

PROJECTING BANKS NET INTEREST INCOME: AN ASSET-LIABILITY APPROACH, APPLIED TO THE EURO AREA

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The views expressed are those of the authors and do not necessarily reflect the position of the Banque de France.



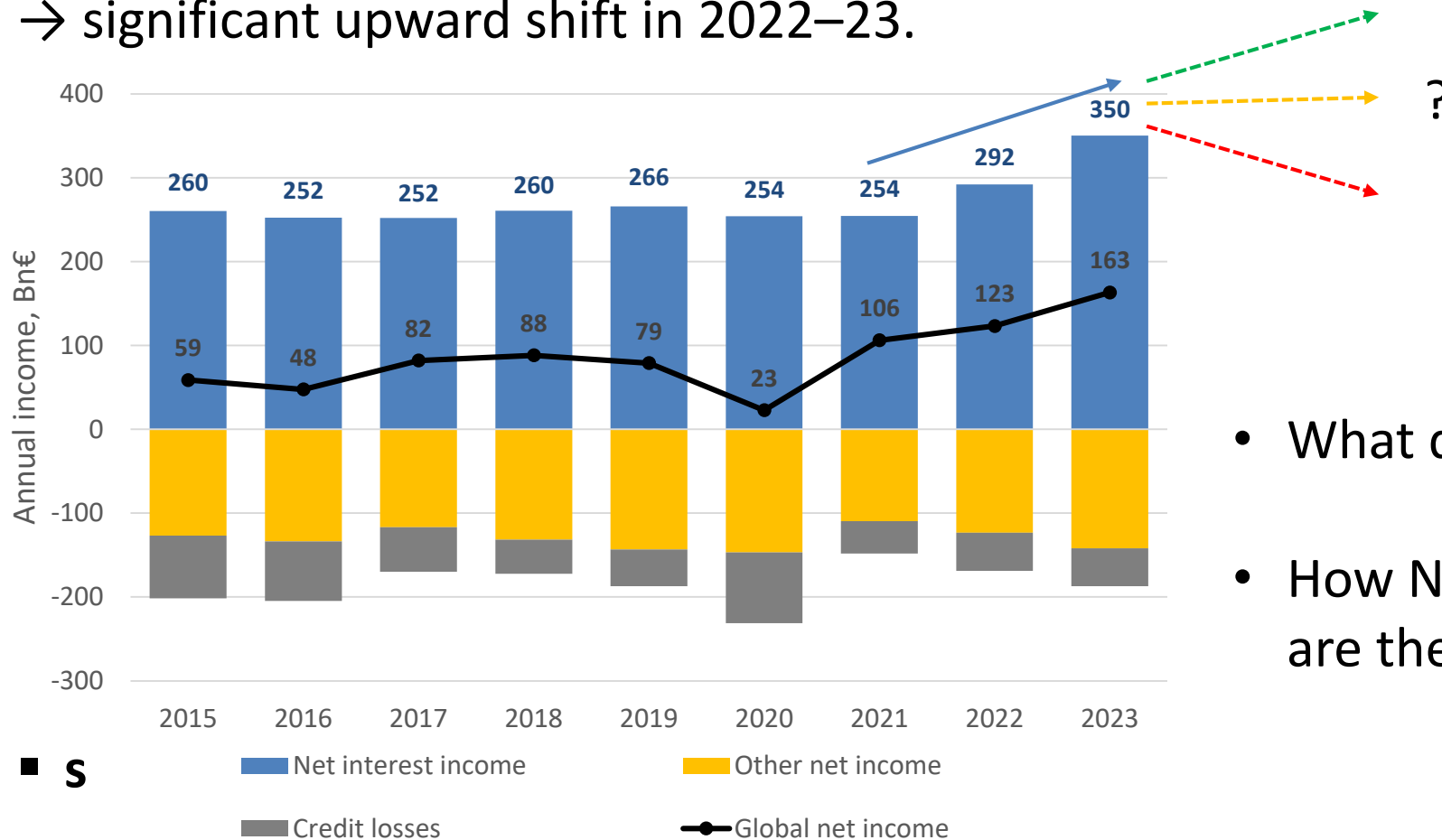
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NET INTEREST INCOME IS A KEY FACTOR OF BANKS' PROFITABILITY

Aggregate NII of euro banks has been stable through 2015-21.

→ significant upward shift in 2022–23.



- What drove the 2022–23 surge?
- How NII will evolve next? What are the main risk factors?

Source : SSM prudential data (FINREP) on Significant Institutions

MODELLING APPROACH – ALM-LIKE MODEL

$$NII = \sum \pm (\text{Balance sheet amounts} \times \text{average interest rates}).$$

Result from **credit issuance** + central bank actions etc.

Must be modelled in a consistent accounting framework, where **Debit = Credit** always.

Ex. : issuance of new loans (Debit) \Rightarrow creation of new deposits (Credit).

Aggregate banking system (sum of large eurozone banks) \Rightarrow reliable conservation laws (no “aggregate run risk”).

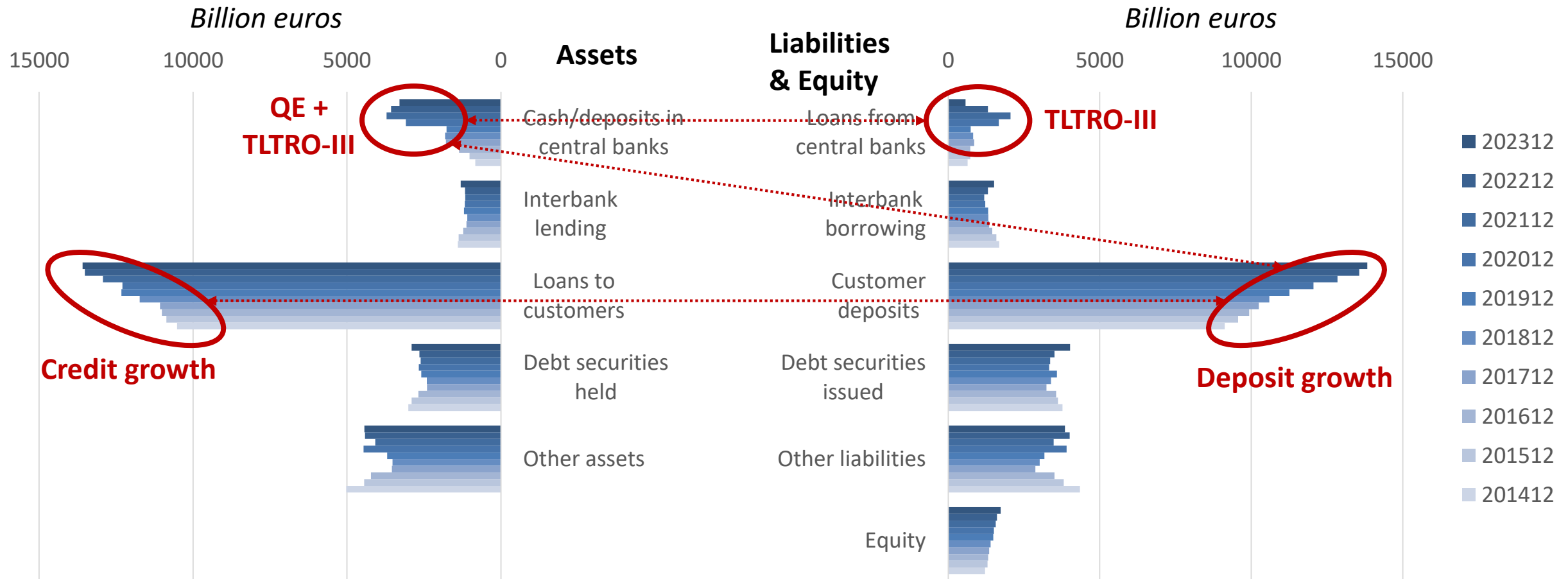
React to the IR environment

Reaction depends on the financial structure:
fixed vs. floating rates,
short vs. long maturities.

BANK BALANCE SHEETS ARE STRONGLY DYNAMIC

Main sources of change: *credit growth, central bank actions.*

Accounting consistency: *deposit growth follows from credit growth + QE.*

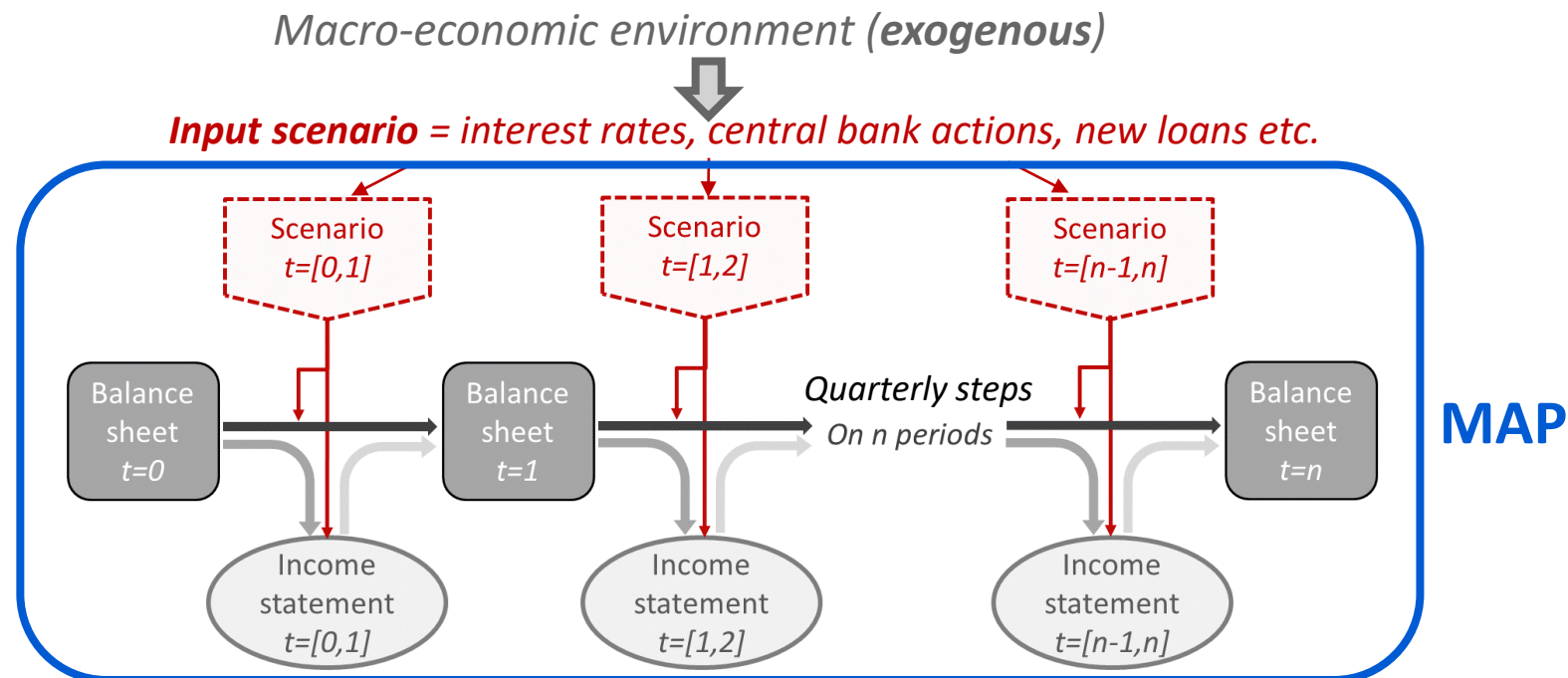


Source : SSM prudential data (FINREP) of Significant Institutions, Banque de France computations

MODELLING APPROACH – SCENARIO AGNOSTICISM

“**MAP**”: model developed at Banque de France in 2022–23.

- Assumptions kept at a minimum → wide freedom in **input scenarios**.
- **No attempt to predict** interest rates, lending volumes, security purchases...: set externally, no **imposed relationship** (any combination can be tested).



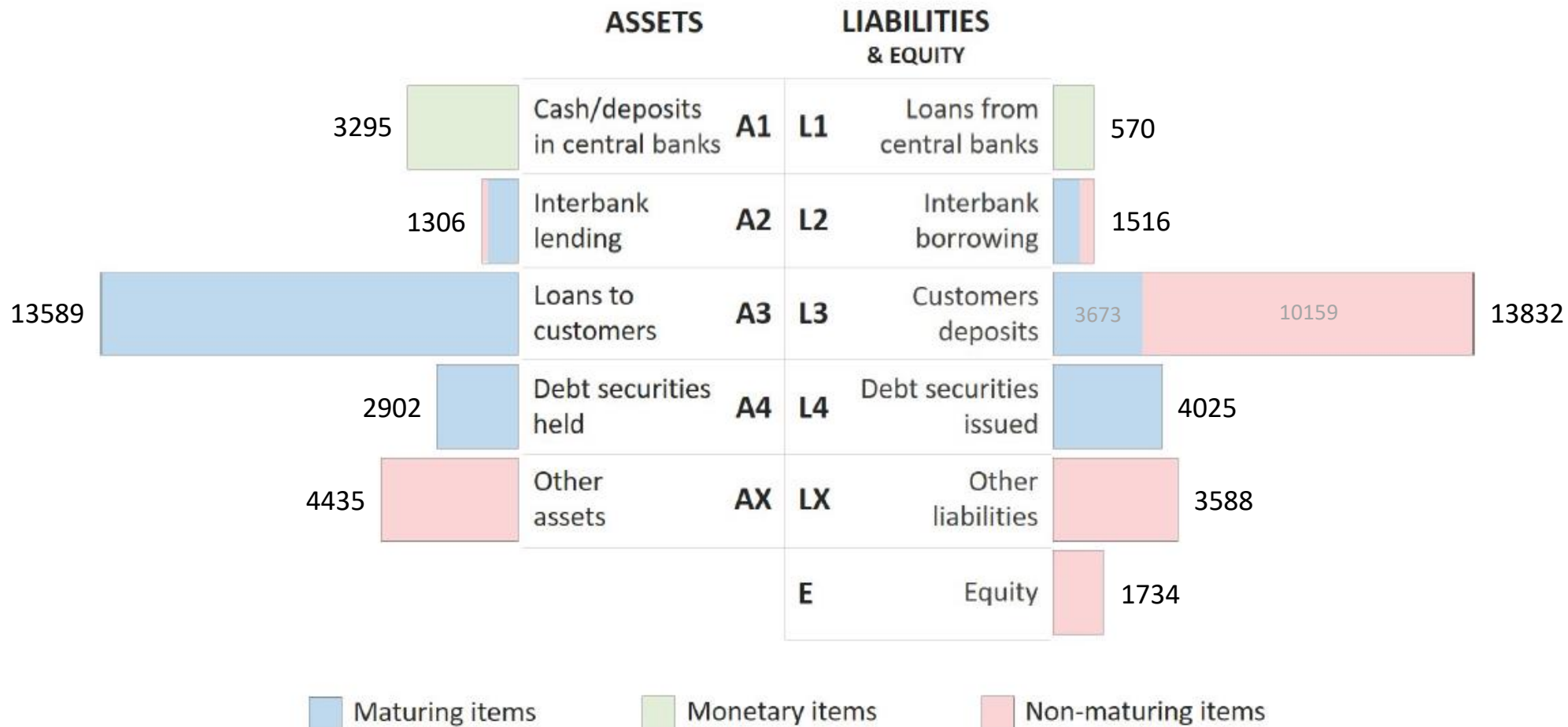


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MODELLING THE EUROZONE BANKS' AGGREGATE BALANCE SHEET

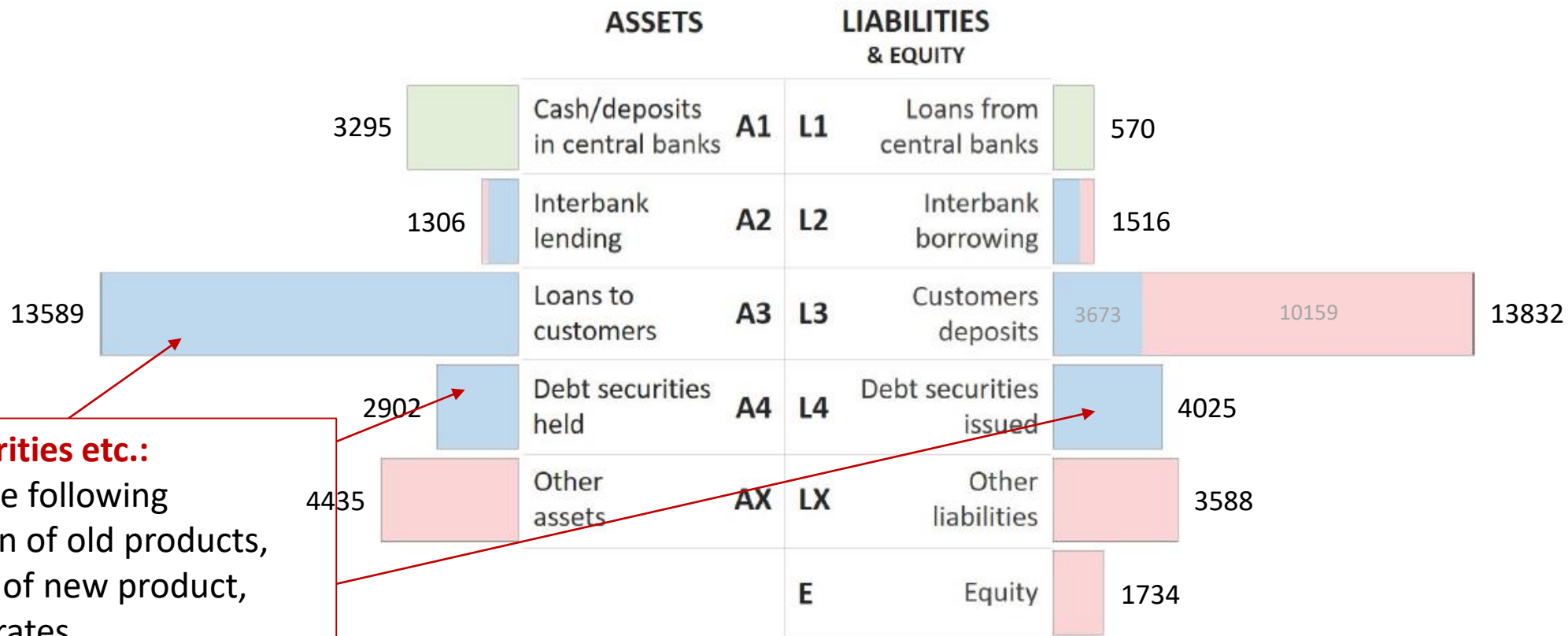
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Source : SSM prudential data (FINREP) of Significant Institutions; structure: Banque de France MAP.



MODELLING THE EUROZONE BANKS' AGGREGATE BALANCE SHEET



Loans, securities etc.:
 Rates change following

- expiration of old products,
- issuance of new product,
- variable rates.

■ Maturing items
 ■ Monetary items
 ■ Non-maturing items

Amounts:	Scenario	Model	Model
Avg. rates:	Model	Scenario	Scenario

MODELLING THE EUROZONE BANKS' AGGREGATE BALANCE SHEET

Reserves & CB funding:

Amounts change following

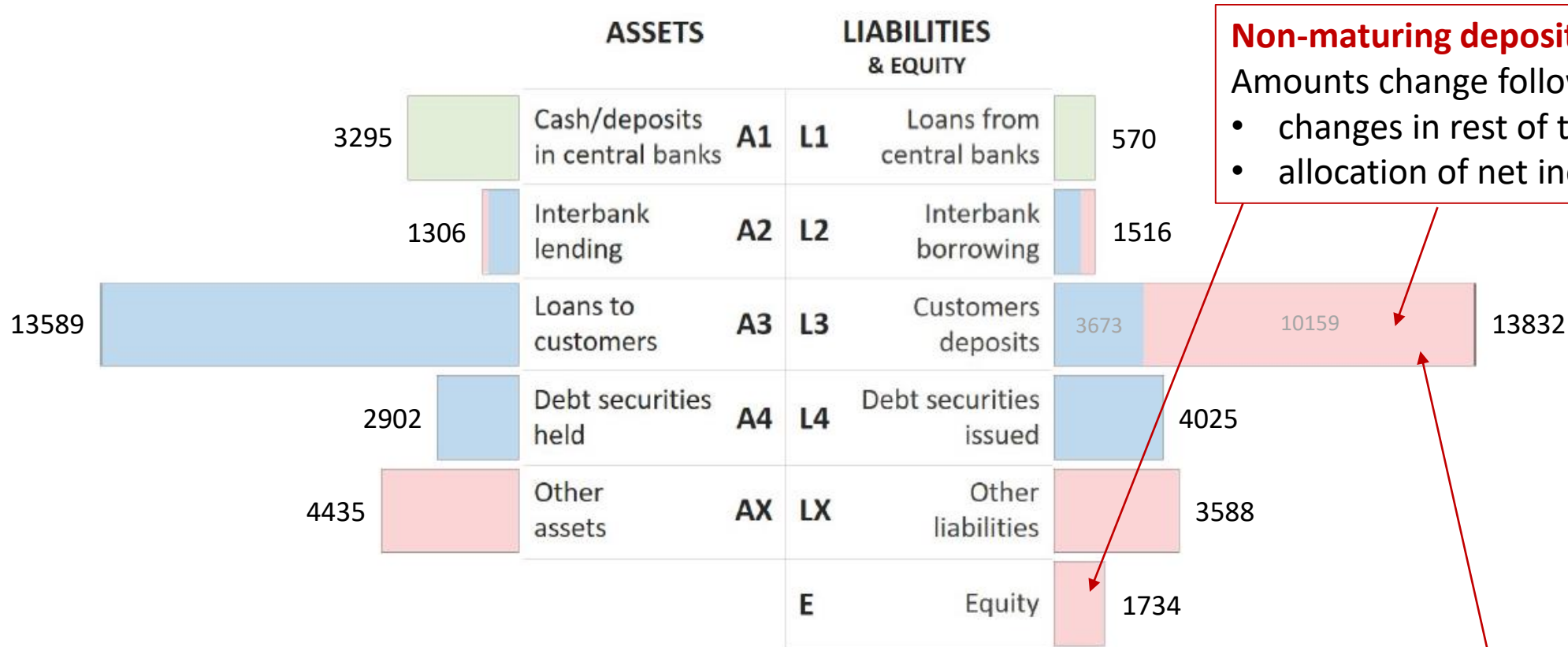
- central bank lending policy,
- central bank asset portfolio variations.



■ Maturing items
 ■ Monetary items
 ■ Non-maturing items

Amounts:	<i>Scenario</i>	Model	Model
Avg. rates:	Model	<i>Scenario</i>	<i>Scenario</i>

MODELLING THE EUROZONE BANKS' AGGREGATE BALANCE SHEET



Non-maturing deposits & equity:
 Amounts change following

- changes in rest of the BS,
- allocation of net income.

■ Maturing items
 ■ Monetary items
 ■ Non-maturing items

Amounts:	<i>Scenario</i>	Model	Model
Avg. rates:	Model	<i>Scenario</i>	<i>Scenario</i>

Effective deposit cost rate is a scenario variable

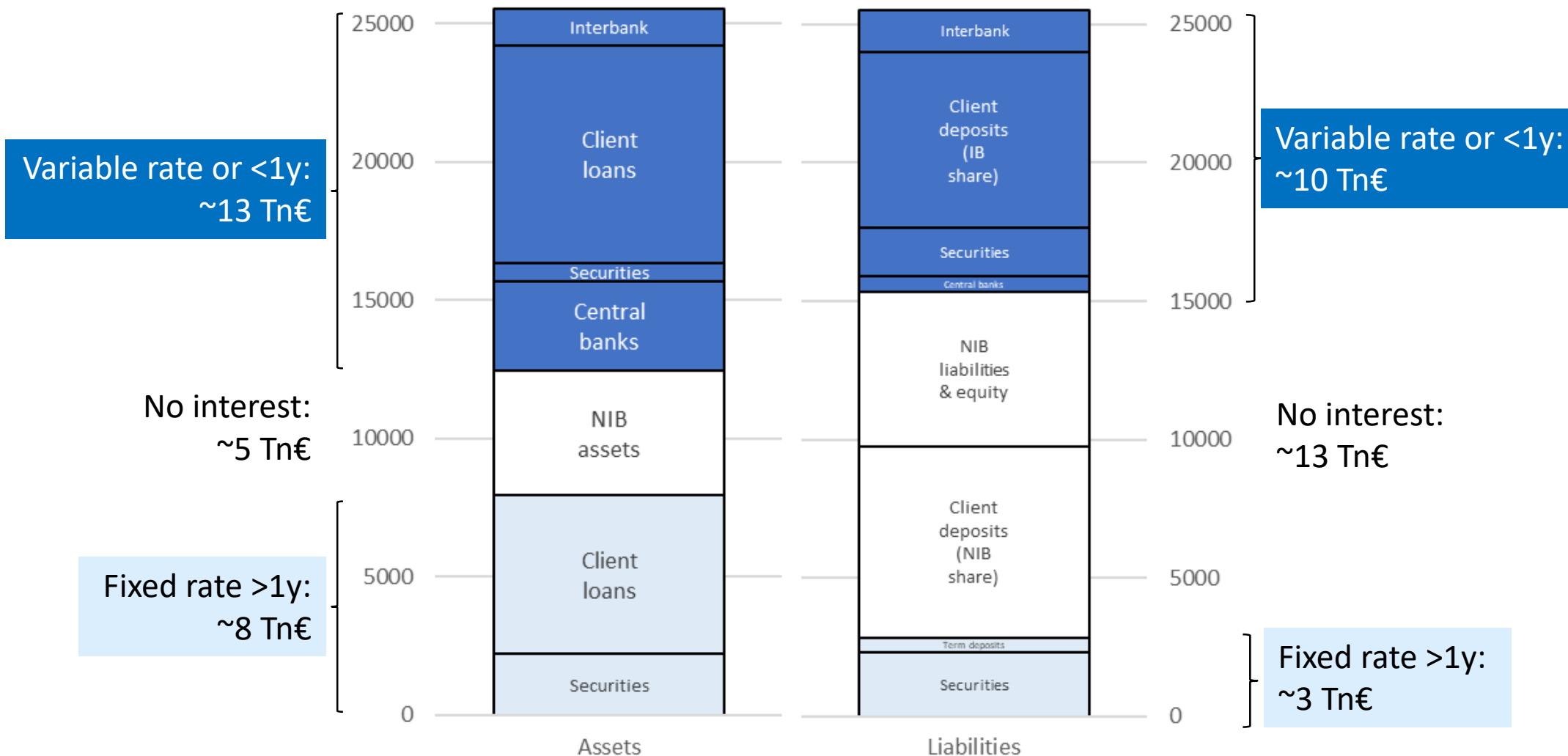


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BALANCE SHEET ANALYSIS : SIMPLE REPRESENTATION OF THE MAP-BASED STRUCTURE

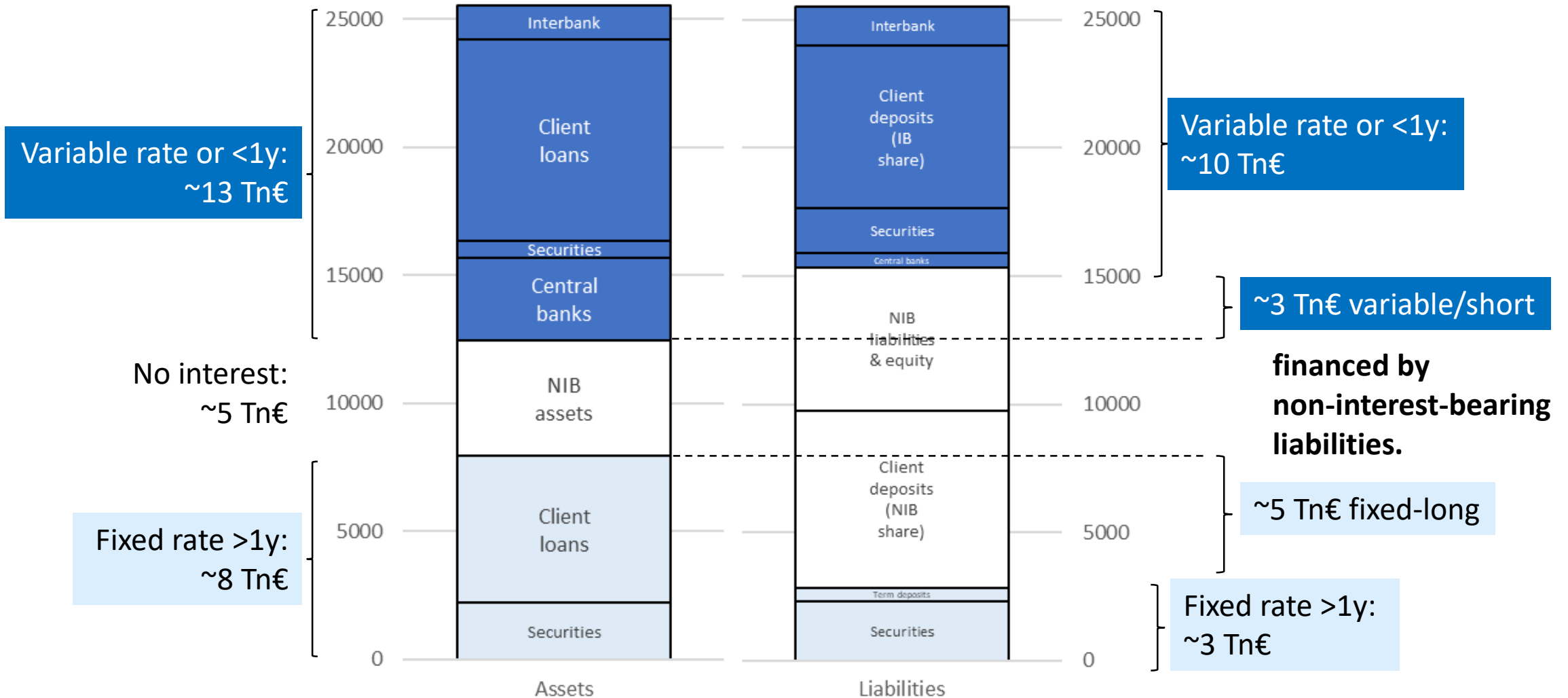
Euro area SI banks' aggregate balance sheet structure at the end of 2023



Source : SSM prudential data (FINREP) of Significant Institutions; structure: Banque de France MAP.

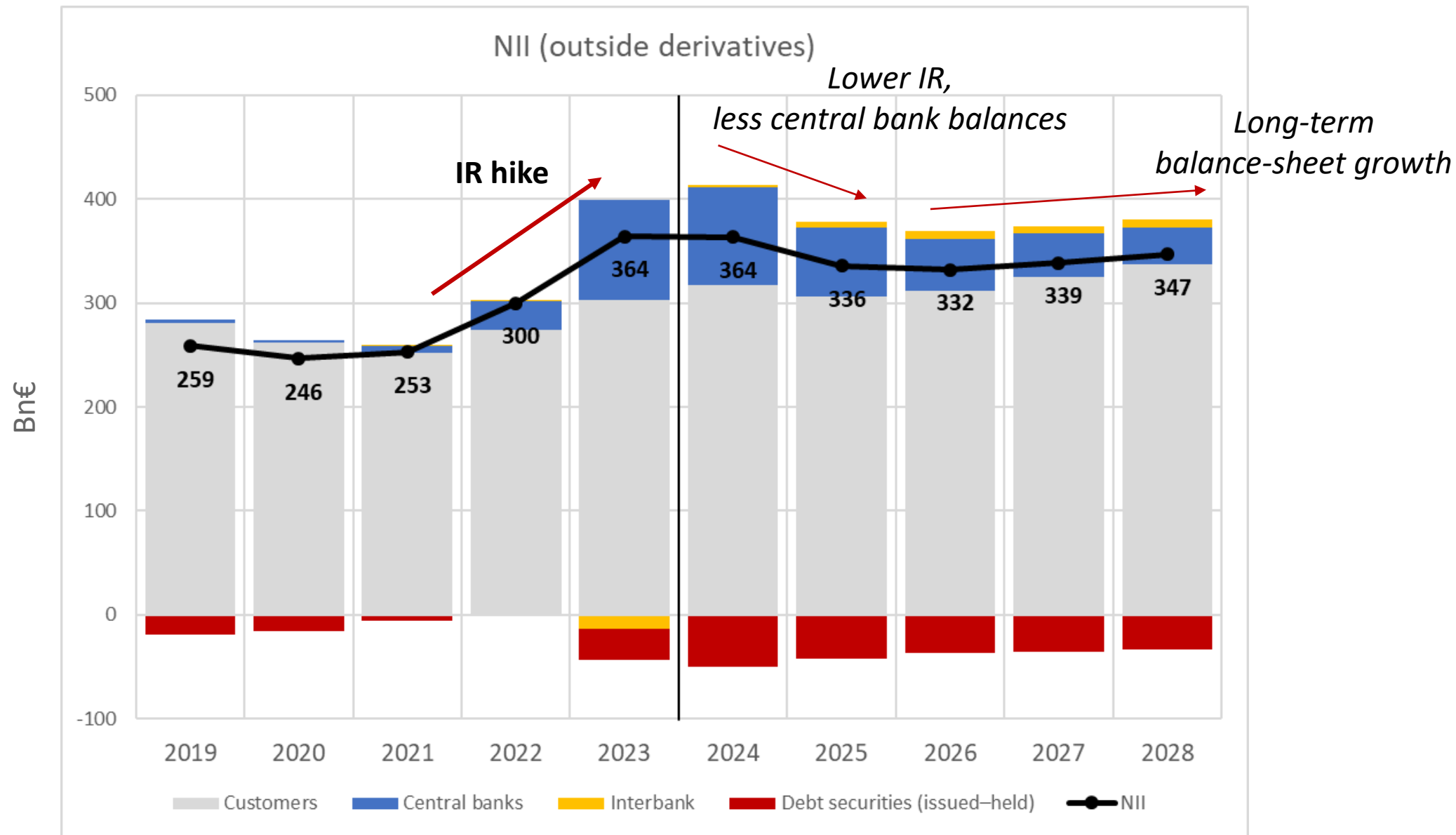
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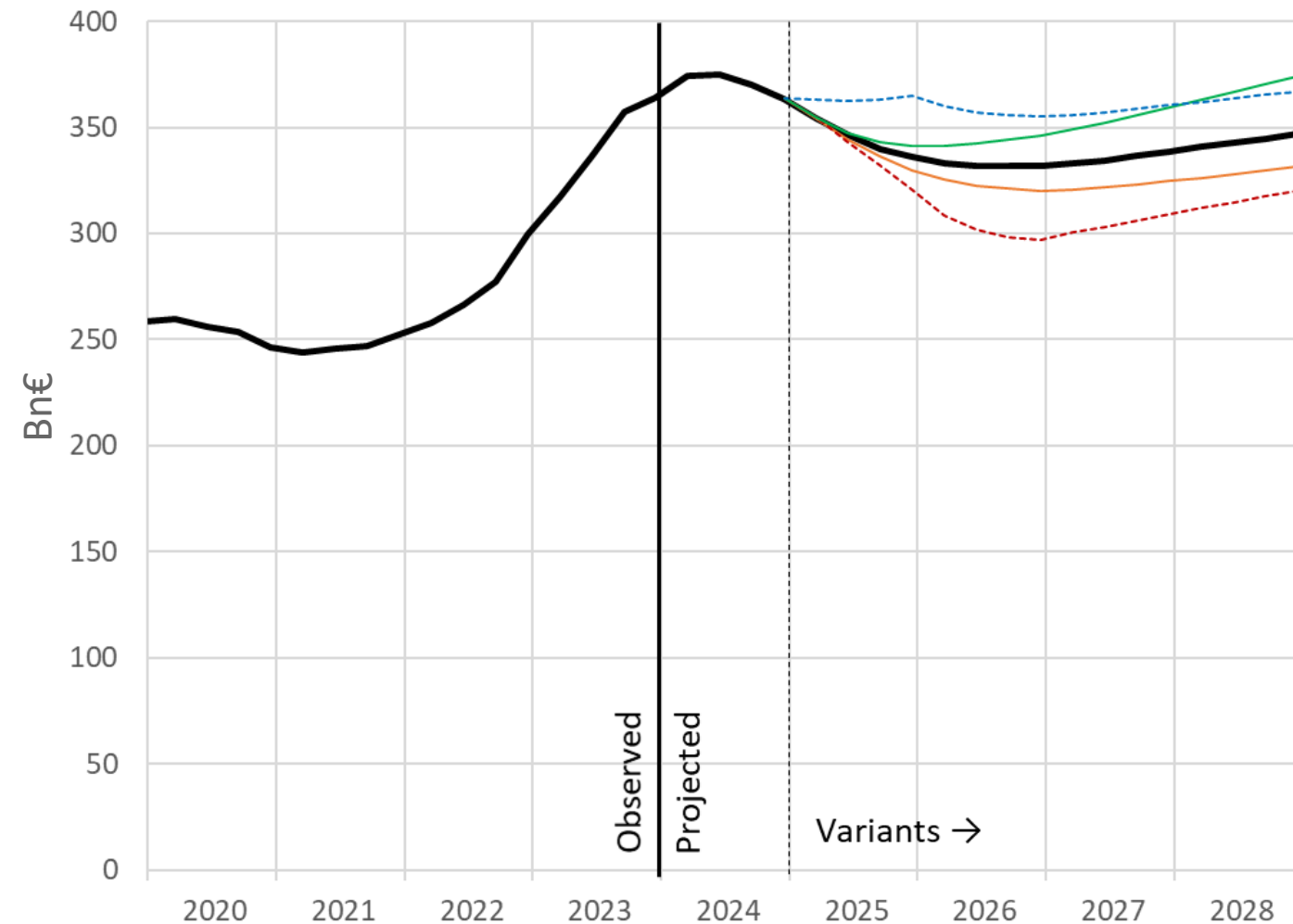
Source : SSM prudential data (FINREP) of Significant Institutions; structure: Banque de France MAP.

PROJECTION OUTCOME ON A CENTRAL SCENARIO



Source : SSM prudential data (FINREP) of Significant Institutions (2019–2023), Banque de France MAP projections (2024–2028).

MULTI-SCENARIO VIEW: SENSITIVITY OF THE NII TO SIGNIFICANT RISK FACTORS



- - - IR + 100 bps starting Jan. 2025
- Lending +2.5% p.y. starting Jan. 2025
- Central scenario
- ×2 migration to interest-bearing deposits
- - - Fast QT: all Eurosystem bonds sold end-2025

- **Positive NII sensitivity** to interest rates at the aggregate level of Eurozone banks
- Central bank deposits created by **QE** yield significant extra NII
- Vulnerability to **deposit remuneration** structure.

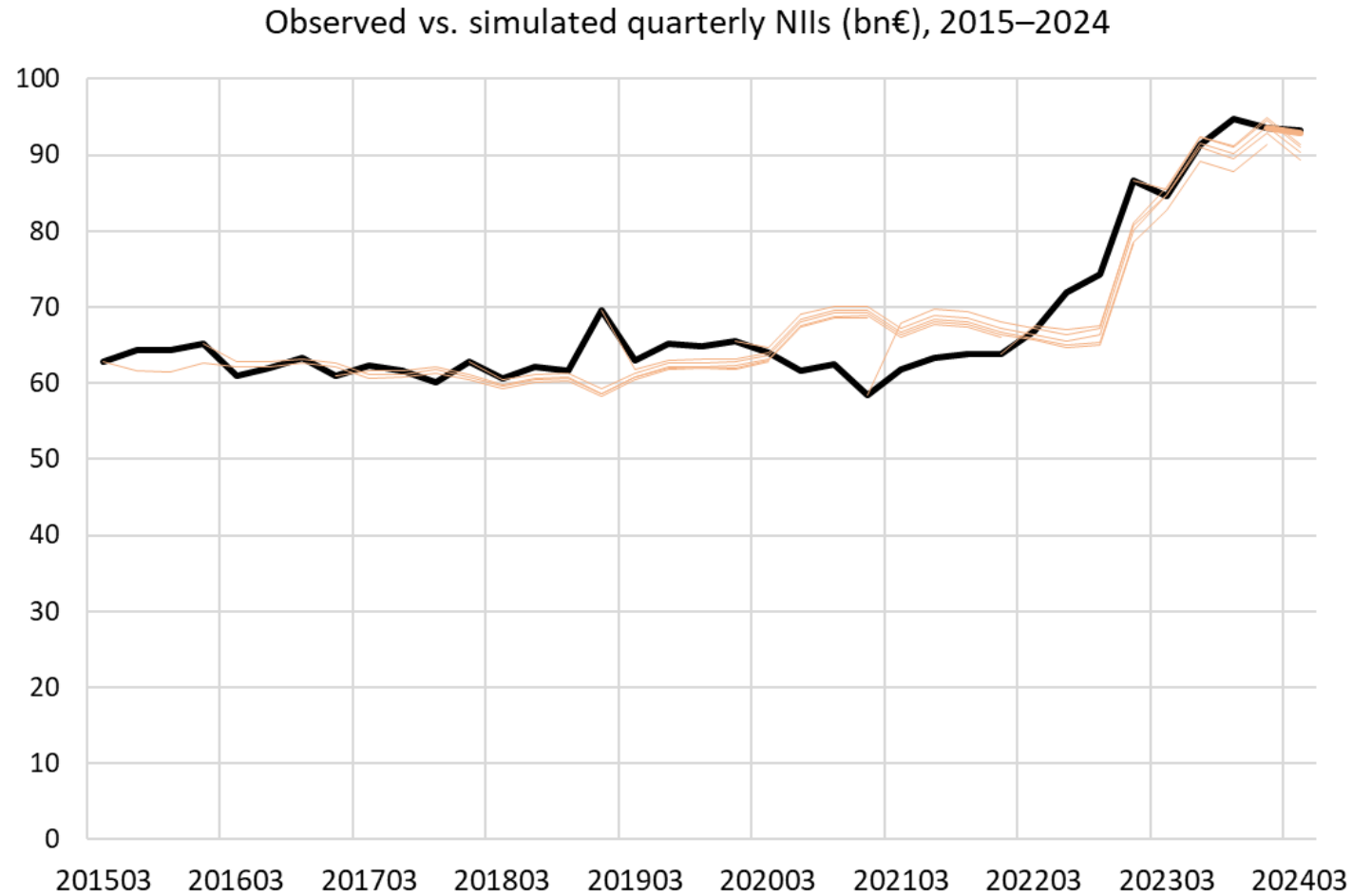
All these effects are ceteris paribus (and non-linear).

Source : SSM prudential data (FINREP) of Significant Institutions (2019–2023), Banque de France MAP projections (2024–2028).



MODEL PERFORMANCE

Back-testing exercise: run the model from various past starting dates on 5y realised scenario (volumes + IR).
Calibration= end-2022.



Source : SSM prudential data (FINREP) of Significant Institutions (black curve), Banque de France MAP projections (orange curves).



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CONCLUSION & PERSPECTIVE

- Accounting-consistent model of aggregate banks' balance sheet and interests.
- Interdependence with central bank balance sheet factored in.
- Large variety of scenarios can be tested.
- Results can be broken down, analyzed, and back-tested.
- Provides insight into NII sensitivity to risk factors
 - currently dominated by positive IR sensitivity.



Paldies par jūsu uzmanību
Thank you for your attention