 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.
34. The overall IRRBB strategy should also include the decision about the extent to which the business model relies on generating earnings 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 earnings, the management body should explain its IRRBB strategy and how it plans to survive periods of flat or inverse yield curves.
35. Institutions should duly assess proposals to use new products, 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.
36. 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.
37. 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.
38. 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. Thus, the management of economic risks should be a priority, and the accounting impacts managed as a secondary concern.



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

#### **4.3.2. Risk management framework and responsibilities**

40. 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) 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 respective 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 41;
- (b) 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.

41. 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 a 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 shock 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 (MIS).
- (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 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.

42. Institutions should have in place delegation arrangements and procedures for any delegation by the management body of 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 asset and liabilities management committee (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 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.

#### **4.3.3. Risk appetite and policy limits**

43. Institutions should articulate their risk appetite for IRRBB in terms of the risk to both economic value and earnings 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 delineate delegated powers, lines of responsibility and accountability over IRRBB management decisions and should list the instruments, hedging strategies and risk-taking opportunities authorised for IRRBB;
- (c) In defining their risk appetites, institutions should take account of earnings risks that may arise as a consequence of the accounting treatment of transactions in the non-trading book. The risk to earnings 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 either reflected 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 earnings impact related to embedded optionalities in fair value instruments under ongoing interest rate shocks and stress scenarios. Institutions should also take into account the impact on the profit and loss (P&L) accounts of hedging interest rate derivatives whose effectiveness may be hampered under certain interest rate changes.

44. 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, clearly articulating 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 or specific instruments;
- (e) The level of detail of risk limits should reflect the characteristics of the institution's holdings, including the various sources of the institution's IRRBB exposures. Institutions with significant exposures to gap risk, basis risk or option risk should establish risk limits appropriate for these risks;
- (f) A dedicated set of risk limits should be developed 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 market value;
- (g) There should be systems in place to ensure that positions that exceed, or are likely to exceed, limits defined by the management body or its delegates should receive prompt management attention and be 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;
- (h) 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.

#### **4.3.4. Risk policies, processes and controls**

##### **a. Risk policies and processes**

45. 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 exists; and
- (f) The lines of authority and responsibility for managing IRRBB exposures are defined.



46. 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 (for example based on the discounted value of future cash flows, and on the discounted value of future earnings) adopted for internal use;
- (c) The more detailed definition of earnings risk 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' (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);
- (m) The internal definition of commercial margins and adequate methodology on internal treatment of commercial margins.

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



48. 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 light of the outcomes of regular reports.

49. 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.

#### b. Internal controls

50. 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.

51. 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.

52. 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.

#### c. IRRBB IT system and data quality

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

- (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 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 earnings-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 4.4.3 and 4.4.4;
- (g) Be sufficiently flexible to incorporate supervisory-imposed constraints on institutions' internal risk parameter assumptions.

54. 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 as well as 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.

55. 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.

56. 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 like repricing dates or optionality elements). The institution should ensure that the IT system is able to keep pace with the introduction of new products.

57. 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.

58. 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.



59. 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.
60. 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 for a meaningful comparison of risk figures over different periods.
61. Institutions should identify potential reasons for discrepancies and irregularities that may arise at the time of data processing. Institution 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.
62. 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 earnings, is consistent with the data used for financial planning.

#### d. Internal reporting

63. 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.
64. 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.
65. The IRRBB reports should provide aggregate information as well as sufficient supporting detail to enable the management 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.
66. 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.

67. 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 at least 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 such as characteristics of non-maturity deposits (NMD), prepayments on fixed rate loans, early withdrawals of fixed term deposits, drawing of commitments, currency aggregation, and treatment of commercial margins;
- (d) Impact of key modelling assumptions on the measurement of IRRBB in terms of both economic value measures and earnings measures, including changes in assumptions under various interest rate scenarios;
- (e) Impact of interest rate derivatives on the measurement of IRRBB both in terms of economic value measures and earnings measures;
- (f) Impact of fair value instruments, including Level 3 assets and liabilities, on the measurement of IRRBB both in terms of economic value measures and earnings measures;
- (g) Results of stress tests as referred to in 4.4.4., the shocks as referred to in 4.4.3., the supervisory outlier test as referred to in 4.5., 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).

68. Based on these reports, the management 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.

69. 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 the institution operates in line with its strategy and the interest rate risk limits it has adopted.

e. **Model governance**

70. 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;
- (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.

71. The validation framework should include the following four 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); and
- (d) Thorough assessment of any expert opinions and judgements used in internal models.

72. 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.

73. 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.

74. 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.

75. 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.

76. 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.
77. 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.
78. Model inputs or assumptions, both 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.

**Question**

**Question 6:** Are the guidelines in section 4.3. regarding the governance sufficiently clear? If not, please provide concrete suggestions and justify your answer.

## 4.4. Measurement

### 4.4.1. General approach to measurement of IRRBB

79. Institutions should implement robust internal measurements systems (IMS) that capture all components and sources of IRRBB.
80. Institutions should measure their exposure to IRRBB in terms of both potential changes to the economic value (EV) and earnings. 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 both in terms of economic value measures and earnings measures, and (ii) the IRRBB of their banking book interest rate derivatives.





81. Institutions should use a transparent methodology for the identification of the risk free rate and the treatment of spread components applied consistently across all interest rate sensitive instruments and all business units.

82. When calculating earnings measures, institutions should include commercial margins.

83. When measuring their exposure to IRRBB, institutions should not purely rely on the calculation and outcomes of the supervisory outlier tests as described in the section 4.5, 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.

#### 4.4.2. Methods for measuring IRRBB

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

85. 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.

86. 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 2.

**Table 2: 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
	Partial duration for yield curve risk	The dispersion and concentration of mismatches in different time bands
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

<p><b>Option risk</b> (automatic and behavioural options)</p>	<p>Inventory of all instruments with embedded or explicit options</p>	<p>Behavioural options</p> <p>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</p> <p>Automatic interest rate options</p> <p>Caps, and floors embedded in assets and liabilities, swaptions or prepayment options embedded in wholesale assets and liabilities and explicit caps floors and swaptions</p>
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87. For measuring and monitoring of IRRBB, institutions should use at least one earnings-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, as further specified in Annex II.

#### 4.4.3. Interest rate shock scenarios for ongoing management

88. 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 earnings under various interest rate shocks 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).

89. Institutions should also 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 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.

90. 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. 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 rate 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.



91. When selecting interest rate shocks scenarios, institutions should consider the following:

- (a) Their own internally developed interest rate shock scenarios commensurate with the nature, scale and complexity of their activities as well as their risk profile, and taking into account sudden and gradual parallel and non-parallel shifts and changes in the yield curves. Scenarios should be based on 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 six prescribed interest rate shock scenarios set out in Annex III;
- (d) Any additional interest rate shock scenarios required by supervisors.

92. 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.

93. 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.

#### **4.4.4. Interest rate stress scenarios**

94. 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 earnings, including through changes in the behaviour of their customer base. Stress testing for IRRBB should be integrated into their 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.

95. IRRBB stress testing should be performed regularly, at least annually and more frequently in times of increased interest rate volatility and increased IRRBB levels.

96. 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.

97. In enterprise-wide stress tests, the interaction of IRRBB with other risk categories (e.g. credit risk, liquidity risk, market risks), and any second-round effects, should be computed.

98. Institutions should perform reverse stress tests in order to (i) identify interest rate scenarios that could severely threaten an institution's capital and earnings; and (ii) reveal vulnerabilities arising from its hedging strategies and the potential behavioural reactions of its customers.



99. 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.

100. 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.

#### **4.4.5. Measurement assumptions**

101. When measuring IRRBB, institutions should fully understand and document key behavioural and modelling assumptions. These assumptions should be aligned with business strategies and regularly tested.

102. Institutions should in relation to both economic value and earnings-based measures of IRRBB 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 non-maturity deposits (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.



103. 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**

104. 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, contractual features and competitor's activities. 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; and
- (c) The migration of balances between product types as a result of changes in their features, terms and conditions.

105. 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: a margin of conservatism should be used where there are uncertainties, especially when actual experience differs from past assumptions and expectations;
- (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;



- (g) Perform regular internal validation of these assumptions to verify their stability over time and to adjust them if necessary.

**b) Behavioural assumptions for customer accounts without specific repricing dates**

106. 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' (as opposed to 'transient') balances on transaction accounts - i.e. that element of the balances that is consistently kept in the customer account as distinct from balances that are drawn down regularly and then replaced. The proportion of core deposits may vary with customer and depositor characteristics or the account characteristics;
- (b) Assess the potential migration between deposits without specific repricing dates and other deposits that could modify, under different interest rate scenarios, key behavioural modeling assumptions;
- (c) Consider potential constraints on the repricing of retail deposits in low or negative interest rate environments;
- (d) Ensure that assumptions about the decay of low cost balances are prudent and appropriate in balancing the benefits to earnings against the additional economic value risk entailed in locking in a future interest rate return on the assets financed by these balances, and the potential foregone revenue under a rising interest rate environment;
- (e) Not exclusively rely on statistical or quantitative methods to determine the behavioural repricing dates and the cash flow profile of non-maturity deposits (NMDs). Further, the determination of appropriate modelling assumptions for NMDs may require the collaboration of different experts within an institution (e.g. risk management and risk control department, sales and treasury);
- (f) Have appropriate documentation of these assumptions in their policies and procedures, and a process for keeping them under review;
- (g) Understand the impact of the assumptions on the institution's own chosen risk measurement outputs and internal capital allocation decisions, including by periodically calculating and reporting to senior management 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 earnings; and
- (h) 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.



**c) Corporate planning assumptions for own equity capital**

107. Where institutions decide to adopt a policy intended to stabilise earnings arising from their own equity, they should provide for the following:

- (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 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 earnings perspective;
- (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.

108. 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.

109. The investment term assumptions used to manage the risks to earnings 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 for 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.

110. 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 earnings and economic value.

**Questions**

**Question 7:** Are the guidelines in section 4.4. regarding the measurement sufficiently clear? If not, please provide concrete suggestions and justify your answer.

**Question 8:** Do you consider the comparison between EV metrics calculated using contractual terms for NMDs with the EV metrics calculated with behavioural modelled assumptions sensible and practical? Please justify your answer.

#### 4.5. Supervisory outlier test

111. Institutions should regularly, at least quarterly, calculate the impact on their EVE of a sudden parallel +/- 200 basis points shift of the yield curve. Institutions should report regularly, at least annually, to the competent authority the change in EVE that results from the calculation. Where the decline in EVE is greater than 20% of the institution's own funds, the institution should inform the competent authority immediately.
112. Institutions should regularly, at least quarterly, calculate the impact on their EVE of interest rate shocks applying scenarios 1 to 6 as set out in Annex III. Institutions should report regularly, at least annually through the ICAAP report, to the competent authority the change in EVE that results from the calculation. Where the decline in EVE is greater than 15% of the institution's Tier 1 capital under any of the six scenarios, the institution should inform the competent authority.
113. When calculating the change in EVE for the purpose of paragraphs 111 and 112, institutions should in particular apply the following principles:
- (a) All positions from interest rate sensitive instruments which are not deducted from own funds should be taken into account;
  - (b) Small trading book business should be included unless its interest rate risk is captured in another risk measure;
  - (c) All Common Equity Tier 1 instruments and other perpetual own funds without any call dates should be excluded from the calculation of the Standard EVE outlier test;
  - (d) Institutions should reflect automatic and behavioural options in the calculation. Institutions should adjust key behavioural modelling assumptions to the features of different interest rates scenarios;
  - (e) Pension obligations and pension plan assets should be included unless their interest rate risk is captured in another risk measure;
  - (f) The cash flows from interest rate sensitive instruments should include any repayment of principal, any repricing of principal and any interest payments;
  - (g) NPEs should be treated as general interest rate sensitive instruments whose modelling should reflect expected cash flows and their timing. NPEs should be net of provisions;
  - (h) Institutions should consider instrument-specific interest rate floors;





- (i) The treatment of commercial margins and other spread components in interest payments in terms of their exclusion or inclusion into the cash flows should be in accordance with the institutions' internal management and measurement approach for interest rate risk in the non-trading book. Institutions should notify the competent authority whether they exclude commercial margins and other spread components from the calculation or not. If commercial margins and other spread components are excluded, institutions should (i) use a transparent methodology for identifying the risk-free rate at inception of each instrument; (ii) use a methodology which is applied consistently across business units; and (iii) ensure that the exclusion of commercial margins and other spread components from the cash flows is consistent with how the institution manages and hedges IRRBB;
- (j) The change in EVE should be computed with the assumption of a run-off balance sheet;
- (k) A maturity-dependent post-shock interest rate floor should be applied for each currency starting with -150 basis points for immediate maturities. This floor should increase by 5 basis points per year, eventually reaching 0 % for maturities of 30 years and more;<sup>13</sup>
- (l) Institutions should calculate the change in EVE at least for each currency where the assets or liabilities denominated in that currency amount to 5% and more of the total non-trading book financial assets (excluding tangible assets) or liabilities, or less than 5% in case the sum of assets or liabilities included in the calculation is lower than 90% of total non-trading book financial assets (excluding tangible assets) or liabilities (material positions);
- (m) When calculating the aggregate EVE change for each interest rate shock scenario, institutions should add together any negative change to EVE occurring in each currency and disregard any positive changes to EVE;
- (n) An appropriate general 'risk-free' yield curve per currency should be applied (e.g. swap rate curves). That curve should not include instrument-specific or entity-specific credit spreads or liquidity spreads;
- (o) 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 average of five years. The five year cap applies individually for each currency. Non-maturity deposits from financial institutions should not be subject to behavioural modelling.

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<sup>13</sup> The EBA might envisage revising this floor for ensuring that the lower bound will be sufficiently prudent given future developments in the interest rates.

114. When computing the effects of the Standard EVE outlier test, institutions should use the calculation methods set out under the economic value of equity headings in Annex I and Annex II.

#### Questions

**Question 9:** Are the guidelines in section 4.5. regarding the supervisory outlier test sufficiently clear? If not, please provide concrete suggestions and justify your answer.

**Question 10:** Is the proportionality adequately reflected in the guidelines, in particular in relation to the transitional period for SREP category 3 and 4 institutions and the frequency of calculation for the additional outlier test under paragraph 112?

**Question 11:** If relevant, do you manage interest rate risk arising from pension obligations and pension plans assets within the IRRBB framework or do you cover it within another risk category (e.g. within market risk separately from IRRBB, etc.)?

**Question 12:** Which treatment of commercial margins cash flows do you consider conceptually most correct in EV metric, when discounting with risk free rate curve: a) including commercial margins cash flows or b) excluding commercial margins cash flows? Please justify your answer.

**Question 13:** Are your internal systems flexible enough to exclude margins for the purpose of calculating EV measures for the supervisory outlier test? If not, what would be the cost to adapt your systems (high, medium, low)? Please elaborate your answer.

**Question 14:** Do you consider the level of the proposed linear lower bound as described in paragraph 113 (k) appropriate? If not, please provide concrete suggestions and justify your answer.

**Question 15:** Do you consider the minimum threshold for material currencies included into the supervisory outlier test (5% for individual currency and minimum 90% of the total non-trading book assets or liabilities) sufficient to measure IRRBB in term of EVE? If not, please provide concrete suggestions and justify your answer.

**Question 16:** When aggregating changes to EVE in the supervisory outlier test, does the disregarding of positive changes to EVE have a material impact on the calculation of the supervisory outlier test?



## Annex I - IRRBB measurement

## methods



Cash flow modelling	Metric	Description	Risks captured	Limitations of metric
<p><b>Unconditional cash flows</b> (it is assumed that the <i>timing</i> of cash flows is independent of the specific interest rate scenario)</p>	<p><b>Earnings-based:</b></p> <ul style="list-style-type: none"> <li>• Gap analysis: Repricing gap</li> </ul>	<p>Gap analysis allocates all relevant interest rate-sensitive instruments into predefined time buckets according to their repricing or maturity dates, which are either contractually fixed or based on behavioural assumptions. It calculates the net positions ('gaps') in each time bucket. It approximates the change in net interest rate income ensuing from a yield curve shift by multiplying each net position with the corresponding interest rate change.</p>	<p>Gap risk (only parallel risk)</p>	<ul style="list-style-type: none"> <li>• The metric approximates the gap risk only linearly</li> <li>• It is based on the assumption that all positions within a particular time bucket mature or reprice simultaneously</li> <li>• It fails to measure basis and option risk</li> </ul>
	<p><b>Economic value:</b></p> <ul style="list-style-type: none"> <li>• Duration analysis: Modified duration/PV01 of equity</li> </ul>	<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 one 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 one percentage point parallel shift of the yield curve. The modified duration of equity is determined as the modified duration of assets times assets divided by equity minus the modified duration of liabilities times liabilities divided by equity.</p> <p>PV01 of equity is obtained by multiplying the modified duration of equity by the value of equity (i.e. assets – liabilities) and dividing by 10,000 to arrive at the value change per basis point.</p>	<p>Gap risk (only parallel risk)</p>	<ul style="list-style-type: none"> <li>• 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</li> <li>• It only applies to parallel shifts of the yield curve</li> <li>• It fails to measure option risk and captures basis risk at best partially.</li> </ul>



	<ul style="list-style-type: none"> <li>• Partial modified duration/partial PV01</li> </ul>	<p>The partial modified duration of an instrument for a specific time bucket is calculated as the modified duration above, except that not the entire yield curve is shifted in parallel, but only the yield curve segment corresponding to the time bucket. These partial measures show the sensitivity of the market value of the banking book to a marginal shift of the yield curve in particular maturity segments. To each time bucket's partial measure a different magnitude of a shift can be applied, such that the effect of a change of the yield curve's shape can be computed for the entire portfolio.</p>	<p>Gap risk (parallel and non-parallel risk)</p>	<ul style="list-style-type: none"> <li>• Metric only applies to marginal interest rate changes. In the presence of convexity, the metric may underestimate the effect of larger interest rate movements</li> <li>• It fails to measure the basis and option risk</li> </ul>
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<p><b>Cash flows partially or fully conditional on interest rate scenario</b> (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.)</p>	<p><b>Earnings-based:</b> Focus on Net Interest Income (NII) component : • Change of NII</p>	<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 one to five years) resulting from a sudden or gradual interest rate movement. 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).  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. In assessing the possible extent of NII changes, banks use assumptions and models to predict the path of interest rates, the run-off of existing assets, liabilities, and off-balance sheet items, as well as their potential replacement.  Earnings-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 identical 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.  All earnings-based metrics can be used in a scenario or stochastic analysis. Earning at Risk (EaR) is an example of the</p>	<p>Gap risk (parallel and non-parallel), basis risk, and, provided <i>all</i> cash-flows are modelled scenario-dependent, also option risk</p>	<ul style="list-style-type: none"> <li>• Sensitivity of the outcome to the modelling and behavioural assumptions.</li> <li>• Complexity</li> </ul>
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		latter, which measures the maximum NII change at a given confidence level.		
	<p><b><u>Economic value:</u></b></p> <p>Focus on Economic Value of Equity (EVE)</p> <ul style="list-style-type: none"> <li>• Change of EVE</li> </ul>	<p>The change in EVE is the change of 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 <math>\Delta</math>EVE for specific interest rate scenarios or by the distribution of <math>\Delta</math>EVE 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"> <li>• Sensitivity of the outcome to the modelling and behavioural assumptions</li> <li>• Stochastic metrics, which apply distributional assumption, may fail to capture tail risks and non-linearities.</li> <li>• Full revaluation Monte Carlo approaches are computationally demanding and may be difficult to interpret ('black-box')</li> <li>• Complexity</li> </ul>

## Annex II – Sophistication Matrix for IRRBB measurement

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Institutions should apply at least the level of sophistication in their risk measures as shown in the table below corresponding to their categorisation under the SREP Guidelines. Where the complexity or scope of an institutions 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 offering financial products containing embedded optionalities should use measurement systems that can adequately capture the dependence of options to interest rate changes. Institutions with products providing 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, reflects the categorisation of institutions as laid down in the EBA SREP Guidelines. The different categories reflect different size, structure and the nature, scope and complexity of its activities of institutions; with Category 1 corresponding to the most sophisticated institutions.





<b>IRRBB metric and modelling</b>		<b>Indicative supervisory expectations regarding IRRBB metric and modelling depending on the institutions sophistication category</b>			
<b>Cash flow modelling</b>	<b>Metric</b>	<b>Category 4-institution</b>	<b>Category 3-institution</b>	<b>Category 2-institution</b>	<b>Category 1-institution</b>
<b>Unconditional cash flows</b> (it is assumed that the <i>timing</i> of cash flows is independent of the specific interest rate scenario)	<b><u>Earnings-based:</u></b> Gap analysis: <ul style="list-style-type: none"> <li>• Repricing gap</li> </ul>	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 ('Basel 2016 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 Measurement).]*)</i>	
	<b><u>Economic value:</u></b> Duration analysis: <ul style="list-style-type: none"> <li>• Modified duration/PV01 of equity</li> <li>• Partial modified duration/partial PV01</li> </ul>	Time buckets advised in Basel 2016 Standards. Application of standard shocks. Yield curve model with tenors corresponding to the time buckets.	Time buckets advised in Basel 2016 Standards, application of partial duration weights. Application of standard shocks and other interest rate shock and stress scenarios (see Section 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 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 Measurement). Yield curve model with tenors corresponding to the time buckets.] *)</i>



**IRRBB metric and modelling**      **Indicative supervisory expectations regarding IRRBB metric and modelling depending on the institutions sophistication category**

<b><u>IRRBB metric and modelling</u></b>	<b>Indicative supervisory expectations regarding IRRBB metric and modelling depending on the institutions sophistication category</b>				
<b>Cash flows partially or fully conditional on interest rate scenario (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.)</b>	<b><u>Earnings-based:</u></b> Net Interest Income (NII)	Standard shocks applied to earnings a constant balance sheet. Based on time buckets advised in the Basel 2016 Standards.	Standard and other interest rate shock and stress scenarios for the yield curve (see Section 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 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 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 Measurement).
	<b><u>Economic value:</u></b> • Economic Value of Equity (EVE)	Application of standard and other interest rate shock and stress scenarios for the yield curve (see Section 4 Measurement), using time buckets as advised in the Basel 2016 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 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.

# Annex III – The standardised interest rate shock scenarios

## 1. Interest rate shock scenarios and shock sizes

The six interest rate shock scenarios for measuring EVE under the Standard EVE outlier test are:

- (i) parallel shock up;
- (ii) parallel shock down;
- (iii) steeper shock (short rates down and long rates up);
- (iv) flattener shock (short rates up and long rates down);
- (v) short rates shock up; and
- (vi) short rates shock down.

Institutions should apply the six above-mentioned interest rate shock scenarios to capture parallel and non-parallel gap risks for EVE. These scenarios are applied to IRRBB exposures in each currency separately for which the institution has material positions<sup>14</sup>.

The shock size for the six interest rate shock scenarios is based on historical interest rates. More precisely, for capturing the local interest rate environment and cycle, a historical time series ranging from 2000 to 2015<sup>15</sup> for various maturities is used to calculate the parallel, short-end (“short”), and long-end (“long”) shocks for a given currency. However, deviations from the above-mentioned 16-year period are permitted if it better reflects a particular jurisdiction’s idiosyncratic circumstances.

Table 1 displays the values calculated for the parallel, short, and long interest rate shocks for selected currencies. The shocks capture the heterogeneous economic environments across the jurisdictions. These are then used to calculate the shocks for different maturities of the yield curve to create the interest rate shock scenarios as per the methodology explained below.

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

	ARS	AUD	BRL	CAD	CHF	CNY	EUR	GBP	HKD	IDR	INR
Parallel	400	300	400	200	100	250	200	250	200	400	400
Short	500	450	500	300	150	300	250	300	250	500	500
Long	300	200	300	150	100	150	100	150	100	350	300

	JPY	KRW	MXN	RUB	SAR	SEK	SGD	TRY	USD	ZAR
Parallel	100	300	400	400	200	200	150	400	200	400
Short	100	400	500	500	300	300	200	500	300	500
Long	100	200	300	300	150	150	100	300	150	300

<sup>14</sup> Material positions are defined in Section 4.5 Supervisory outlier test.

<sup>15</sup> The EBA might envisage a recalibration in later course.

## 2. Calibration of further currencies

For calibrating interest rate shock sizes for further currencies, the following proceeding shall be applied:

### *Step 1: Calculation of the daily average interest rate*

Collect a 16-year time series of daily ‘risk-free’ interest rates for each currency  $c$  for the maturities 3M, 6M, 1Y, 2Y, 5Y, 7Y, 10Y, 15Y, and 20Y. Then, calculate the overall average interest rate for each currency  $c$  across all observations in the time series and for all maturities. The result is a single measure per currency.

### *Step 2: Applying the global shock parameters*

Apply the global shock parameters on the average interest rate, as per Table 1 below, to each currency  $c$ .

Table 2. Baseline global interest rate shock parameters

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

Applying the global shock parameters from Table 2 to the average interest rates calculated in step 1, results in revised interest rate shocks by currency for the different segments of the yield curve, i.e. for the parallel, short, and long shocks.

### *Step 3: Applying the caps and floors*

The proposed interest rate shock calibration can lead to unrealistically low interest rate shocks for some currencies and to unrealistically high interest rate shocks for others. In order to ensure a minimum level of prudence and a level playing field, a floor of 100 bps as well as variable caps (denoted as  $\Delta\bar{R}_j(t_k)$ ) are set as 500 bps for the short-term shock, 400 bps for the parallel shock and 300 bps for the long-term shock, respectively.

The change in the ‘risk-free’ interest rate for shock scenario  $j$  and currency  $c$ , at time bucket tenor midpoint  $t_k$  can be defined as:

$$|\Delta\bar{R}_{j,c}(t_k)| = \max\{100, \min\{|\Delta R_{j,c}(t_k)|, \Delta\bar{R}_j\}\},^{16}$$

where  $\Delta\bar{R}_j = \{400, 500, 300\}$ , for  $j = \{parallel, short \text{ and } long\}$ , respectively. Applying the caps and floors to the shocks calculated in step 2, and rounding to the nearest 50 bps, results in the final set of interest rate shocks by currency that is shown in Table 1.

### *Step 4: Adjustments for further currencies which are not shown in Table 1*

As jurisdictions might have experienced major economic changes within the period 2000 to 2015, the proceeding in steps 1 to 4 might not be adequate for some of them. This is particularly the case if the interest rates during the first years of the period differ considerably from the interest rates in the more recent years.

For currencies that are not mentioned in Table 1, the time series to be used to calculate the average interest rate as per step 1, is determined as per the following principle: If the average interest rate calculated as per step 1 for the period 2000 to 2006 is greater than 700 bps, then data from the

<sup>16</sup> In the case of rotation shock scenarios,  $\Delta\bar{R}_{j,c}(t_1)$  cannot exceed 500 bps, and  $\Delta\bar{R}_{j,c}(t_K)$  cannot exceed 300 bps, whereby  $t_1$  denotes the time bucket with the lowest and  $t_K$  the time bucket with the highest maturity.

most recent 10 years (i.e. 2007 to 2016) or till when data is available shall be used; *else* the full time series of data from 2000 to 2015 shall be used.

Using this principle allows us to identify high interest rate environments and periods of significant structural change before the financial crisis. Further, this principle aims at finding those currencies which exceed the cap ( $700 \text{ bps} \cdot 0.4 = 420 \text{ bps} > 400 \text{ bps}$ ) in the first years of the period considered and fosters a stronger consideration of more recent observed interest rates.

Table 3 shows the results of applying steps 1 to 4 on EU currencies which are not covered in Table 1. Interest rate shock sizes for other currencies can be similarly retrieved by applying the methodology outlined in this section.

Table 3. Specified size of interest rate shocks  $\bar{R}_{\text{shocktype},c}$  for additional EU currencies

	BGN	CZK	DKK	HRK	HUF	PLN	RON
Parallel	250	200	200	250	300	250	350
Short	350	250	250	400	450	350	500
Long	150	100	150	200	200	150	250

### 3. Parameterisation of the standardised interest rate shock scenarios

The instantaneous shocks to the ‘risk-free’ interest rate for parallel, short and long, for each currency  $c$ , the following parameterisations of the six interest rate shock scenarios should be applied:

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

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

- (ii) *Short rate shock for currency c*: Shock up or down that is greatest at the shortest tenor midpoint. That shock, through the shaping scalar  $S_{\text{short}}(t_k) = (e^{-\frac{t_k}{x}})$ , where  $x = 4$ , diminishes toward zero at the tenor of the longest point on the term structure.<sup>17</sup> Where  $t_k$  is the midpoint (in time) of the  $k^{\text{th}}$  bucket and  $t_K$  is the midpoint (in time) of the last bucket  $K$ ).

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

- (iii) *Long rate shock for currency c*: This shock is only applied to rotational shocks. The shock is greatest at the longest tenor midpoint and is related to the short scaling factor as  $S_{\text{long}}(t_k) = 1 - S_{\text{short}}(t_k)$ :

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

- (iv) *Rotation shocks for currency c*: Involving rotations to the term structure (i.e. for *steepeners* and *flatteners*) of the interest rates whereby both the long and short rates are shocked and the shift in interest rates at each tenor midpoint is obtained by applying the following formulas to those shocks:

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

<sup>17</sup> The value of  $x$  in the denominator of the function  $e^{-\frac{t_k}{x}}$  controls the rate of decay of the shock.



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

*Examples:*

*Short rate shock:* Assume the bank uses  $K = 19$  time bands and with  $t_K=25$  years (the midpoint (in time) of the longest tenor bucket  $K$ ), where  $t_k$  is the midpoint (in time) for bucket  $k$ . For  $k = 10$  with  $t_k = 3.5$  years, the scalar adjustment for the short shock would be:  $S_{short}(t_k) = (e^{\frac{-3.5}{4}}) = 0.417$ . Banks would multiply this by the value of the short rate shock to obtain the amount to be added or subtracted from the yield curve at that tenor point. If the short rate shock was +100 bps, the increase in the yield curve at  $t_k = 3.5$  years would be 41.7 bps.

*Steeper:* Assume the same point on the yield curve as above,  $t_k = 3.5$  years. If the absolute value of the short rate shock was 100 bps and the absolute value of the long rate shock was 100 bps (as for the Japanese Yen), the change in the yield curve at  $t_k = 3.5$  years would be the sum of the effect of the short rate shock plus the effect of the long rate shock in basis points:  $-0.65 \cdot 100 \text{ bps} \cdot 0.417 + 0.9 \cdot 100 \text{ bps} \cdot (1 - 0.417) = +25.4 \text{ bps}$ .

*Flattener:* The corresponding change in the yield curve for the shocks in the example above at  $t_k = 3.5$  years would be:  $+0.8 \cdot 100 \text{ bps} \cdot 0.417 - 0.6 \cdot 100 \text{ bps} \cdot (1 - 0.417) = -1.6 \text{ bps}$ .

## 5. Accompanying documents

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### 5.1 Draft cost-benefit analysis / impact assessment

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 (IA) 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 to the baseline scenario.

Given that the guidelines touch mainly upon qualitative issues relating to the management of the IRRBB which do not imply any detrimental quantitative impact, the nature of the study has been adjusted accordingly. Thus, the analysis is high-level and qualitative in nature while a quantitative impact assessment was not conducted within this first stage of the implementation of the BCBS Standards. Nevertheless, the EBA plans to conduct a quantitative impact study once its new mandates for drafting binding technical standards on IRRBB are approved in the revised CRD/CRR.

#### A. Problem identification

Interest rate risk in the non-trading book (IRRBB) is an important financial risk for credit institutions, which has traditionally been considered under Pillar 2. Thus, the supervisory framework assumes that institutions develop their own methodologies and processes for identification, measurement, monitoring and control of this risk. These methodologies and internal processes are subject to the supervisory review and evaluation process, as any other risk, carried out by the competent supervisory authorities.

The development of appropriate and high-quality internal methodologies and processes for the identification, measurement, monitoring and control of IRRBB constitutes one of the main prerequisites for keeping this risk under control.

In May 2015, the EBA published Guidelines on the management of IRRBB to communicate its expectations regarding the management of IRRBB. These guidelines took into account, at that time, the existing supervisory expectations and practices including the Principles for the management and supervision of interest rate risk published by the Basel Committee on Banking Supervision (BCBS) in 2004.

In April 2016, the BCBS published an updated version of its standards on the management of IRRBB (BCBS Standards) to reflect changes in markets and supervisory practices. The BCBS Standards have



confirmed the Pillar 2 approach to IRRBB and introduced some new elements in the management of IRRBB. Institutions are expected to implement the BCBS Standards by 2018.

The BCBS Standards, in general, apply to large internationally active institutions (banks) on a consolidated basis. The EBA guidelines, on the other hand, apply to institutions authorised by the competent authorities to carry out their activities throughout the EU, taking into account the principle of proportionality. As such, the EBA guidelines endeavour to maintain the level playing field as much as possible by translating international standards, deemed to be applied by the largest internationally active institutions only, to the single book of guidelines which are then applied in the same manner to institutions in all Members States.

The EBA guidelines published in May 2015 significantly increased the transparency in terms of the supervisory expectations on the management of IRRBB. Nevertheless, the experiences of the national competent authorities have shown that some concepts and expectations introduced in the guidelines have not been fully understood nor implemented in a way consistent with the supervisory expectations. Consequently, the implementation of the EBA guidelines varies across jurisdictions which may have negative repercussions on the comparability of the level of IRRBB exposures that institutions face and ultimately on the risk profile and vulnerability of institutions concerned, especially in the environment where changes in the general level of interest rates, which drive the level of risk, are widely expected. The issue of comparability mainly relates to the outcomes of the supervisory outlier test.

In addition, the EBA's general policy approach as far as guidelines are concerned is to review all guidelines on a regular basis and update them when needed, taking into account, among others, the latest developments on international forums to make sure that guidelines spell out all relevant expectations.

All in all, after carefully considering the principle of level playing field, divergences in the implementation of the existing EBA guidelines and resulting issues with the comparability of the outcomes of the supervisory outlier test, and given the need to reflect the developments in the international regulatory environment, the EBA deems necessary to update the existing framework.

## B. Policy objectives

The main objective of these EBA guidelines is to set and communicate supervisory expectations for the management of IRRBB and to make sure that institutions implement appropriate internal risk management methodologies, processes and practices. The guidelines aim for European institutions to align with the BCBS Standards and follow the same rules as their international counterparts.

Building upon the current EBA guidelines on IRRBB and taking into account the BCBS Standards, the updated guidelines are expected to improve the management of IRRBB by institutions, lead to the harmonisation of institutions' practices, and ultimately to a common level-playing field across the EU jurisdictions with safer and sounder institutions.





### C. Options considered and Baseline scenario

When the BCBS published its new Standards in April 2016, the EBA considered its approach and timing of the update of the current EBA guidelines on IRRBB. Two general options were identified, either keeping the status quo until the finalisation of the CRD V package, or updating the existing guidelines as soon as possible and as long as practical with some transitional provisions for smaller institutions.

Both options have been considered and analysed in light of the identified problems.

#### **Option 1** – Status quo until the finalisation of the CRD V package

The status quo approach would not solve any of the identified problems. On the contrary, it may even worsen the situation given the changing interest rate environment. It is highly likely that it would have a negative impact on the level playing field since large internationally active banks would implement the BCBS Standards directly, while other institutions would probably not implement them at all or implement them inconsistently depending on the approach, if any, adopted by the national competent authorities. Institutions with low international activities may be excluded from implementing the BCBS Standards without considering their IRRBB exposures, although their IRRBB exposures may be elevated. This option would also preserve the issue of impaired comparability across institutions and jurisdictions given incomparable assumptions employed in the calculation of IRRBB exposures and especially the supervisory outlier test. Lastly, the EU framework and expectations regarding the management of IRRBB would not reflect the latest developments on international forums.

#### **Option 2** – Updating the existing guidelines as soon as possible and practical

The update of the existing guidelines would help to remedy the identified issues, enhance the management of IRRBB by institutions, and create a level playing field fostering competition amongst EU banks and competitiveness vis-à-vis their international competitors.

Since the majority of the EU institutions belong to jurisdictions that are also members of the BCBS, they are expected to implement the BCBS Standards by 2018. To this end, the EBA judges that both competent authorities and institutions should be provided with updated EBA guidelines that are aligned with the new BCBS Standards. A delayed response by the EBA would create uncertainty during a transitional period as to whether the BCBS framework coincides with the EU approach.

Although it is expected for the CRD V to include new mandates for the EBA for the preparation of technical standards and revised guidelines on IRRBB, given the time needed for the finalisation and implementation of CRD V and, subsequently, for the development and implementation of the technical standards and revised guidelines, there would be a significant time gap between the implementation of the BCBS Standards on the one hand and the technical standards and revised guidelines on the other hand. The update of the EBA guidelines prior to the finalisation of CRD V will allow for bridging this time gap.



After taking due consideration of the available arguments for both options, the EBA decided that Option 2, i.e. updating the guidelines, was the preferred option.

In addition to the two general options regarding the update of the guidelines and its timeline (see above), the EBA has also considered several specific options when it comes to the supervisory outlier test and principles for the calculation of this test. The EBA has, in particular, considered available options for the following principles: (i) the treatment of NPEs, (ii) the treatment of commercial margins, (iii) the after-shock negative interest rate floor, (iv) the minimum coverage of currencies, and (v) the aggregation of currencies.

### **Treatment of NPEs**

Option A: providing guidance on how NPEs should be treated within the supervisory outlier test.

Option B: retaining the same approach as in the current guidelines where no specific expectations on the treatment of NPEs have been provided.

Option A would allow for a better and more comprehensive coverage of interest rate sensitive instruments as NPEs can, in general, be regarded as interest rate sensitive assets taking into account the timing of their recovery.

Option B would leave the treatment of NPEs open and up to institutions, thus not improving the comparability of the outcomes of the supervisory outlier test. Moreover, it might also lead to the underestimation of IRRBB depending on NPE volumes.

Option A has been selected.

### **Treatment of commercial margins**

Option A: providing guidance on the treatment of commercial margins, however allowing institutions to apply their own internal approach in terms of the exclusion or inclusion of commercial margins.

Option B: providing guidance on the treatment of commercial margins and instructing institutions to use only one specific option in terms of the exclusion or inclusion of commercial margins.

Option A would give institutions full flexibility regarding the treatment of commercial margins. This option is especially important for institutions with less flexible or less developed internal systems which do not make the exclusion possible without additional adjustments and costs. The drawback of option A is that allowing flexibility for the calculation of the supervisory outlier test (with or without commercial margins) makes the outcomes of the test less comparable.

Option B would, on the other hand, not allow any flexibility. It would mean that institutions would have to adjust their systems accordingly. This option would bring additional costs for institutions which do not have flexible internal systems to calculate the supervisory outlier test with or without



commercial margins. On the plus side, this option would allow for more comparability of the outcomes of the supervisory outlier test.

Option A has been selected. Besides, institutions are asked to notify the competent authority which approach they use.

#### **After-shock negative interest rate floor**

Option A: providing specific guidance on the after-shock negative interest rate floor.

Option B: retaining the 0% floor stipulated in the current guidelines.

Option A would reflect the interest rate environment in some countries where interest rates have moved to the negative territory and, as such, it would show the impact of negative interest rates on EVE under certain interest rate shock scenarios.

Option B would keep the existing approach which might be more appropriate for some interest rate sensitive instruments, e.g. retail deposits.

Option A has been selected.

#### **Minimum coverage of currencies**

The minimum coverage of currencies is an important element in the calculation of the supervisory outlier test. It should be, on the one hand, sufficiently high to cover all material currencies and related material interest rate risk positions. The full coverage of all currencies may, on the other hand, require significant investments to cover each and every currency including insignificant currencies which do not pose any material risk.

Option A: providing guidance to include at least currencies which account for 5% of the total non-trading book financial assets (excluding tangible assets) or liabilities and, at the same time, covering at least 90% of these non-trading book items.

Option B: providing guidance to include non-trading book positions in all currencies.

Option A would provide the reasonable coverage by distinguishing between material and immaterial currencies and establishing a backstop of 90%.

Option B would assume a full coverage of currencies without any differentiation in their materiality.

Option A has been selected.

#### **Aggregation of currencies**

Option A: To provide guidance on aggregating only negative changes to EVE occurring in currencies per one interest rate shock scenario and disregarding any positive changes.



Option B: To provide guidance on aggregating both the full value of negative changes to the EVE and a certain part of positive changes applying specific rules for the diversification benefits.

Option A represents the most conservative and the most prudent approach to the aggregation of currencies. The calculation is relatively straightforward without any need to apply rules for the diversification benefits between currencies, which will add additional complexity to the calculation of the supervisory outlier test.

Option B would recognise the diversification benefits between currencies.

Option A has been selected. Having been aware of diversification benefits between certain currencies, the EBA is raising a question on the aggregation of currencies for the consultation.

#### E. Cost-Benefit Analysis

The safety and soundness of institutions go hand in hand with resources, both financial and human resources, allocated to the so-called three lines of defence model on control functions, covering the control function within the business function on the one hand, and the two independent control functions, i.e. the risk management and compliance function and independent internal audit function, on the other hand.

From the supervisory perspective, the aim of updating the guidelines is twofold. Firstly, to set out the qualitative supervisory expectations regarding the management of IRRBB and, ultimately, ensuring that institutions further enhance their internal risk management methodologies, processes and practices. The sections 4.1, 4.2, 4.3, and 4.4 of the guidelines deal with supervisory expectations in this respect. Secondly, the supervisory outlier test is an important supervisory tool which should provide supervisors with relevant and comparable information on the level of risk individual institutions face in terms of EVE. In order to increase the relevance of the supervisory outlier test, the guidelines provide that institutions should apply six currency specific interest rate shock scenarios in addition to the parallel +/- 200 basis points shocks. The six shock scenarios should better capture possible movements, including tilts and bends, of interest rates. The comparability of the test across institutions is, to a great extent, driven by assumptions and principles used for its calculation. Therefore, the guidelines stipulate principles for the calculation of the supervisory outlier test as set out in section 4.5.

- 1) Update of the qualitative supervisory expectations

#### **Costs:**

As far as costs are concerned, the institutions will have to allocate resources, first, to review the compliance of their internal frameworks for the management of IRRBB with the updated EBA guidelines (gap analysis), and second, to update the framework accordingly. Both the gap analysis and the update will require some financial and human resources. However, the general prudential expectation regarding the management of risks assumes that institutions regularly review and



update their frameworks, including the developments in BCBS Standards. In this respect the update will not bring significant additional costs. Obviously, institutions will incur some costs especially on adjusting their IT systems, which play an irreplaceable role in the management of IRRBB, should their gap analysis reveal a need for any upgrade or adjustments. The magnitude of IT related costs will vary depending on the flexibility of a particular IT system but the overall cost in relation to the total operational costs is estimated to be relatively limited. Competent authorities are expected to have administrative costs related to the implementation of the Guidelines.

**Benefits:**

The positive effects of the update include a wide range of benefits. On the one hand, the guidelines will bring more clarity on supervisory expectations for the institution and, on the other hand, strengthen the safety and soundness of institutions given the improved internal risk management frameworks, which is beneficial for the financial system as a whole.

**Costs vs Benefits:**

The benefits of the update clearly outweigh associated costs as there are no significant additional costs on top of costs spent on regular reviews and updates of internal risk management frameworks. The costs of any improvements to the risk management of IRRBB are expected to be outweighed by the benefits of an improved understanding and mitigation of the risk, reducing the incidence of unexpected losses. Moreover, the update will enhance the safety and soundness of institutions and help keep the level playing field.

2) Supervisory outlier test

**Costs:**

The current EBA guidelines on IRRBB provide five principles for the calculation of the supervisory outlier test including shock scenarios (+/- 200 basis points). The updated guidelines, on the other hand, specify nineteen principles including two sets of shock scenarios in order to increase the comparability of results and limit unjustified or unreasonable assumptions, which could lead to the understatement of IRRBB. Institutions may incur costs related to the implementation of both the principles for the calculation and the six shock scenarios.

When it comes to the implementation of the six shock scenarios, the implementation costs should be rather limited given the fact that the current guidelines have already introduced an expectation that institutions apply an appropriate range of different interest rate shock scenarios. Therefore, institutions should already have internal systems flexible enough to use additional shock scenarios and to calculate changes in EVE accordingly (see below the comment on negative interest rate shock scenarios). Consequently, the EBA does not expect any additional specific costs in this respect.

The remaining principles (seventeen principles without two sets of shock scenarios) for the calculation of the supervisory outlier test combine (i) the principles from the current guidelines,



e.g. risk free yield curve, (ii) new general principles such as run-off balance sheet, minimum coverage in terms of currencies, aggregation of currencies, etc., and (iii) new specific principles, e.g. negative interest rate floor and the treatment of commercial margins.

One can reasonably expect that the principles that have already been introduced in the current guidelines will not bring any additional costs although institutions may, on their own, decide to revisit their systems so as to make them more flexible or appropriate for the risk management purposes.

The new general principles, which aim for improving the comparability of the outlier test results, may require some additional financial resources to adjust internal systems. This may in particular be the case for the inclusion of non-performing exposures.

Similarly to the general principles, the specific principles pursue the goal of increasing comparability, and, as such, deal with some distinctive features of IRRBB such as negative interest rates in the shock scenarios and the treatment of commercial margins. Having been aware of the complexity the treatment of commercial margins may bring, the EBA has decided to make both options possible, i.e. either inclusion or exclusion depending on the abilities of internal systems and compliance with certain conditions for the latter. Thus, institutions should not have any additional costs. The removal of the 0% floor and the application of negative interest rates will probably require some investments especially for institutions whose internal systems are not able to tackle negative interest rates. The related costs will largely depend on the flexibility of a particular IT system.

**Benefits:**

The update of the section on the supervisory outlier test brings additional clarity for both supervisors and institutions alike regarding the way how the test should be calculated. A significant benefit is the increase of the comparability of the test results together with better information about the IRRBB position under various shock scenarios capturing a wide range of interest rate movements.

**Costs vs Benefits:**

The updated guidelines bring both benefits and costs. Benefits are mainly related to the improved clarity on how institutions should calculate the supervisory outlier test and the significantly increased comparability of its results, while costs stem from changes necessary to be made in institutions' internal systems. However, these costs are rather one-off costs and balanced with overall benefits.

## 5.2 Overview of questions for consultation

### *Subject matter, scope and definitions*

**Question 1:** Are the definitions sufficiently clear? If not, please provide concrete suggestions and justify your answer.

### *General provisions*

**Question 2:** Are the guidelines in section 4.1. regarding the general provisions sufficiently clear? If not, please provide concrete suggestions.

**Question 3:** Do you agree that cash flows from non-performing exposures (NPEs) should be net of provisions and treated as general interest rate sensitive instruments whose modelling should reflect expected cash flows and their timing for the purpose of EV and earnings measures? If not, please provide concrete suggestions and justify your answer.

### *Capital identification, calculation and allocation*

**Question 4:** Are the guidelines in section 4.2. regarding the capital identification, calculation, and allocation sufficiently clear? If not, please provide concrete suggestions and justify your answer.

**Question 5:** Do you agree with the list of elements to be considered for the internal capital allocation in respect of IRRBB to earnings in paragraph 30? If not, please provide concrete suggestions and justify your answer.

### *Governance*

**Question 6:** Are the guidelines in section 4.3. regarding the governance sufficiently clear? If not, please provide concrete suggestions and justify your answer.

### *Measurement*

**Question 7:** Are the guidelines in section 4.4. regarding the measurement sufficiently clear? If not, please provide concrete suggestions and justify your answer.

**Question 8:** Do you consider the comparison between EV metrics calculated using contractual terms for NMDs with the EV metrics calculated with behavioural modelled assumptions sensible and practical? Please justify your answer.

### *Supervisory outlier test*

**Question 9:** Are the guidelines in section 4.5. regarding the supervisory outlier test sufficiently clear? If not, please provide concrete suggestions and justify your answer.



**Question 10:** Is the proportionality adequately reflected in the guidelines, in particular in relation to the transitional period for SREP category 3 and 4 institutions and the frequency of calculation for the additional outlier test under paragraph 112?

**Question 11:** If relevant, do you manage interest rate risk arising from pension obligations and pension plans assets within the IRRBB framework or do you cover it within another risk category (e.g. within market risk separately from IRRBB, etc.)?

**Question 12:** Which treatment of commercial margins cash flows do you consider conceptually most correct in EV metric, when discounting with risk free rate curve: a) including commercial margins cash flows or b) excluding commercial margins cash flows? Please justify your answer.

**Question 13:** Are your internal systems flexible enough to exclude margins for the purpose of calculating EV measures for the supervisory outlier test? If not, what would be the cost to adapt your systems (high, medium, low)? Please elaborate your answer.

**Question 14:** Do you consider the level of the proposed linear lower bound as described in paragraph 113 (k) appropriate? If not, please provide concrete suggestions and justify your answer.

**Question 15:** Do you consider the minimum threshold for material currencies included into the supervisory outlier test (5% for individual currency and minimum 90% of the total non-trading book assets or liabilities) sufficient to measure IRRBB in term of EVE? If not, please provide concrete suggestions and justify your answer.

**Question 16:** When aggregating changes to EVE in the supervisory outlier test, does the disregarding of positive changes to EVE have a material impact on the calculation of the supervisory outlier test?