FINANCIAL SECTOR ADVISORY CENTER (FinSAC)

Renewed supervisory challenges in light of tightened financial conditions and economic slowdown

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Session 2: Do higher interest rates mean more or fewer risks to banks? Regulatory and Supervisory Approaches to IRRBB

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EBA IRRBB regulatory products

9 May 2023

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I. Background

- **To transpose Basel Standards on IRRBB and fulfill its mandates, on October 20, 2022, the European Banking Authority (EBA) published its regulatory products related to interest rate risk in the banking book (IRRBB),** namely:
  i. The Guidelines on interest rate risk in the banking book (IRRBB) and credit spread risk in the banking book (CSRBB) – available here.
  ii. The draft Regulatory Technical Standards (RTS) on the supervisory outlier tests (SOTs) – available here.
  iii. The draft RTS on the standardised approach (SA) – available here.

- These products are complemented by:
  - **A close IRRBB monitoring to which the EBA committed** considering the new nature of the products and the unusual economic environment (e.g., further increases in policy rates, and simultaneous effects in liquidity, accounting, etc.).
  - Implementing technical standards **(ITS) on Pillar 3 disclosure of banks' exposures to IRRBB** which is applicable since June 2022 – available here. Disclosure of SOT impacts is on semi-annual basis for large banks with qualitative information annually.
  - **Supervisory reporting for IRRBB** *[CP published in January].*

II. Guidelines on IRRBB and CSRBB

- These Guidelines will apply from 30 June 2023 (31 Dec 2023 for CSRBB part) and replace existing ones.
- These **Guidelines provide:**

  i. Criteria for **the identification, evaluation, management and mitigation of IRRBB in bank's internal systems.**

  Key highlights:

  - Net interest income – NII – (composed of interest income and interest expenses) and economic value of equity (EVE). In addition, **market value changes** should be assessed too.
  - An average **5-year cap repricing maturity** is introduced now for retail and non-financial wholesale deposits without a specified repricing dates – non-maturity deposits (NMDs), core and non-core. This **behavioural assumption aims to ensure a minimum level playing field** and prudent treatment of these deposits because it was reasonably expected that some migration of NMDs to term deposits occurs in an environment of rising interest rates.

  ii. The **framework for** assessing and monitoring **CSRBB.** Institutions should not exclude any instrument in the banking book from the perimeter of CSRBB ex ante, irrespective of their accounting treatment. Any potential exclusion of instruments from the relevant perimeter should be done in the case of the absence of sensitivity to credit spread risk and should be appropriately documented and justified. In any case, institutions should not exclude assets accounted at fair value.

III. RTS on the SOTs (1 of 2)

- Mandate on the SOT on NII required the EBA to define the threshold for a 'large decline'.

- **The SOTs aim at assessing the impact of pre-specified shock scenarios (as per the Basel standard) on a bank's:**
  1. **Economic value of equity (SOT on EVE) with the threshold of 15% of Tier 1 (same as Basel); and**
  2. **Net interest income (SOT on NII) where EBA originally proposed the threshold of a 'large decline' to be set at 2.5% of Tier 1 (based on December 2020 data) and has been recently recalibrated to 5% in view of the evolution of interest rates.**

- In case a bank reaches any of these thresholds, the relevant supervisor shall exercise its supervisory powers (e.g. capital requirements, closer supervision…) unless it considers that the bank's management of IRRBB is adequate, and that the bank is not excessively exposed to IRRBB.

III. RTS on the SOTs (2 of 2)

- The Basel IRRBB standards require the SOT and EVE at least but envisages the possibility of an **SOT based on NII which should be at least as stringent as the SOT on EVE.**
- Following Basel, **EBA's calibration of the large decline of NII (2.5% of Tier 1) ensured the same percentage of banks as outliers as for EVE.**
- The modelling assumptions (e.g. 1 year and constant balance sheet assumption for NII and run-off balance sheet assumption for EVE) and shock-scenarios (six for EVE and two for NII) of the RTS on SOTs are in line with Basel.
- For the assumptions that are not specified in the RTS on SOTs, banks will apply the same modelling they use either in their internal systems or as specified in the standardised approach.
- When calculating the aggregate change for each interest rate shock scenario, institutions shall add together any negative and 50% of positive changes occurring in each currency.

IV. Guidelines on common procedures and methodologies for SREP

- Title 6 of the EBA Guidelines (available here) on common procedures and methodologies for the SREP refers explicitly to the SOTs as minimum information for supervisors to consider in their assessment of a bank's exposure to IRRBB.
- The assessment of inherent exposure of the bank (main IRRBB drivers) should be based on:
  a. Preliminary assessment (based on ICAAP, reporting etc);
  b. Assessment of the nature and composition of the bank's interest rate risk profile; and
  c. Assessment of the outcome of the SOTs, supervisory stress tests, and the bank's shock scenarios.
- Supervisors should assess whether the bank has an appropriate framework for identifying, evaluating, managing and mitigating IRRBB, in line with the level, complexity and riskiness of non-trading book positions and the bank's size and complexity.
- The assessment should encompass internal models, such as those related to customer behaviour (e.g. models of deposit stability and early repayment of loans).

V. RTS on the SA

- The EBA fulfilled its mandate to draft an **RTS setting out the standardised and simplified standardised methodologies,** which serve the purpose of the evaluating EVE and NII (also for the SOT) in the context of the supervisory review and evaluation process (SREP). It applies to banks for which the supervisor considers that the bank has a non-satisfactory IMS.

- The RTS on SA is in line with the SA on EVE provided in the Basel standard:
  - **The Basel SA on EVE has been used as reference in the EBA SA on EVE and on NII**, such as regarding the 20 standard time buckets and the slotting of NMDs with relevant caps.
  - The NII calculation in the SA is not provided by Basel. Some adjustments to the final steps of the EVE calculation were necessary to ensure the NII calculation (e.g. projection of cash flows to the end of the NII time horizon instead of discounting them to their present value).
  - Proportionality thresholds: To reinforce proportionality (essential in the EU for smaller banks) specific thresholds under which banks under the SA are not expected to model specific behavioural assumptions in order to reduce the burden of their modelling are envisaged – i.e. under specific % of banking book size.
  - The RTS includes a simplified SA that is restricted to banks classified as small and non complex (e.g. criteria are < 5bn€ balance sheet, etc). The simplified SA is at least as conservative with fully prescribing NMD slotting.

VI. EBA scrutiny plans

- Given the importance of this regulatory product at the time of its publication in the current interest rate risk environment, the EBA will continue its continuous dialogue with stakeholders for a close monitoring of the IRRBB aspects and application of these regulatory technical standards, included possible unintended effects
- Considering the changed environment, the Pillar 2 nature and complexity of IRRBB, the **EBA has just started with a close monitoring** of IRRBB and banks' interest rate risk management; the monitoring will target not only IRRBB aspects, and related risks and challenges for banks (on modelling assumptions or hedging strategies etc), but also the calibration of the EBA products and correlated prudential aspects where interest rates hikes will have an influence (accounting, liquidity, or capital for example).
- The monitoring exercise will be initially framed in the QIS (involving about 150 banks) and later on in the regular reporting framework (ITS on reporting), both with quantitative and qualitative input.
- The EBA is closely interacting with EU supervisors / its members as well as banks / industry associations.

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On-site inspections of IRRBB

Czech National Bank

9.5.2023

Credit institutions in the Czech Republic and regulation and supervision of IRRBB

- Credit institutions in the Czech Republic
  - Banks – mostly universal commercial banks with limited trading book
    - The largest Czech banks are subsidiaries of banks in the Eurozone (top 5 Czech banking groups - 80% of total assets of the sector)
    - Local private owned banks (small or middle-sized banks)
    - Specialized banks - Building societies and mortgage banks (subsidiaries of big banks)
    - State owned banks (development and export banks)
    - Branches of banks outside EU (immaterial)
  - Credit unions – small local institutions
- Regulation and supervision units within the Czech National Bank
  - Regulation department
  - Licensing and enforcement department
  - Financial stability department (macro-prudential policy)
  - Financial Market Supervision - off-site department and on-site department

On-site inspection of IRRBB

- Scope of standard on-site inspection focused on IRRBB
  - Organization, risk management function, separation of duties
  - Strategy, financial planning, risk appetite, limit system
  - Measurement of IRRBB (risk management department)
    - EVE (EV) measures
    - NII measures
    - Behavioral models
    - Other measures
  - Management of IRRBB (ALM department)
    - Hedging (economic hedging, hedge accounting)
    - Funds transfer pricing
    - Interrelation of IRRBB and liquidity/funding management
  - Banking and trading book boundary
  - Internal and regulatory reporting
  - Other issues

Measurement of IRRBB – interest rate gap analysis

- Contractual versus behavioral repricing gaps
  - All interest rate sensitive instruments in BB should be considered
  - Positions are entered according to repricing or maturity (comparison with liquidity gap)
  - Differences between contractual and behavioral gaps
  - Assumptions on products with behavioral options have to be made
- Granularity of time buckets
  - Gap for measurement, gap for management/hedging, gap for presentation/reporting
- Other issues:
  - Interest rate inclusion - client rate (i.e. including commercial margin) or FTP rate
  - Estimation of future floating rates, full revaluation
  - Automatic options (explicit options, product caps and floors)

Measurement of IRRBB - methods

- EVE (EV) measurement
  - Different levels of sophistication – duration, discounting, full revaluation, conditional CFs
  - SOT (Supervisory outlier test) versus internal measurement
- NII measurement
  - Different approaches used - balance sheet assumptions (run-off models, constant balance sheet models, dynamic CF models)
  - NII or earnings, with or without changes in NPV (for instruments at fair value)
  - SOT versus internal measurement
- Other measures (PV01, VaR)
- Behavioral models
- Automatic options
- Conditional cash flow modelling – timing or amount of cash flows is dependent on the specific interest rate scenario (e.g. prepayment rate when interest rates increase differs from prepayment rate when interest rates decrease)

Measurement of IRRBB – behavioral models

- Products with behavioral options - behavioral models
  - Loans → estimate of prepayments (mortgages and consumer loans)
  - Term deposits → estimate of early redemption
  - Non-maturing deposits (NMDs) – current accounts and saving accounts of retail and non-financial customers
  - Fixed rate loan commitments → estimate of drawings
- Non-maturing deposits (NMDs) – products with the most significant impact on the results of measurement
  - Need for segmentation – different characteristics by customer and product type
  - 3 steps of estimation – (in)stability, interest-rate (in)sensitivity (pass-through rate) → estimation of volume of core deposits, estimation of run-off profile (regulatory constraints)
  - Wide variety of models from simple judgement-driven approach to very sophisticated statistical models
  - However, level of sophistication is not often correlated with quality of estimation. Calibration on proper data and is crucial, estimates should not rely solely on quantitative methods
  - Regular back testing, internal validation

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Typical balance sheet and off-balance sheet items and IRRBB

Assets – balance and off-balance sheet items

- Trading book assets
- Cash and bank accounts
- Reverse repo operations with CB
- Loans
- Bonds
- Other assets
- Fixed rate loan commitments
- Derivative positions BB
- Derivative positions TB

Liabilities and capital – balance and off-balance sheet items

- Trading book liabilities
- Term deposits
- NMDs (CA and SA)
- Bonds issued
- Other liabilities
- Capital
- Derivative positions BB
- Derivative positions TB

Measurement of IRRBB – challenges for banks

- Current and upcoming regulation
- Current regulation
  - NMDs modeling – large amount, significant impact, lower stability and higher sensitivity than assumed
  - Conditional cash flow modelling – complex but important for proper measurement
- New regulation
  - Definition of SOT on NII calculation
  - Introduction of standardized and simplified standardized methodologies
  - Introduction of CSRBB assessment and monitoring

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Thank you for your attention

INTEREST RATE RISK IN THE BANKING BOOK

Supervisory approach

Vienna, 9th May

Álvaro Cervigón Banda

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Interest rates evolution

- **Main drivers of the sharp interest rate increases applied by central banks remain active**

High inflation | **Geopolitical uncertainties**

- Apparently **there is no room for additional interest rates increases** in the short term

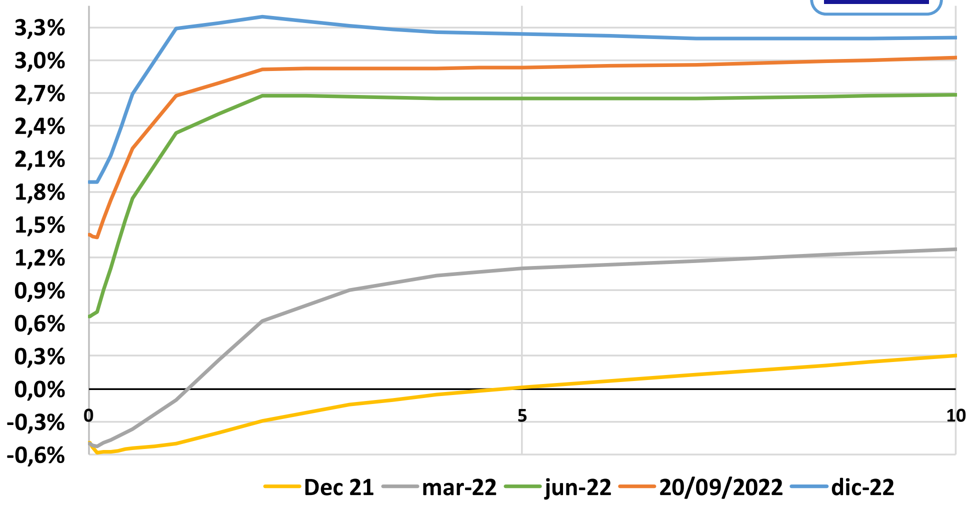
- The Eurozone has experienced **intense IR increases since 1Q22**, concentrated mainly in the next 2 years. For the following years the curve remains flat
- **12m EUR has increased 379 bps. since Dec 21** which is well above prudential shocks applied by competent authorities for on going supervision (200 bps.)
- **Maximum at 448 bps (09.03.23)**, decreasing since then to **403 pbs. (24.03.23)**

- Similar evolution in the U.S. but anticipating the interest rate increases
- **Interest rates increased 485 bps since Dec 21** reaching the 1y rate up to 5,09%
- **Similar to Euro, maximum was reached at 448 bps (08.03.23)**, decreasing since then to December level **5,02% (24.03.23)**

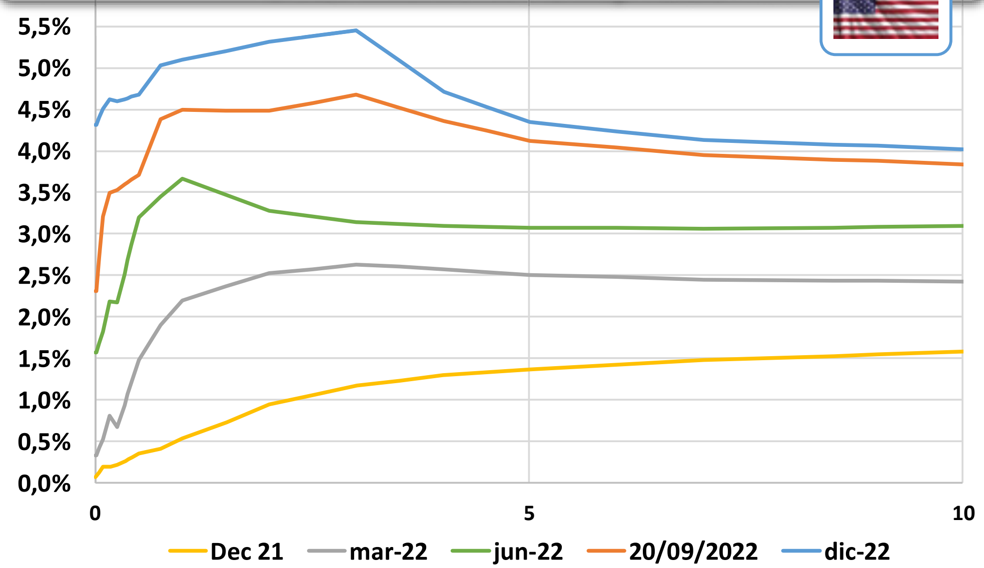
Deposits

- Under this scenario, **first sights of migration of deposits to more attractive alternatives (i.e. investment funds, term deposits…) has started to be perceived**

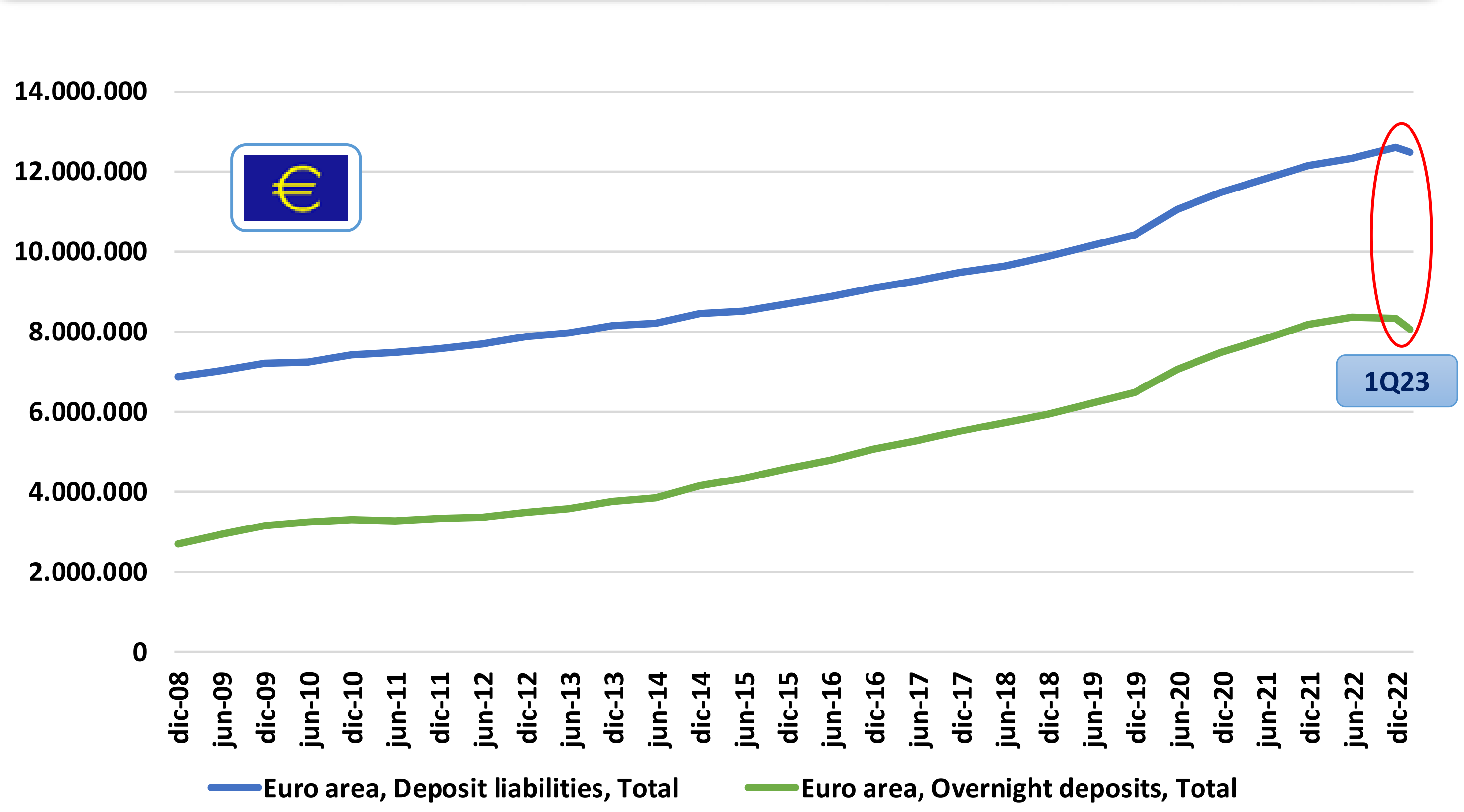
Historical evolution of Term Structure Interest Rates. Euro Interbank / Swap rates

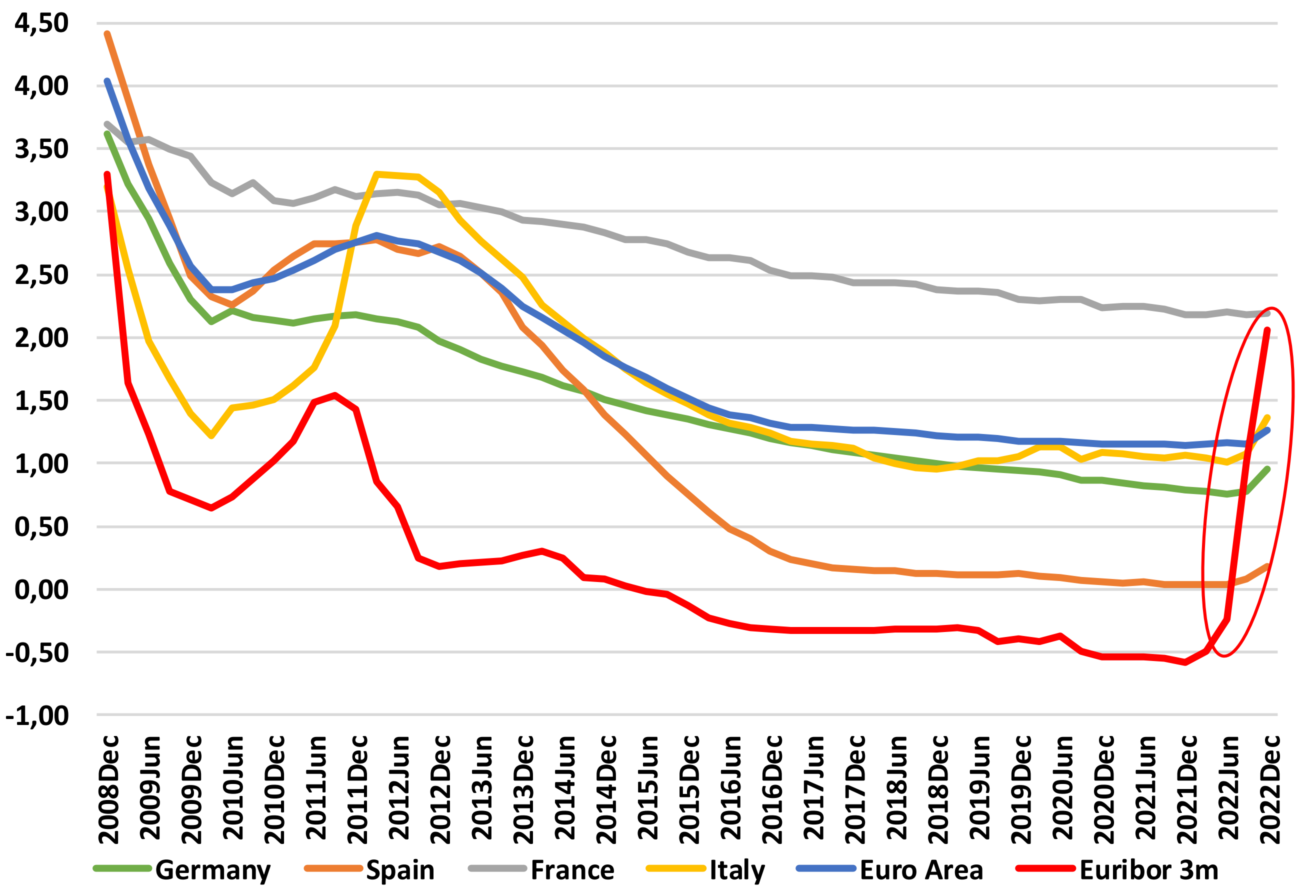


Historical evolution of Term Structure Interest Rates. Dolar Interbank / Swap rates



1. Setting the scene
1.1 Trends and forecast





- In the euro area as a whole, volumes are maintained, but **a shift towards term deposits (or other more attractive alternatives) is perceived**
- However, there is a **great heterogeneity among the member states**

- The **sharp increase in Euribor is increasing gradually the cost of deposits all across the European Union**
- However, **there are relevant differences in the starting point**

The supervisory approach is based on indicators focusing on the short term perspective (NII 1 year) and also the impacts on the Economic Value of Equity (long term)

2 Indicators

NII SENSITIVITY (1Y horizon) → **IMPACT on NII**

SHORT-TERM EARNINGS (*) → **IMPACT ON P/L AND/OR EQUITY**

EVE SENSITIVITY (**) → **IMPACT ASSESSMENT**

(*) STE = NII SENSITIVITY (1Y) + SENSITIVITY FV PORTFOLIO IN THE BANKING BOOK

(**) EVE = PRESENT VALUE OF FUTURE FLOWS OFTO INTEREST RATE SENSITIVE INSTRUMENTS

2. Supervisory approach
2.2. Supervisory Review Evaluation Process (SREP)

SSM SREP

SSM SREP is built on four elements

1
- **Business model and profitability assessment**

2
- **Internal governance and risk management assessment**

3
- Risk-by-risk assessment of **risks to capital in normal scenarios and under stressed conditions**

Credit risk | **Operational risk** | **Market risk** | **IRRBB**

- These assessments feed into a **preliminary determination of a capital requirement** to cover those risks and an assessment of capital adequacy

4
- Risk-by-risk assessment of **risks to liquidity and funding** in normal scenarios and under stressed conditions

Short term funding | **Long term funding**

- These assessments feed into a **preliminary determination of a liquidity requirement** to cover those risks and an assessment of liquidity adequacy

2. Supervisory approach
2.2. Supervisory Review Evaluation Process (SREP)

SREP decision

- Quantitative capital measures
- Quantitative liquidity measures
- Other supervisory measures

Overall SREP Assessment – holistic approach
Score + rationale / main conclusions

Viability and sustainability of business model	Adequacy of governance and risk management	Categories: e.g. credit, market, operational risk and IRRBB	Categories: e.g. short term liquidity risk, funding sustainability
1. Business model assessment	2. Governance and risk management assessment	3. Assessment of risks to capital	4. Assessment of risks to liquidity and funding

Feeds into the Supervisory Examination Programme (SEP)

2. Supervisory approach
2.2. Supervisory Review Evaluation Process (SREP)

Risk Level (quantitative assessment)

Phase 1 – Data Gathering → **Phase 2 – Automated Anchoring** → **Phase 3 – Main Assessment**

- Phase 1 provide supervisor with the IRRBB profile of the bank, but **supervisor shall base its analysis on the list of indicators from Phase 2**
- A focused list of indicators shall consider two key dimensions (short and long term)
- Each indicator shall be assigned a **score between 1 and 4** and **thresholds** should **calibrate and review periodically**, based on their empirical distributions

Illustrative example

		1	2	3	4
Change in Economic Value	Change of EV BB under +200bp parallel shift / Total capital	-2.0%	-2.0% / -7.0%	-7.0% / -17.0%	-17.0%
	Change of EV BB under -200bp parallel shift / Total capital	-2.0%	-2.0% / -7.0%	-7.0% / -17.0%	-17.0%
Change in Net Interest Income	Change of NII under +200bp parallel shift / NII	-2.5%	-2.5% / -4.0%	-4.0% / -8.0%	-8.0%
	Change of NII under -200bp parallel shift / NII	-2.5%	-2.5% / -4.0%	-4.0% / -8.0%	-8.0%

Risk Level (quantitative assessment)

Phase 1 – Data Gathering | **Phase 2 – Automated Anchoring** | Phase 3 – Main Assessment

The **Phase 2** IRRBB score is determined based on the following indicators:

▲EV BB under +200bp parallel shift	▲ NII under +200bp parallel shift			
	1	2	3	4
1	1	1	1	2
2	1	2	2	3
3	2	3	3	4
4	3	4	4	4

Rating (a)

\+

▲EV BB under -200bp parallel shift	▲NII under -200bp parallel shift			
	1	2	3	4
1	1	1	1	2
2	1	2	2	3
3	2	3	3	4
4	3	4	4	4

Rating (b)

=

Rating (a)	Rating (b)			
	1	2	3	4
1	1	2	3	4
2	2	2	3	4
3	3	3	3	4
4	4	4	4	4

SCORE

2. Supervisory approach
2.3. Review of IRRBB methodology

The IRRBB methodology has remained practically unchanged since the beginning of the SSM and needs to be reviewed for the following reasons:

1 Lessons learnt

- **Experience of previous SREP cycles** and the **feedback from JSTs** shows the need to review the methodology to ensure a correct and consistent identification of all IRRBB components

2 Multi Year Approach

- **Improve proportionality and the ability of JSTs to prioritize their IRRBB analysis** by defining modules
- **Calibration of materiality indicators** to identify relevant modules

3 Review of IRRBB methodology

Automatic scores

- Need to review the current set of indicators used for calculating the automatic score in order to **ensure that they are properly identifying IRRBB sensitivities for all the regulatory scenarios**

Risk control

- **Review of the risk control framework** based on the outcome of targeted reviews carried on in the SSM

New regulatory framework

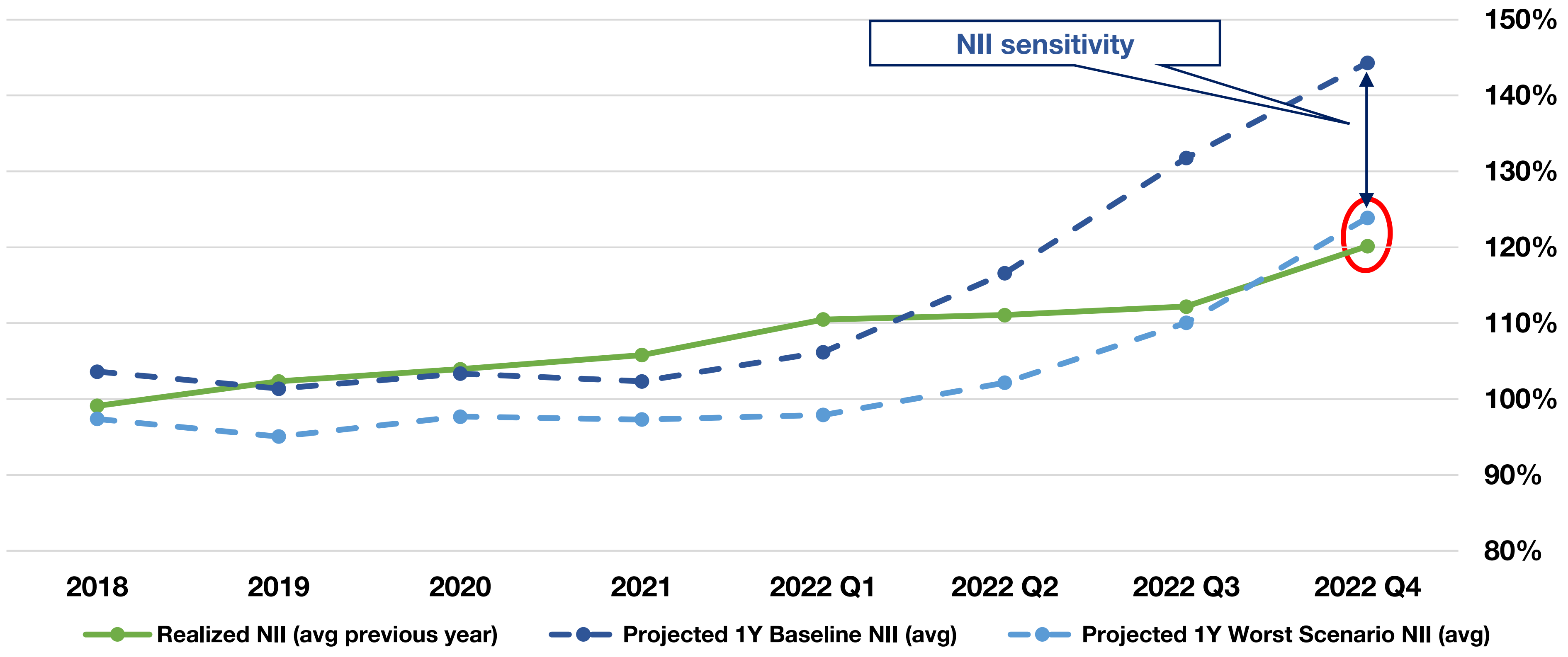
- EBA/GL/2022/14 - GL IRRBB and CSRBB
- EBA/RTS/2022/10 RTS SOT EVE and NII
- EBA/RTS/2022/09 RTS SA and sSA

3. Challenges

NII Sensitivity outliers: Is it a concern?

Significant increase of IRRBB outliers driven by NII sensitivity

Projected NII vs. Realized NII



- Under an **"unstable" IR environment** (material change in the IR curve/sharp change in the slope of the curve) baseline projections could differ significantly from realized NII, and **sensitivities based on projections might provide a picture not very aligned with the real risk on NII**
- Against this backdrop, **complementary indicators should be considered in order to identify these situations**

3. Challenges
Potential additional indicators

Additional KRIs

Worst projected NII / Realized NII

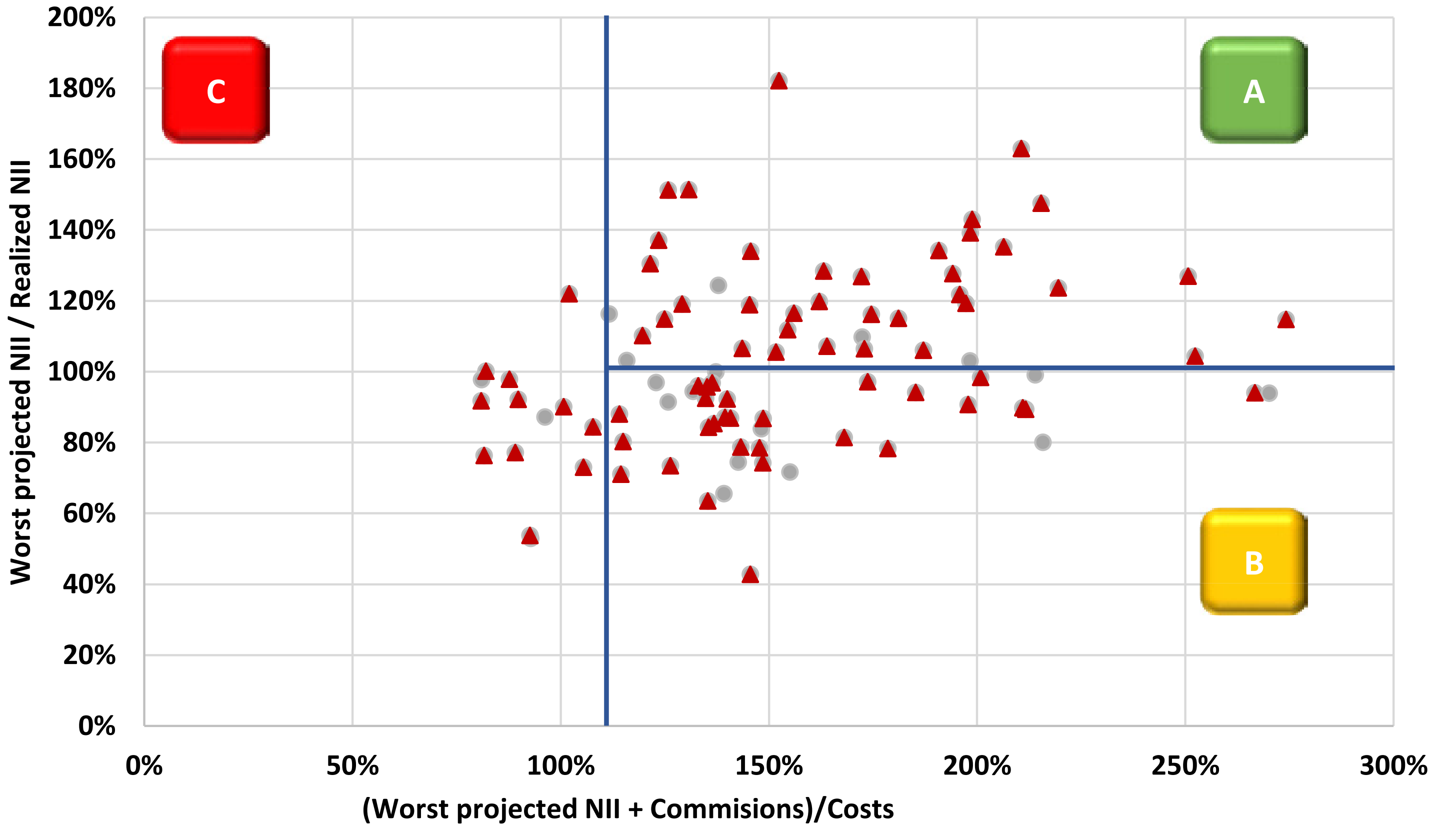
Worst projected NII + Net Fees / Costs

- In case projected **NII in the worst scenario is close to realized NII** this information should be used as complementary information in order to calibrate scores
- In addition, the current unstable environment reinforces the **need to have additional KRIs allowing JSTs to identify whether the IRRBB is jeopardizing its capacity to generate capital organically**. It constitutes additional input to assess whether the severity of the NII scenarios is a concern or should be disregarded

4Q22

All institutions

Higher SREP score



A No (or less) need for scrutinity/supervisory response

B Need to evaluate / need for risk reduction?

C Higher scrutinity /supervisory response / need for capital add-on?

3. Challenges
CSRBB

1 **Guidelines on IRRBB and CSRBB**

EBA/GL/2022/14
art. 84 (6) CRD

Main updates on CSRBB

Previous GL	• Only contained **small definition** and paragraph on CSRBB with **reference to the asset side** of the BB
Metrics	• Assess and monitor CSRBB under **EVE and Earnings**
Definition of CSRBB	• CSRBB relates to the **remuneration of credit risk** (general, **not idiosyncratic**) for a certain level or credit quality, hence **excluding credit quality changes** • As an exception, in the practical implementation and for **proportionality** reasons, **institutions may include idiosyncratic components**
Perimeter	• In principle, includes the **whole balance sheet** (no ex-ante exclusion of assets and liabilities). Assets at FV always included. • **Any potential exclusion** of instruments from the relevant perimeter should be done in the case of the **absence of sensitivity** to credit spread risk
Governance	• **Requirements on governance**, RAS, RAF, risk policies, reporting, IT, DQ, etc, **as known from the IRRBB GLs**, are also required for CSRBB
Level playing field	• **Extensive discussions on scope and definition expected.** Main issue to be expected the perimeter of application.

4. Conclusions

1	Recent developments have highlighted the relevance of a proper management and monitoring of IRRBB
2	The current methodology is not able to properly identify IRRBB exposure in a unstable environment
3	New elements to be considered: CSRBB
4	Need to review the IRRBB methodology based on lessons learnt since the creation of the SSM and the need to increase its discriminatory power

Thank you for your attention