
IRRBB HEATMAP IMPLEMENTATION

1ST PHASE - SHORT/MEDIUM TERM ACTION PLAN

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IRRBB heatmap implementation

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Abbreviations

ARD	Average repricing dates
BCBS	Basel Committee on Banking Supervision
CRD	Capital Requirements Directive (Directive 2013/36/EU)
CSRBB	Credit spread risk from the banking book
EBA	European Banking Authority
EVE	Economic value of equity
DRM	Dynamic risk management
GL	Guidelines
IASB	International Accounting Standards Board
IMS	Internal measurement system
IR	Interest rate
IRRBB	Interest rate risk arising from the banking book
ITS	Implementing technical standards
NII	Net interest income
NMD	Non-maturity deposits
P&L	Profit and loss
QIS	Quantitative impact study
RTS	Regulatory Technical Standard
SA	Standardised approach
SOT	Supervisory outliers test
SREP	Supervisory review and evaluation process
TD	Term deposits

1.1 Executive summary

1. Following its scrutiny work¹, which began in 2022 with the publication of the regulatory package on interest rate risk in the banking book (IRRBB), the European Banking Authority (EBA) publishes this report to deliver on the short/medium term objectives² of the action plan outlined in its IRRBB Heatmap.³ As detailed below, it contains observations and recommendations for institutions and supervisors, including some tools for supervisors to support them in the assessment of IRRBB risks on several dimensions.
2. This report is not setting any new requirement, nor has such intent. It provides several descriptive statistics, guidance and good practices, without suggesting new limits or thresholds. The recommendations and tools are aimed to be a practical resource to foster a shared understanding of the assessment of IRRBB risks. In all regards, they are meant to be considered with proportionality when applied – i.e., considering the size, complexity, business model and risk profile of an institution’s business. Furthermore, the recommendations are not meant to be exhaustive, meaning that supervisors may also find it useful to consider in their assessment any additional dimensions that in particular institutions might use as internal metrics.

i. **Non-maturity deposits (NMD) behavioural assumptions**

Article 1(8) of Commission Delegated Regulation (EU) 2024/857 defines NMD as liabilities without a maturity date, in which the depositor is free to withdraw the deposit at any point in time. For EU institutions, a significant part of their liabilities is composed of NMD – for half of the institutions in the sample, the amount of NMD exceeds 50% of their liabilities (without derivatives); which makes a behavioural modelling assessment relevant. The inherent characteristics of NMD make their behavioural modelling for repricing purposes complex to assess and manage.

This report describes the materiality of NMD and the complexity of their modelling. It first identifies a non-restrictive list of risk factors impacting NMD repricing behaviour (mainly based on the customer, institution and market profile), that could be considered by institutions when modelling the behaviour of their NMD. Secondly, it proposes a toolkit to support supervisors in their analysis of NMD modelling, that sets out indicative/non-exhaustive expectations/best practices on this modelling – i.e.,

¹ With the publication of the regulatory package on IRRBB in October 2022, the EBA communicated its scrutiny plans for IRRBB to monitor the impact on institutions from increases in interest rates and developments regarding institutions’ ability to manage the risks.

² The infographic of the objectives of the heatmap following the EBA scrutiny on the IRRBB is reported in Annex I.

³ Heatmap following the EBA scrutiny on the IRRBB published on 24 January 2024 (available [here](#)).

NMD segmentation and peer benchmarking, stress testing including reverse stress tests, expert judgment and historical data and a list of basic supervisory assumptions on expected behavioural modelling; including during the Supervisory Review and Evaluation Process (SREP).

ii. Complementary dimensions to the supervisory outlier test (SOT) on the Net Interest Income (NII) metric

The EBA Opinion relating to the regulatory technical standards (RTS) on SOT⁴ clarified that the SOTs are framed under the SREP as indicators to be taken into account, with no automaticity in the exercise of supervisory measures for cases of institutions exceeding the SOT threshold. Other complementary dimensions are added in this report, which reflect internal metrics also commonly used by institutions and might be useful, including for SREP purposes and supervisory stress testing, to complement the assessment of institutions identified as outliers under the SOT threshold from an NII perspective.

Specifically, in this regard, this report discusses as additional dimensions the use of market value changes of fair value instruments, administrative expenses/overhead cost and net commissions/fees, embedded losses/gains due to observed changes in the interest rates and in the market conditions; that could be considered by supervisors to complement the SOT on NII for institutions identified as outliers.⁵

iii. Modelling commercial margins of NMD in the SOT on NII

As mentioned in the EBA IRRBB heatmap, institutions seek clarification of specific aspects in the SOT implementation, i.e. the projection of commercial margins, in the context of the constant balance sheet assumption.

The report clarifies the expected approach to model and project commercial margins of NMD, which are subject to behavioural optionality, in the SOT on NII based on the provisions in Commission Delegated Regulation (EU) 2024/856 and the Guidelines (GL) on IRRBB and credit spread risk of the banking book (CSRBB), basically applying consistency with the approach retained in their internal measurement systems or, in their absence, considering constant margins, across scenarios.

⁴ Opinion of the European Banking Authority on the European Commission's amendments relating to the final draft Regulatory Technical Standards specifying supervisory shock scenarios, common modelling and parametric assumptions and what constitutes a large decline for the calculation of the economic value of equity and of the net interest income in accordance with Article 98(5a) of Directive 2013/36/EU (available [here](#)).

⁵ It is to be noted that Article 98(5) of CRD allows supervisory authorities to investigate IRRBB exposures and management also in the case of institutions that are not SOT outliers, which could still be subject to supervisory measures.

iv. Hedging strategies

When it comes to hedging strategies currently in place in the EU, the analysis, as of end 2023, shows that institutions mainly use interest rate (IR) swaps to mitigate their remaining open IRRBB position, after using natural hedges. An impact assessment of derivatives on the regulatory metrics for the SOT on Economic Value of Equity (EVE) and the SOT on NII shows that derivatives contribute significantly to compliance with regulatory thresholds.

Institutions that use interest rate derivatives are expected to use them for hedging rather than for speculative purposes. In the modelling of NMD, it should not be readily assumed that a natural hedge with the repricing features of loans can be achieved, but instead the repricing of NMD should be modelled fully based on their own specific features.

3. The monitoring of the practical implementation of IRRBB standards falls within the European Banking Authority (EBA) monitoring duties, and aims to deepen and broaden the understanding of the IRRBB risk and its assessment. Additionally, it seeks to ensure a consistent application of EU law and promote common supervisory approaches and practices in this area.

Next steps

4. The Heatmap envisages that the EBA will continue to assess the impact of the IRRBB regulatory package. Accordingly, the monitoring and assessment of NMD modelling and hedging strategies will proceed. Additionally, there will be deliberation on potentially extending the analysis on commercial margin modelling in the SOT on NII to include products beyond NMD.⁶ Analysis of Pillar 3 disclosure practices, both quantitative and qualitative, will continue within the medium/long term objectives of the Heatmap, supplementing the EBA's monitoring of the regulatory products regarding for example NMD behavioural assumptions, hedging strategies and additional IRRBB measures.
5. As medium/long term objectives of the Heatmap, the EBA will monitor the 5-year cap on the weighted average repricing maturity of NMD, and CSRBB related aspects, primarily regarding the perimeter of its application. Additionally, it will contribute to IASB's Dynamic Risk Management (DRM) project⁷ by examining its prudential implication and response. For

⁶ Information on the spread component applied in the repricing of the new business (term deposits, fixed and floating loans) for the SOT on NII projections will be collected via the QIS on the December 2024 reference date.

⁷ The objective of the DRM project is to develop an accounting model for macro-hedges based on an entity's dynamic risk management of repricing risk due to changes in interest rates, evaluating the effectiveness of those

these purposes, the EBA will use data collected quarterly via the ITS starting from September 2024, along with the Quantitative Impact Study (QIS) templates for the December 2024 reference date. Finally, in the forthcoming update of the general SREP framework, EBA will incorporate elements covered in this report such as NMD behavioural assumptions and complementary dimensions.

6. The impact on EU institutions of the recalibrated shock scenarios published⁸ by the Basel Committee on Banking Supervision (BCBS) in July 2024 will be duly considered based on the QIS.⁹ This will enable a careful assessment before considering to review the existing RTS.
7. In addition, the EBA is also closely involved in the work of the BCBS regarding the follow-up from the 2023 market turmoil.¹⁰
8. On all these aspects, the EBA will continue to interact closely with all interested stakeholders.

risk management activities. It also aims to reduce the operational burden currently embedded in IAS 39 for portfolio fair value hedging.

⁸ The BCBS has finalised targeted adjustments to its standard on IRRBB, regarding the recalibration of shocks in the context of the SOT (available [here](#)).

⁹ The recalibrated currency shocks of all EU member states, additionally to BIS members, following the calculations described in paragraphs 98.56 to 98.63 of SRP98 – Application guidance on interest rate risk in the banking book (see [SRP98 - Application guidance on interest rate risk in the banking book \(bis.org\)](#)), will be collected with reference to December 2024.

¹⁰ BCBS Report on the 2023 banking turmoil (available [here](#)).

1.2 Background

9. Following the publication of the prudential regulatory package in October 2022 – which included the GL on IRRBB and CSRBB,¹¹ the RTS on SOTs,¹² and the standardised approach (SA)¹³ along with the announcement of the EBA scrutiny plans in response to the new interest rate environment – and the subsequent publication of the implementing technical standards (ITS) on IRRBB supervisory reporting in July 2023,¹⁴ the EBA published a heatmap in January 2024 based on its scrutiny of the implementation of the IRRBB standards within the EU.
10. The main objective of the EBA’s scrutiny work, as outlined in its heatmap, is to monitor and assess how IRRBB and related developments impact institutions’ ability to manage this risk prudently, taking into account the topic’s complexity and materiality, heterogeneous modelling practices, and the absence of a related Pillar 1 framework.
11. NMD modelling is one of the most challenging areas in behavioural modelling for institutions to implement and supervisors to monitor. Hedging strategies and techniques employed by institutions, along with their impact on EVE and NII as well as possible changes in hedging practices, were highlighted in the EBA heatmap as areas requiring further investigation in both the short/medium and medium/long terms. Complementary dimensions to the regulatory SOT on NII aim to incorporate new elements and dimensions in the SREP for assessing the susceptibility to IRRBB of institutions identified as NII outliers.

¹¹ Guidelines issued on the basis of Article 84 (6) of Directive 2013/36/EU specifying criteria for the identification, evaluation, management and mitigation of the risks arising from potential changes in interest rates and of the assessment and monitoring of credit spread risk, of institutions’ non-trading book activities (available [here](#)).

¹² Draft Regulatory Technical Standards specifying supervisory shock scenarios, common modelling and parametric assumptions and what constitutes a large decline for the calculation of the economic value of equity and of the net interest income in accordance with Article 98(5a) of Directive 2013/36/EU (available [here](#)). Commission Delegated Regulation (EU) 2024/856 with regard to the final regulatory technical standards was published in the OJ on 24 April 2024 (available [here](#)).

¹³ Draft Regulatory Technical Standards specifying standardised and simplified standardised methodologies to evaluate the risks arising from potential changes in interest rates that affect both the economic value of equity and the net interest income of an institution’s non-trading book activities in accordance with 84(5) of Directive 2013/36/EU (available [here](#)).

Commission Delegated Regulation (EU) 2024/857 with regard to the final regulatory technical standards was published in the OJ on 24 April 2024 (available [here](#)).

¹⁴ Implementing Technical Standards on Supervisory Reporting amendments with regard to IRRBB reporting (available [here](#)).

Commission Implementing Regulation (EU) 2024/855 of 15 March 2024 amending the implementing technical standards laid down in Implementing Regulation (EU) 2021/451 as regards rules on the supervisory reporting of interest rate risk in the banking book (available [here](#)).

12. This report provides clarification on the treatment of margins for NMD, as regards their projection for the quantification of the NII in the baseline and under the regulatory shock scenarios in the SOT on NII, following specific concerns from the industry.
13. The content of this report is supported by data collected through the ad-hoc ITS data collection for IRRBB referring to December 2023 as well as the QIS data referring to December 2022 and 2023, the review of institutions' IRRBB disclosures and input from supervisory experience.
14. Table 1 shows the number of institutions participating in the QIS and the ad-hoc ITS data collection on IRRBB, which constitutes the sample used for the quantitative analyses presented in this report.¹⁵

Table 1: Number of QIS institutions.

	QIS/ITS Sample	IMS	SA
2022	146	128	18
2023	120	107	13

15. This report provides several observations and recommendations to institutions and supervisors on NMD behavioural assumptions, complementary dimensions to the SOT on NII, the modelling of commercial margins for NMD in the SOT on NII, as well as on hedging strategies. Exchanges with institutions and professional associations have taken place during a technical discussion organised on 14 November 2024.¹⁶ Further interactions will continue on an ongoing basis in the context of the next steps in the implementation of the IRRBB heatmap.

SOT observations

16. Regarding the analysis of the December 2023 data, from the QIS and the ad-hoc ITS data collection, Table 2 shows that the SOT outliers on EVE decreased to 0 in 2023. The same pattern is found for outliers under the SOT on NII which shows a significant decrease, in contrast to 2022 – where outliers were particularly numerous in the parallel down scenario.¹⁷ This might be driven by the fact that, after an asymmetrical reflection of the

¹⁵ For each analysis, the number of relevant institutions providing data eligible for that specific analysis is indicated in the table therein.

¹⁶ Complementing a first discussion held on 13 February 2023.

¹⁷ To be noted that those institutions identified as outliers in 2022 (12), which are all included in the 2023's sample, are not identified as outliers in 2023.

increased market rates in the repricing of the assets and liabilities in 2022,¹⁸ institutions started to pass through interest rate increases also to the liabilities side in 2023. As also outlined in the EBA opinion related to the final RTS on SOT, the SOT on NII should be understood as a regulatory indicator for the supervisory review of the institutions' IRRBB exposures, with no automaticity in the exercise of supervisory measures.

Table 2: Number of outliers in the SOT EVE (threshold of 15% of Tier 1 capital) and SOT on NII (threshold of 5% of Tier 1 capital).¹⁹

	ΔEVE			ΔNII		
	QIS Sample	Group 1	Group 2	QIS Sample	Group 1	Group 2
2021	15	1	14	9	3	6
	13.04%	2.33%	19.44%	7.89%	6.82%	8.57%
	115	43	72	114	44	70
2022	12	1	11	39	12	27
	8.76%	1.75%	13.75%	28.06%	20.69%	33.33%
	137	57	80	139	58	81
2023	0	0	0	16	8	8
	0.00%	0.00%	0.00%	16.49%	18.60%	14.81%
	97	43	54	97	43	54

¹⁸ This was also noted in paragraph 13 of the Heatmap following the EBA scrutiny on the IRRBB.

¹⁹ This table shows the number of outliers for the SOT on EVE and SOT on NII, in absolute terms and as percentage of institutions eligible for this analysis. Group 1 institutions are defined as having Tier 1 capital greater than EUR 3 billion and being internationally active – i.e., institutions operating in more than one jurisdiction or with clients from outside their jurisdiction. All other institutions are labelled as Group 2.

1.3 NMD behavioural assumptions

KEY TAKEAWAYS OF THIS SECTION

The descriptive analysis undertaken on NMD shows that as of end-2023:

- For half of the institutions in the sample, the amount of NMD exceeds 50% of their liabilities (without derivatives); this percentage is 70% if term deposits are also considered together with NMD.
- Remuneration on term deposits and, to a lesser extent, on NMD (including relevant savings accounts without a maturity date) have increased.
- Migration between NMD and term deposits is generally considered of medium-low significance.
- The dispersion in behavioural NMD variables suggests that different institutions are following different modelling approaches, even when it comes to the same category of NMD.
- As expected, estimated core amounts are higher in retail NMD (47%) compared to wholesale (37%).
- The weighted average repricing date of NMD stays below 5 years in aggregate and by NMD category, retail or wholesale, in the baseline and shock scenarios, for all institutions in the QIS.
- Higher pass-through rates are observed for wholesale NMD versus retail, for both up and down shock scenarios.

Guidance is proposed for reflecting good practices that might be considered by institutions in their modelling as well as by supervisors in assessing NMD modelling:

- The identification of a non-restrictive list of risk factors impacting NMD behaviour related to the customer, institution and market profile.
- A supervisory toolkit to monitor the use of risk factors impacting NMD behavioural modelling, covering:
 - NMD segmentation and peers benchmarking,
 - The need for institutions to conduct adequate/plausible stress scenario analysis of NMD assumptions,
 - The role for expert judgment and historical data, and

- Indicative/non-exhaustive expected behavioural assumptions based on the observation of related risk factors.

1.3.1 Observations

a. Size and composition of NMD, as of 31 December 2023

17. Deposits (NMD and term deposits) represent on average 65% of institutions' banking book liabilities (excluding derivatives) as of 31 December 2023 – with some dispersion across institutions. This share is somewhat higher for smaller institutions, with a median value of 73%. Most of the deposits are NMD (including savings accounts with no fixed maturity), with their share over total deposits (i.e., NMD and term deposits) averaging 76% (the median value is similar). Table 3 shows the composition of NMD by type.²⁰

Table 3: Types of NMD²¹.

as % of total NMD	Retail transactional		Retail non-transactional		Wholesale non-financial		Wholesale financial	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Full sample	34%	29%	30%	25%	24%	24%	9%	3%
IMS	34%	30%	30%	23%	24%	24%	9%	3%
Group 1	33%	24%	32%	25%	25%	24%	10%	4%
Group 2	38%	39%	21%	23%	21%	22%	7%	3%
SA	33%	29%	21%	28%	24%	26%	9%	9%

b. Migration from NMD to term deposits (December 2022 versus December 2023)

18. Migration from no or lowly remunerated NMD towards (generally) higher-yielding term deposits in 2023 is estimated to be of medium-low significance on average, with a 6% decrease in the share of total deposits held as NMD, with some dispersion across institutions observed in Table 4. Total deposits remained stable with an average increase of 1%. Against the backdrop of the trend towards term deposits, remuneration on deposits has increased. In particular, Figure 1 (right-hand panel) seems to show that those institutions with the largest increase in the blended yield of total deposits tend to

²⁰ NMD can be retail – the depositor being a natural person or a small and medium-sized enterprise (SME), if lower than EUR 1 million in the case of the SME; or, wholesale – with financial customer or any other customer. Retail NMD are transactional if used regularly to credit and debit salaries, income or expenses (transactions) or if they bear no interest even in a high-interest rate environment.

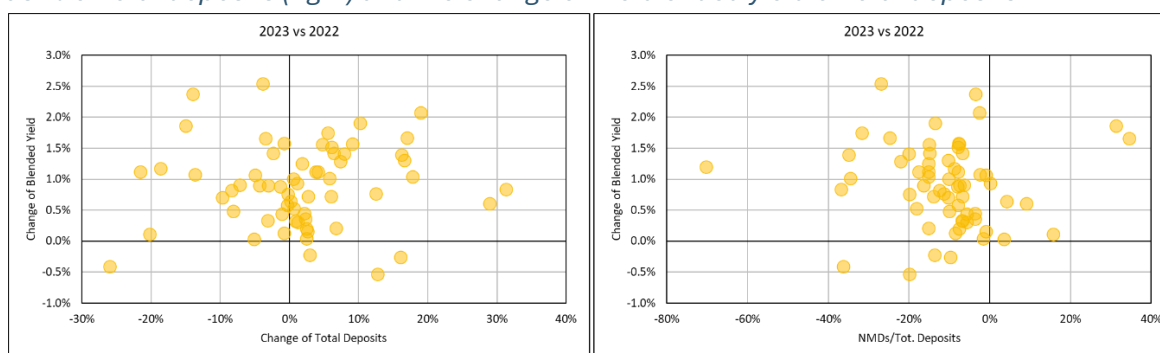
²¹ This table shows weighted average and median for each type of NMD.

correspond to institutions with a larger decrease in the share of NMD (i.e., those institutions where a larger migration from NMD to term deposits is being observed).

Table 4: Distribution of the change (in relative terms) in the share of deposits held as NMD (as % of total deposits) from 2022 to 2023.

	Mean	S.D.	5 th	25 th	50 th	75 th	95 th	# of inst.
Full sample	-6%	15%	-32%	-15%	-8%	-3%	17%	98
IMS	-7%	13%	-26%	-15%	-8%	-3%	7%	89
Group 1	-7%	12%	-25%	-14%	-8%	-4%	4%	48
Group 2	-6%	13%	-25%	-16%	-8%	-2%	16%	41
SA	2%	30%	-36%	-32%	-13%	31%	33%	9

Figure 1: Relationship between the change of total deposits volume (left) and of the NMD share as % of total deposits (right) and the change of the blended yield of total deposits.



c. NMD behavioural modelling

19. The dispersion in behavioural NMD variables suggests that institutions are following different modelling approaches and/or pricing strategies for NMD – even when it comes to the same category of NMD.

Core amount²²

20. Table 5 shows the high dispersion of the reported core amount across institutions as for all NMD, retail NMD and wholesale non-financial NMD. As expected, the core amount is larger for retail NMD than for wholesale non-financial ones.

²² The core amount refers to the amount of a stable non-maturity deposit that is unlikely to reprice even under significant changes in the interest rate environment. ‘Stable non-maturity deposits’ refer to the total amount of the part of the non-maturity deposit that is highly likely to remain undrawn, under the current level of interest rates.

Table 5: Distribution of the core amount (%) of relevant NMD.

	Mean	S.D.	5 th	25 th	50 th	75 th	95 th	# of inst.
NMD								
Full sample	44%	33%	0%	18%	52%	72%	90%	108
IMS	44%	33%	0%	19%	52%	71%	90%	96
Group 1	43%	35%	0%	0%	45%	66%	85%	50
Group 2	51%	28%	0%	42%	56%	77%	91%	46
SA	46%	36%	0%	8%	52%	71%	90%	11
NMD Retail								
Full sample	47%	34%	0%	30%	59%	77%	92%	104
IMS	47%	34%	0%	33%	59%	77%	91%	92
Group 1	46%	37%	0%	0%	54%	73%	86%	47
Group 2	54%	28%	0%	46%	68%	82%	95%	45
SA	52%	37%	0%	13%	58%	77%	95%	11
NMD Wholesale non-financial								
Full sample	37%	33%	0%	23%	43%	64%	93%	93
IMS	37%	34%	0%	23%	43%	64%	92%	83
Group 1	37%	35%	0%	18%	39%	64%	87%	42
Group 2	43%	32%	0%	35%	44%	64%	94%	41
SA	30%	30%	0%	27%	46%	50%	81%	9

Weighted average repricing maturity²³

21. Again, the estimated weighted average repricing maturity seems to materially change across institutions. It is not significantly different between retail and non-financial wholesale NMD, and, as expected, materially larger than financial NMD. The weighted average repricing date of NMD remains below 5 years in aggregate and by NMD category, retail or wholesale, in the baseline and shock scenarios – See Table 6 for details.

²³ 'Repricing date' or 'repricing maturity' refer to the date at which:

- i. the institution or its counterparty is entitled to unilaterally change the interest rate, or
- ii. the rate of a floating rate instrument changes automatically in response to a change in an interest rate benchmark, or
- iii. the repayment of the principal, either in its entirety or at a part of it happens, or
- iv. the interest payment, on a part of the principal that has not yet been repaid or repriced, happens.

Table 6: Distribution of average repricing dates (ARD) for NMD categories.

NMD' average repricing date (ARD)						
	Mean	S.D.	5 th	50 th	95 th	# of inst.
Total - Baseline (behavioural)						
Full sample	2.04	1.28	0.00	2.12	4.07	74
IMS	2.07	1.23	0.00	2.23	4.11	66
Group 1	2.20	1.31	0.00	2.28	4.41	38
Group 2	1.33	1.13	0.00	2.16	3.69	28
SA	0.46	1.10	0.00	0.39	2.48	8
Retail - Baseline (behavioural)						
Full sample	1.62	1.14	0.00	1.55	3.59	80
IMS	1.65	1.12	0.00	1.58	3.61	72
Group 1	1.58	0.99	0.00	1.59	2.99	39
Group 2	2.00	1.26	0.00	1.58	3.70	33
SA	0.33	0.79	0.00	0.24	1.83	8
Wholesale non-financial - Baseline (behavioural)						
Full sample	1.72	1.29	0.38	2.21	4.01	90
IMS	1.74	1.30	0.56	2.24	4.01	81
Group 1	1.82	1.41	0.57	2.58	4.51	42
Group 2	1.34	1.15	0.37	1.90	3.99	39
SA	0.32	0.70	0.00	0.77	1.63	9
Wholesale financial - Baseline (behavioural)						
Full sample	0.57	1.10	0.00	0.00	2.27	72
IMS	0.58	1.15	0.00	0.00	2.29	64
Group 1	0.67	1.40	0.00	0.27	4.63	37
Group 2	0.10	0.43	0.00	0.00	0.80	27
SA	0.00	0.02	0.00	0.00	0.03	8

Pass-through rates²⁴

22. Higher pass-through rates are observed for wholesale versus retail NMD, for both up and down shock scenarios, as reported in Table 7.

²⁴ 'Pass-through rate' refers to the percentage of change of the market interest rate assigned to the deposits. Precisely, Table 7 shows the blended pass-through rate of total deposits (NMD and term deposits) built departing from the projected deposits costs under baseline, upward and downward IR scenarios. For instance, the median for the full sample (retail – shock up) entails that 31.97% of the (200 bps) upward scenario is passed through in the projected cost of total retail deposits.

Table 7: Pass-through rate for total deposits' categories – Up and down shocks.

Weighted mean – Pass-through rate for total deposits' categories (Up and down shocks)						
	Retail – Shock up	Retail – Shock down	WNF – Shock up	WNF – Shock up	WF – Shock up	WF – Shock up
Full sample	31.97%	29.08%	43.03%	41.41%	65.99%	63.82%
IMS	31.78%	29.08%	42.86%	41.40%	66.34%	64.38%
Group 1	32.60%	30.29%	41.85%	40.42%	65.45%	63.77%
Group 2	27.31%	22.54%	48.27%	46.70%	71.12%	67.65%
SA	44.20%	29.37%	54.52%	43.17%	47.63%	32.97%

23. For most institutions the remuneration of deposits (NMD and term deposits) has increased in 2023. However, in general, behavioural models – such as the estimated % of non-core NMD, which has been calibrated with long historical data – have not been changed. This means that no clear relationship is observed between the NMD behavioural assumptions calibrated with historical data and the pass-through rates of the NMD in the current IR environment.

1.3.2 Recommendations

24. Given the importance of NMD in the funding of institutions, combined with the wide variation in behavioural assumptions on NMD between institutions, the EBA sees scope for establishing good practices that institutions can consider in their modelling, as well as that supervisors can consider when assessing NMD modelling. These would consist of:

i. **A non-restrictive list of risk factors impacting NMD behaviour²⁵**

These factors, listed in Table 8, are related to the customer, institution and market profile, and should be based on historical observations and expert judgment for potential segmentation of deposits.

²⁵ A comprehensive consideration of these risk factors in modelling the behaviour of NMD, once migration from NMD to term deposits is fully consolidated, is expected to reduce or explain the dispersion of such modelling as observed at the moment for NMD with similar characteristics.

Table 8: Risk factors.

Customer profile		
Retail	Wholesale	
<ul style="list-style-type: none"> ▪ Natural person / SME ▪ Transactional / non-transactional ▪ Current account / saving account/term account ▪ Deposit Guarantee Schemes insured/non-insured ▪ Currency ▪ Depositor-specific characteristics (income, education, age, “loyalty”, etc.) ▪ Outstanding balance ▪ Digital interaction ▪ Investor interaction / financial advisory ▪ P&L for the institution 	<ul style="list-style-type: none"> ▪ Sector (mainly financial / non-financial) ▪ Deposit Guarantee Schemes insured / non-insured ▪ Company size ▪ More or less capital-intensive industry linked to higher expenses and funding related needs. ▪ Cash ratio / cash in excess ▪ P&L for the institution 	
Institution profile	Market profile	Economic environment
<ul style="list-style-type: none"> ▪ Size ▪ Market positioning ▪ Deposit concentration ▪ Liquidity ▪ Credit rating ▪ Business model (regional / specialised institution) ▪ Funding strategy ▪ Services ▪ Reputation 	<ul style="list-style-type: none"> ▪ Competition <ul style="list-style-type: none"> i. Market liquidity ii. Market concentration iii. Alternative investments (difference between client rate and other rates offered by alternative investments, difference between long and short-term rates, etc.) iv. Costs related to deposits v. Digital/Tech innovations ▪ Government policies and regulation ▪ Seasonality effects 	<ul style="list-style-type: none"> ▪ Economic cycle ▪ Economic stability ▪ Banking system health ▪ Inflation ▪ GDP ▪ Unemployment rate ▪ Interest rates ▪ Credit spreads

ii. **Analytical tools for supervisors**

Supervisors might develop analytical tools to monitor the use of risk factors impacting NMD behavioural modelling, including:

- a. **NMD segmentation and peers benchmarking**, to compare different behavioural assumptions (repricing maturity, core/non-core deposits, pass-through rates, migration between NMD, TDs and savings accounts) used by institutions across various segments of NMD (different products and customer types) for which similar risk factors are observed. This assessment might help to identify institutions using very different NMD assumptions for deposits with comparable risk factors (risk profile).
- b. **Stress testing including reverse stress tests**, to understand the impact on NII and EVE that could be afforded by stressing behavioural assumptions – e.g., considering high proportions of unstable NMD volumes with high pass-through rates. In a reverse stress testing the main objective is to identify the scenario (e.g., NMD assumptions) under which the SOT on EVE/NII or an internal IRRBB limit would be breached.
- c. **Expert judgment and historical data**, where supervisors should balance the use of historical data with forward looking approaches and expert judgment, including interactions with institutions, for drawing conclusions.
- d. **A list of basic supervisory assumptions about expected behavioural modelling**, which might be used as starting point in reviewing behavioural modelling and without prejudice. A non-exhaustive example of what might be considered is provided in Table 9. Further refinement could be expected depending on the business model, size of the institution, etc.

Table 9: Indicative/non-exhaustive expected behavioural assumptions based on risk factors and the expected impact of each variable on core/non-core NMD and repricing maturity.

Variable 1	Portion of NMD that is non-core	Average repricing maturity of NMD
↑ Current and Projected cost on NMD	↑	↓
↑ % on non-remunerated NMD (in positive/high IR environment)	↓	↑
↑ Floating rate	↑	↓
↑ Minimum historical NMD volume by account	↓	↑
↑ Higher share of Retail transactional NMD	↓	↑
↑ Conditional cash flows (shock up)	=	↓
↑ Concentration of NMD (by depositor in an institution)	↑	↓
↑ Concentration of NMD (by institution in the market)	↓	↑
↑ Deposit size	↑	↓
↑ Wealth/income	↑	↓

1.4 Complementary dimensions to SOT on NII metric

KEY TAKEAWAYS OF THIS SECTION

The CRD envisages the SOT on NII and the SOT on EVE, in the context of the SREP. SOTs set regulatory metrics with related thresholds to flag outlier institutions on which supervisory authorities are expected, in a second step, to further assess their IRRBB exposures and management for potential supervisory measures, if needed. As already indicated in its heatmap, following discussions with the industry, the EBA has committed to develop complementary dimensions to support supervisors in their assessment from an NII perspective.

Guidance is proposed in the form of additional dimensions to be considered by supervisors to complement the assessment of IRRBB exposures and management from an NII perspective for institutions that are identified as outliers, without any intent to set any new requirement, limits or thresholds associated to these.²⁶

Some dimensions, like market value changes, interest rate sensitive fees/commissions and overhead costs as well as interest rate related embedded losses and gains, seem to complement the SOT to better understand, from an NII perspective, if and how IRRBB exposures of outliers could be considered sufficiently mitigated to ensure a proper continuity of the business.

While these dimensions have been retained as the most common ones used by institutions, based on a continuous dialogue between the EBA and institutions, they are not meant to be exhaustive, and additional dimensions that might in particular be used by institutions as internal metrics could also be usefully considered by supervisors in their assessment.

1.4.1 Observations

25. Following Article 98(5) of CRD, supervisors will assess, in the context of the SREP, those institutions experiencing the regulatory “*large decline*” in the SOT on NII (SOT outliers), calibrated in Article 5 of Commission Delegated Regulation (EU) 2024/856 as 5% of delta NII²⁷ (NII shock – NII baseline) relative to Tier 1 capital, which would arise from

²⁶ It is to be noted that Article 98(5) of CRD allows supervisory authorities to investigate IRRBB exposures and management also in the case of institutions that are not SOT outliers, which could still be subject to supervisory measures.

²⁷ Net interest income including interest income and interest expenses.

potential sudden and unexpected changes in interest rates, as set out in any of the two supervisory shock scenarios – e.g., 200bps parallel up and down shocks for the Euro.

26. Furthermore, Article 98(5) of CRD also indicates that supervisory powers shall be exercised “*at least*” in the cases of SOT outliers, unless the relevant competent authority considers in the SREP on IRRBB that the institution’s management of IRRBB is adequate and that the institution is not excessively exposed to IRRBB.²⁸
27. As already highlighted in paragraph 7 of the EBA Opinion relating to the RTS on SOT (EBA/Op/2023/03), the SOTs are framed under the SREP process as indicators to be taken into account, with no automaticity in the exercise of supervisory measures for cases of institutions exceeding the SOT threshold. Other complementary dimensions might be useful for SREP purposes and supervisory stress testing, if considered necessary.
28. It is highly complex to assess IRRBB exposures and management for the purpose of assessing the need for supervisory measures and, in particular, to ensure a minimum common understanding of such holistic analysis across supervisors and institutions in the EU.

1.4.2 Recommendations

29. This report proposes guidance in the form of additional dimensions, which are intended to provide supervisors with considerations on how to complement the assessment of IRRBB exposures from the NII perspective for institutions identified as SOT outlier. The guidance does not provide any “*outlier threshold*” for such additional dimensions. These dimensions have been developed to encompass internal metrics commonly used by institutions in regard of NII.

i. Market value changes of fair value instruments

This element would expand the definition of NII to a wider concept of earnings. Introducing market value changes in a one-year time horizon of fair value instruments²⁹ would provide additional interest rate sensitive elements in the analysis of NII exposures with direct relevance to an institution’s Tier 1 capital. Its consideration helps to understand to what extent these portfolios contribute to cover/hedge or exacerbate

²⁸ By referring to “at least”, Article 98(5) of CRD envisages that there can be cases of institutions other than SOT outliers that could be subject to supervisory measures by competent authorities.

²⁹ These items are expected to be computed by institutions and report regularly under the new IRRBB supervisory reporting.

the impact from interest rate changes on interest income and expenses in the NII SOT. The low comparability across institutions due to potential different accounting regimes is mitigated when applied to institutions considered outliers for an institution-by-institution analysis in the IRRBB Pillar 2 framework.

ii. Administrative expenses³⁰ / overhead cost and net commissions / fees

These elements, especially if they are sensitive to interest rate changes, could also be considered to assess the capacity of institutions to absorb administrative expenses under an interest rate shock scenario through their NII – to ensure the normal continuity of their activities.

iii. Embedded losses/gains due to observed changes in the interest rates and in the market conditions

The SOT on NII is related to the risk of deterioration of the NII in the baseline scenario against unexpected IR changes. For a more comprehensive assessment, especially for institutions identified as outliers, it is considered important to also identify and assess how the observed interest rate changes and changes in the market conditions (changes in the spreads of the interest rate exposures) have affected the institution. Against this background, it is helpful to assess the current embedded gains/losses that could be due to both causes – i.e., changes in the interest rate structure and changes in market conditions (e.g., in the spread applied to deposits). These embedded losses/gains can be explained as follows:

▪ **Embedded losses reflected on a deterioration of projected NII vs realised NII due to open IRRBB positions negatively affected by the observed IR changes.**

In 2022, before the sharp rise in interest rates, some institutions underestimated the impact of the potential IR increases. Once interest rates rose sharply, some institutions' funding became unstable or required higher remuneration, contrary to their expectations. The material increase in interest rates also resulted in embedded losses in amortised cost assets. For those institutions with unstable/concentrated deposits, these losses on fixed-income assets, which are not offset by embedded gains on customer deposits due to their instability and higher remuneration, are reflected in the observation of embedded losses. These embedded losses are reflected in both the baseline EVE (which deteriorates in

³⁰ Such as "Administrative expenses" as reported in F 02.00 – row 360, column 10.

relation to the accounting book value) and in the deterioration of the projected NII relative to the realized NII, year by year, on a going concern basis. This dimension might help to recognise the lower capacity of the departing NII in the higher baseline IR environment to absorb potential NII additional losses due to unexpected IR changes. Other measures for embedded losses (e.g., from regulatory reporting) may also be used to assess the current level of embedded losses and gains.

- **Improvement of projected NII vs realised NII due to the lag in the repricing of the deposits.**

In contrast, other institutions with different depositor base features (retail base deposits not concentrated) benefited from the end-2022/early-2023 rate hike because their deposits were not remunerated at higher rates, while their floating rate assets and repaid fixed-rate assets increased their interest income. Thus, their projected NII in the higher baseline IR scenario outperformed their realised NII observed before the interest rate hikes. This dimension might help to recognise, in the context of exceptional circumstances, the greater capacity of these institutions to absorb future NII changes due to unexpected IR changes.

1.5 Modelling commercial margins of NMD in the SOT on NII

KEY TAKEAWAYS OF THIS SECTION

Guidance is proposed in the context of Article 4(4) of Commission Delegated Regulation (EU) 2024/856, in relation to the modelling of commercial margins of NMD in the SOT on NII:

- Institutions should apply in the SOT on NII the same modelling assumptions on commercial margins as used in their internal measurement systems.
- In the absence of such modelling assumptions for the commercial margins, institutions should apply a constant spread (over the risk-free rate) independent of the interest rate scenario, in the repricing of NMD in the SOT on NII.
- Some specific circumstances that institutions are recommended to take into account in their modelling assumptions are the following:

a. Spread in the current environment

If NMD have a large negative spread to the risk-free rate, then it makes sense to model a margin compression as the ability to maintain this margin may erode over time. On the other hand, if NMD have zero spread or a positive one then there may be legroom for an institution to model a degree of margin evolution that would imply for the upward IR scenario a smaller deposit cost increase compared to the standardised parallel upward shock.

b. Distance from a zero / negative rate environment

If risk-free interest rates are negative or zero, then it is very difficult for institutions to have a negative spread on NMD. Institutions might be expected to model a degree of margin expansion in case of interest rate increases.

c. Lags in pass-through

If risk-free interest rates have recently increased it would be reasonable for institutions to model a catch up in the rate to be paid on NMD, meaning a compression in NMD spreads to the advantage of the depositor. In other context of high betas (or even betas over 100% - deposits which are paying higher rates than market rates) we can think of a margin compression.

1.5.1 Observations

30. In view of some concerns raised by the industry, the EBA has worked to provide a clarification on the expected treatment to modelling commercial margins of NMD in the SOT on NII. This clarification complements the preliminary views already expressed in paragraph 23 of the published heatmap.
31. A specific qualitative question was included in the qualitative questionnaire of the December 2023 QIS to understand the practice in place around the treatment of commercial margins of NMD in the SOT on NII.
32. Split practices were reflected in the feedback received. 38% of the institutions answering this question stated that they use constant commercial margins across scenarios in the repricing of NMD for the NII SOT. They added that this would not prevent them from modelling behavioural assumptions. The remaining 62% responded that they do not apply constant commercial margins. Furthermore, the decision of applying constant margins does not seem related to the size of institutions, with many large institutions applying constant margins as well.

1.5.2 Recommendations

33. Taking into account the provisions in the GL and in Commission Delegated Regulation (EU) 2024/856, where institutions have implemented internal modelling assumptions on the commercial margins of NMD based on each scenario, they should also apply them in the NII SOT in a conservative way. Proportionality is envisaged in the GL for the modelling of margins and therefore a possibility is also that institutions decide to not apply modelling assumptions, in which case Commission Delegated Regulation (EU) 2024/856 provides a default solution which is to apply constant commercial margins.³¹
34. Institutions should apply for NMD in the SOT on NII the same modelling assumptions on commercial margins related to behavioural modelling as used in their internal management systems. For those institutions using internal management systems that account for scenarios, where different interest rate paths are computed and where some of the behavioural assumptions are themselves functions of changing interest rate levels, it is expected that, when applying the SOT on NII, projected commercial margins consistent with the interest rate scenario, as explicitly mentioned in the Annex II “*Sophistication matrix*

³¹ Further note that all institutions subject to the standardised approach apply constant commercial margins as specified in Article 20(4) of Commission Delegated Regulation (EU) 2024/857.

for *IRRBB measurement*” of the EBA GL on IRRBB and CSRBB, should apply. This is consistent with the expectation in Article 4(4) of Commission Delegated Regulation (EU) 2024/856, where margins will follow those based, meaning built or supported by models, if any, on similar products bought or sold.

35. Modelling commercial margins on NMD is consistent with the NII SOT, as the SOT requires to consider behavioural options – Article 4(1) [linked to Article 3(2) of Commission Delegated Regulation (EU) 2024/856]; and also due to the GL on IRRBB and CSRBB, when describing the behavioural assumptions for customer accounts mentioned in paragraph 108(b) – “the elasticity of adjustment of product rates to changes in market interest rates/the interest rate charged”. This aspect directly affects the margin applied over the risk-free rate on modelled NMD.
36. In the absence of such modelling assumptions for the commercial margins, institutions should apply a constant spread (over the risk-free rate) independent of the interest rate scenario, in the repricing of NMD in the SOT on NII.
37. Institutions modelling commercial margins in their internal measurement systems are recommended to consider the following circumstances to ensure a minimum prudent and conservative approach:
 - i. Spread in the current environment: If NMD have a large negative spread to the risk-free rate (i.e. to the disadvantage of the depositor) then it makes sense to model a margin compression (both for the upward and parallel down IR scenarios) as the ability to maintain this margin may erode over time. On the other hand, if NMD have zero spread or a positive spread (i.e., to the advantage of the depositor) then there may be legroom for an institution to model a degree of margin evolution that would imply for the upward IR scenario a smaller deposit cost increase compared to the standardised parallel upward shock. Similarly, for the downward IR scenario this would entail a deposit cost decrease greater than the market rate decrease (assuming that the situation under point ii does not apply).
 - ii. Distance from a zero / negative rate environment: if risk-free interest rates are negative or zero then it is very difficult for institutions to have a negative spread on NMD (as this would imply charging the depositor with a negative interest rate). This means that if the current environment is that of a zero/negative risk-free rate there might be legroom for an institution to model a degree of margin expansion (moving from a positive spread to a negative spread). This is particularly the case if the IR is below zero and the NMD rate

is effectively floored at 0% (also considering reputational reasons). In this situation, this margin compression of the deposits is not a result of a behavioural modelling but the result of automatic IR options. The scenario in which the margin expansion would take place would have to be the parallel upward shock.

Conversely, if the current IR environment is positive, but the risk-free rate is equal to or below the size of the parallel shock scenario, it should be assumed that under the downward parallel shock scenario the margins on NMD will be extinguished (to the disadvantage of the institution) particularly.

- iii. Lags in pass-through: if risk-free interest rates have recently increased it would be reasonable for institutions to model a catch up in the rate to be paid on NMD, meaning a compression in NMD spreads to the advantage of the depositor. Or in other context of high betas³² (or even betas over 100% – i.e., deposit which are paying higher than market rates) we can think of a margin compression.

³² In this context, the beta is the ratio between the deposits and market rates.

1.6 Hedging strategies

KEY TAKEAWAYS OF THIS SECTION

A descriptive analysis undertaken on the hedging strategies in place as of end 2023 shows:

- Institutions mainly use IR swaps to mitigate their remaining open IRRBB position after using natural hedges and their debt portfolio.
- Hedging practices across institutions vary still significantly due to specific operational challenges in each of them (e.g. dynamic changes in the estimated core).
- No institution is flagged as an outlier in the SOT EVE as per Q4 2023. However, around 40% of the sample institutions would be outliers in case hedges in the form of interest rate derivatives would be disregarded.
- As to the SOT NII, 13% of the institutions in the sample appear as outliers. The number of these outliers would increase to 21% if hedges in the form of interest rate derivatives are disregarded.

Based on supervisory observations, the following recommendations are made for hedging practices:

- Institutions that use interest rate derivatives are expected to use them for hedging IRRBB exposures rather than for speculative purposes – e.g., hedging NMD should target prudent IRRBB management rather than yield optimisation.
- Liabilities subject to behavioural modelling may in some cases have similar repricing characteristics / maturities as an institution's assets, leading to a natural hedge. However, the assets' repricing profile should not prompt an institution to change their assessment of repricing of behavioural liabilities such as NMD. Instead NMD repricing modelling should take into account the specific features of NMD.

In the medium-long term, the EBA will also contribute to the DRM project of the IASB, given its relevance for the EU banking sector.

1.6.1 Observations

38. A descriptive analysis referred to data as of December 2023 has been undertaken to investigate the characteristics of the derivative hedging instruments used by EU institutions and of the hedged items. Furthermore, the impact of hedging strategies on the SOT on EVE and the SOT on NII has been estimated, which broadly indicates their effectiveness in mitigating IRRBB. Input from supervisors have complemented the analysis. The analysis shows:

- i. Institutions mainly use IR swaps to mitigate their open IRRBB position that remains after they have used natural hedges³³ and their debt portfolio to match the total asset duration to the liability duration.
- ii. Where institutions use fair value hedges, they mainly use micro fair value hedges³⁴ for debt securities, while macro portfolio fair value hedges are mostly used for loans and advances (on the asset side) and deposits (on the liability side).
- iii. No institution is flagged as an outlier in the SOT EVE as of Q4 2023. However, about 40% of the institutions in the sample would be outliers if interest rate derivatives hedges were disregarded. For the SOT NII, 13% of the sample institutions would be considered as outliers if the RTS on SOT were to be applied from Q4 2023. The number of these outliers would increase to 21% in the absence of hedges in the form of interest rate derivatives.³⁵ Table 10 illustrates these results based on institutions' data.

³³Institutions naturally offset the risk by netting positions between assets and liabilities when these have similar maturities and characteristics but opposite direction. Some institutions also offset the risk by building swap portfolios as a structural hedge of their core deposits.

³⁴Hedges to cover the changes in fair value of a recognised financial asset or liability that is attributable to a particular risk and could affect profit or loss.

³⁵The impact of hedging strategies on the SOT on EVE and the SOT on NII is estimated by discounting the risk mitigated by derivatives hedging assets and derivatives hedging liabilities, based on the related information provided in the ITS templates.

Table 10: Impact of hedging strategies on regulatory metrics for the SOT on EVE and SOT on NII.

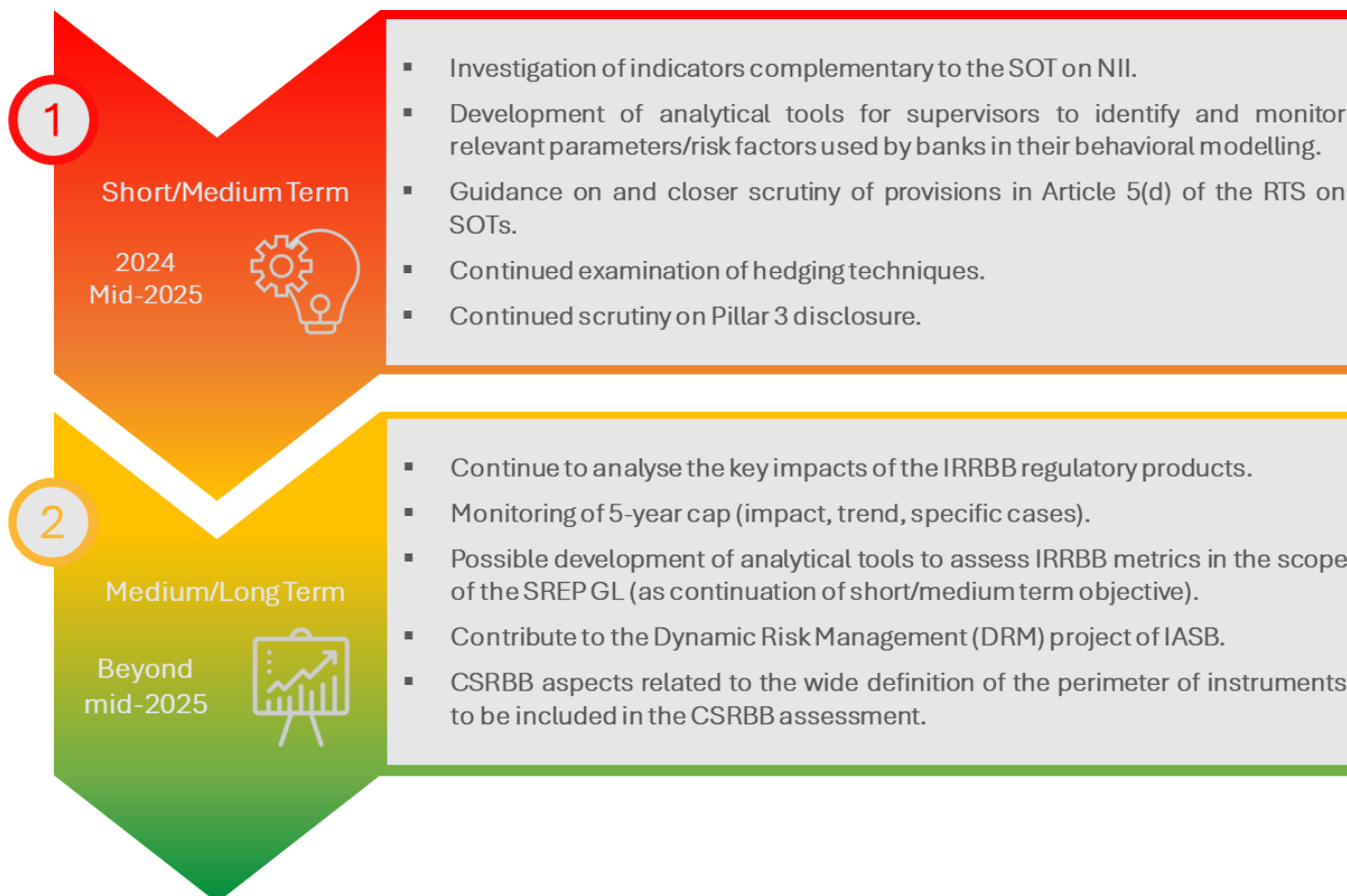
	Δ EVE			Δ NII		
	QIS Sample	Group 1	Group 2	QIS Sample	Group 1	Group 2
# of outliers (if hedges do not apply)	20	8	12	10	4	6
as % of institutions analysed	41.67%	34.78%	48.00%	20.83%	17.39%	24.00%
# of institutions analysed	48	23	25	48	23	25
# of outliers (if hedges apply)	0	0	0	6	4	2
as % of institutions analysed	0.00%	0.00%	0.00%	12.50%	17.39%	8.00%
# of institutions analysed	48	23	25	48	23	25

- iv. A fragmented landscape in terms of hedging practices across institutions is confirmed. Moreover, many institutions seem to have experienced a significant change in their monetary policy hedging strategy over the past two years. Only a small fraction of institutions deploys stress scenarios on the derivatives portfolio.

1.6.2 Recommendations

39. Based on supervisory observations and the analysis conducted, the following recommendations are targeted to institutions to improve hedging practices:
- i. Institutions that use interest rate derivatives are recommended to use them for hedging IRRBB exposures, rather than for speculative purposes. Hedging NMD should target prudent IRRBB management rather than yield optimisation.
 - ii. Liabilities subject to behavioural modelling may in some cases have similar repricing characteristics/maturities as an institution's assets, leading to a natural hedge. However, the assets' repricing profile should not prompt an institution to change their assessment of repricing of behavioural liabilities such as NMD.

Annex I: Objectives of the heatmap following the EBA scrutiny on the IRRBB (as published on 24 January 2024)





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