NOVA SCHOOL OF BUSINESS & ECONOMICS

Measuring and managing risks

2206 - Banking | 2025S2 | Session 6 | Carla Rebelo

Goldman Sachs case

Questions & Group distribution

Question	Group
1. What is the financial condition of Goldman Sachs as of the third quarter of 2007?	**Group 5**
2. What is your assessment of the effectiveness of the firm's risk management practices during the 2006-2007 periods?	**Group 15**
3. Did Goldman Sachs have a conflict of interest when it sold subprime mortgage-based financial products to its customers while, at the same time, it sold subprime mortgage securities and shorted the subprime market? Explain.	**Groups 5/15**
4. Consider David Viniar's options as he reviews the e-mail from Joshua Birnbaum. Should Viniar support, reject or defer judgment on the proposed strategy to go long in subprime mortgages?	**Groups 5/15**

REMINDER

- Credit
- Interest Rate
- Market
- Liquidity
- Foreign Exchange
- Off-Balance
- Operational
- Sovereign
- Insolvency

- **A bank makes money by incurring risks.**
- **Success requires superior risk management.**

Risk appetite frameworks: good progress but still room for improvement

Speech by Danièle Nouy, Chair of the Supervisory Board of the ECB, International Conference on Banks' Risk Appetite Frameworks, Ljubljana, 10 April 2018

Children sometimes eat too much. Their eyes can be bigger than their stomachs. The result can be quite unpleasant. For banks, it's much the same. They sometimes take on more risk than they can stomach. The results, however, can be worse than just a bellyache. Banks that take on too much risk can get into financial trouble and fail, and, in some cases, they might even damage other banks and the economy.

So banks must know how much risk they can stomach and set their appetite for risk accordingly. Naturally, this takes more than guesswork: it requires comprehensive and well-developed risk appetite frameworks. These frameworks are a core element of risk culture and risk management. Banks must take them seriously and build them with great care. Today I would like to share with you our expectations, discuss some best practices and highlight some areas for improvement.

Risk is at the heart of banking. Banks need to find ways to deal with it. It seems however that, prior to the crisis, some banks were too busy taking on risks to be able to properly manage them. As a consequence, they took on more risks than they could cope with.

Risk appetite frameworks play a key role here; we take them seriously and so should the banks. After all, the frameworks help banks to define the level of risk they are willing to take on. This in turn helps them to keep their risks under control and manage them properly. My impression is that many banks have made good progress. However, there is still room for improvement. It's in the banks' own interest.

Risk Appetite Framework

General overview

Risk Appetite Framework

- Banks should identify types of risk the they want to take on and those they wish to avoid.
- Function of: i) appetite to take either a high or a low level of risk on board
  ii) capacity of the organisation to take the risk.
- Risk appetite/tolerance levels, thresholds and limits set for the identified material risks must be defined and monitored

Governance framework

- Banks shall provide information regarding overall governance framework and integration with risk appetite
- The governance structure must ensure integrity of overall businessand risk management process.

Policies, processes, controls and systems through which risk appetite is defined, communicated, and monitored.

Material and reputational risks

Alignment with strategy

Risk Appetite Framework

Components

RISK APPETITE STATEMENT

Aggregate level and types of risk that a bank is willing to accept, or to avoid, in order to achieve its business objectives.

- Qualitative statements and quantitative measures expressed relative to earnings, capital, risk measures, liquidity and other relevant measures as appropriate.
- Should address more difficult to quantify risks (reputation; conduct risks; money laundering; unethical practices).

RISK LIMITS

Quantitative measures relative to business lines, legal entities as relevant, specific risk categories, concentrations, and as appropriate, other levels.

RISK CAPACITY

Maximum level of risk the financial institution can assume given its current level of resources before breaching constraints determined by regulatory capital and liquidity needs.

RISK PROFILE

Risk profile: Point in time assessment of the bank's gross and net risk exposure.

RISK APPETITE

The aggregate level and types of risk a financial institution is willing to assume within its risk capacity to achieve its strategic objectives and business plan.

Risk Appetite Framework
Components

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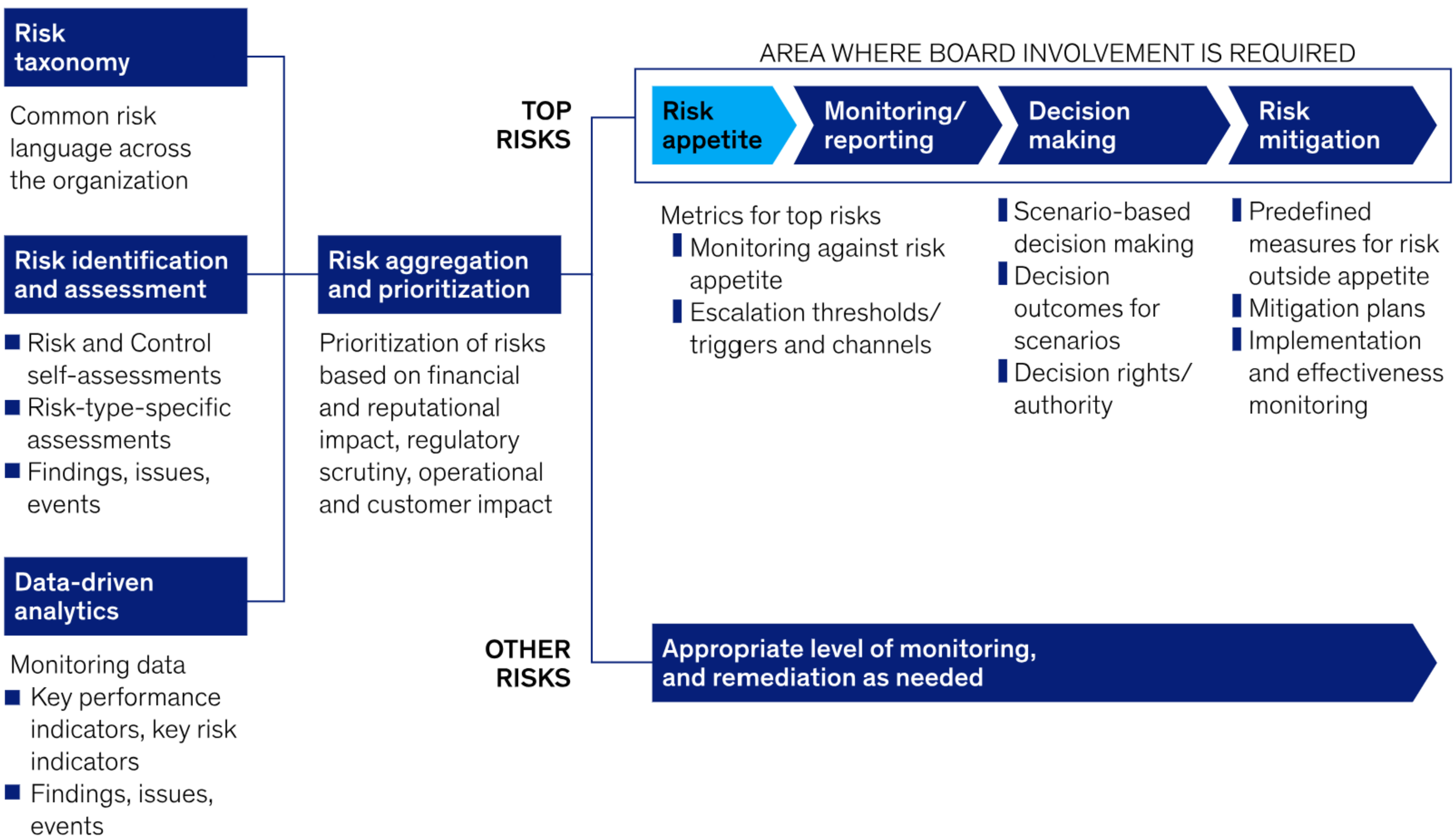
Risk appetite is a core component of an end-to-end nonfinancial risk management framework.

Nonfinancial risk management framework



Source: 'How a defined risk appetite can improve nonfinancial risk management', McKinsey & Co, 25 October 2023

Risk Appetite Framework

A real example (I)

							Risk Appetite Limits		
Dimension	**Risk Appetite Metric**	**Status**	**Ref.**	**Current**	**2019**	**2018**	**Green**	**Amber**	**Red**
Profitability	Risk Margin (Bk Income/Loans)		Feb-20	2,10%	2,08%	2,06%	≥ 2x CoR 0,92%	2x - 1,25x 0,92% - 0,58%	< 1,25x CoR 0,58%
	Commercial Banking Income		Feb-20	€ 137M	€ 864M	€ 768M	≥ 146	147 - 131	< 131
Capital - Regulatory Prespective	CET1 ratio		Feb-20	13,17%	13,51%	12,75%	≥ 11,75%		< 11,75%
	Tier 1 ratio		Feb-20	13,18%	13,51%	12,75%	≥ 12%		< 12%
	Total own funds ratio		Feb-20	14,75%	15,13%	14,49%	≥ 14%		< 14%
	Leverage ratio		Feb-20	8,16%	8,40%	8,19%	≥ 3%		< 3%
Capital - Economic Prespective	CET1 (CET1+CCANL-IFRS9TA ≥ P1 RWAx4,50%+P2)		Feb-20	€ 4 059M	€ 4 029M	€ 4 461M	> 2 452	2 452 - 2 286	< 2 286
	Tier1 (Tier1+CCANL-IFRS9TA ≥ P1 RWAx6,00%+P2)		Feb-20	€ 4 061M	€ 4 031M	€ 4 462M	> 2 896	2 896 - 2 730	< 2 730
	TOF (TOF+CCANL-IFRS9TA ≥ P1 RWAx8,00%+P2)		Feb-20	€ 4 535M	€ 4 509M	€ 4 981M	> 3 487	3 487 - 3 321	< 3 321
Liquidity	LCR		9-Apr	159%	143%	125%	≥ 120%	120-105	< 105%
	NSFR		9-Apr	104%	101%	106%	≥ 105%	105-102	< 102%
	Internal Liquidity Ratio		9-Apr	137%	137%	130%	≥ 120%	120 - 110	< 110%
	Stress Survival Horizon		Mar-20	> 12m w/b	> 12m w/b	> 12m w/b	> 12m w/b	> 12m w/b + c.a.	< 12m
	ECB Available Elig. Assets		9-Apr	€ 7 588M	€ 7 915M	€ 8 170M	≥ € 5 500M	5 500 - 5 000	< € 5 000M
	Public Funds usage		9-Apr	€ 6 337M	€ 6 087M	-	< € 6 400M	6 400 - 6 500	≥ € 6 500M

Source: Risk Appetite dashboard from a private bank.

Risk Appetite Framework
A real example (II)

							Risk Appetite Limits		
Dimension	**Risk Appetite Metric**	**Status**	**Ref.**	**Current**	**2019**	**2018**	**Green**	**Amber**	**Red**
Credit	Portfolio Evolution		Mar-20	€ 24 437M	€ 24 362M	€ 23 083M	< 26,7 B	26,7 - 27,4	> 27,4 B
	Non Core Portfolio (Legacy)		Mar-20	€ 2 501M	€ 2 707M	€ 5 696M			
	Portfolio RWAs		Feb-20	€ 26 655M	€ 25 930M	€ 27 150M			
	Leveraged Transactions 4X w/o DEF [(1)]		Feb-20	19%	16%	21%	≤ 22%	22-30	> 30%
	Portfolio Limits - Individuals (Mortgage with score D or RR)		Feb-20	0,7%	0,9%	1,3%	≤ 8%	8 - 8,4	> 8,4%
	Portfolio Limits - Corporate *** (with ratings b, worse than b and DEF)		Feb-20	16,1%	14,9%	20.8%	≤ 15%	15 - 15,8	> 15,8%
	Portfolio Limits - Middle Market (with ratings between 19 and 25 and DEF)		Feb-20	2,5%	3,8%	4,9%	≤ 2,6%	2,6 - 2,7	> 2,7%
	Portfolio Limits - Retail (with scorings D, E , F or DEF)		Feb-20	6,5%	8,2%	8,8%	≤ 7,3%	7,3 - 7,7	> 7,7%
Portfolio Concentration	Concentration Risk (new Exp.)		Feb-20	0	0	0	0	-	> 0
	Cap Add-on (HHI)		Dec-20	2,0%	2,0%	2,2%	≤ 1,5%	1,5-3,5	> 3,5%
Non Core Unit (Total Assets)	Real Estate (Budget 2020): (1 102M€ NBV Dec19)		Feb-20	€ 1 098M	€ 1 102M	€ 1 835M	≤ €1 109M		> €1 109M
	Equities & Funds (Budget 2020): (1 257M€ NBV Dec19)		Feb-20	€ 1 248M	€ 1 257M	€ 1 556M	≤ €1 257M		> €1 257M
	DGComp Total (excl. GNB Vida, Real Estate) (1.983M€ NBV Dec19)		Feb-20	€ 1 969M	€ 1 983M	€ 2 883M	≤ € 3 400M		> €3 400M
Impairment	Total (monthly average)		Mar-20	€ 22M	€ 34M	€ 23M	< €21,0 M	21,0 - 23,3	> €23,3 M
	Recurrent (monthly average)		Mar-20	€ 20M	€ 16M	€ 5M	< €16,3 M	16,3 - 18,1	> €18,1 M
	Cost of Credit Risk*		Mar-20	0,99%	1,51%	1,05%	< 1,00% (252M€)	1,00 - 1,11	>1.11% (279M€)
Delinquency	Non Performing Loans		Mar-20	€ 3 284M	€ 3 446M	€ 6 772M	≤ € 3 209M	3 209 - 3 230	> € 3 230M
	Non Performing Assets		Mar-20	€ 3 848M	€ 4 010M	€ 7 764M			

* Total impairment flow / Stock of loans

** Although limit is being complied, deleverage has been achieved on loans within scope of Nata 2, hence the amber sign.

*** Due to the use of committed credit facilities

(1) New data applied in Fev/20 - consolidated statements and financial sponsors identified by DRT

Source: Risk Appetite dashboard from a private bank.

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Risk Appetite Framework

A real example (III)

							Risk Appetite Limits		
Dimension	**Risk Appetite Metric**	**Status**	**Ref.**	**Current**	**2019**	**2018**	**Green**	**Amber**	**Red**
Market - Trading Book	VaR 99% 10d	●	17-Apr	€ 13M	€ 6M	€ 4M	< € 17,5M	17,5 - 20	> € 20M
	Stop Loss	●	17-Apr	- € 5M	€ 44M	€ 40M	> - € 10M	-10 ; -15	< € 15M
	Nominal	●	17-Apr	€ 242M	€ 202M		< 475M	475 - 500	> € 500M
Market - Banking Book	IRRBB – sVaR 99.9% 260d	●	Mar-20	€ 160M	€ 160M	€ 149M	< € 225M	225 - 250	> € 250M
	Regulatory shocks (worst EBA)	●	Mar-20	4,3%	4,4%	4,1%	≤ 12,5% Tier1	12,5% - 15%	> 15% Tier1
	Investment portfolio Nominal (M€)	●	17-Apr	€ 7 943M	€ 8 243M	€ 7 227M	≤ € 9.025B	9.025 - 9.5	> € 9.5B
	Investment portfolio VaR 99% 10d *		17-Apr	€ 166M	€ 78M	€ 35M	≤ € 110M	110 -135	> € 135M
	Investment portfolio Stop Loss *		17-Apr	- € 179M	€ 435M	€ 70M	≥ - € 75M	- 75; - 100	< - € 100M
	Non-HQLA portfolio Nominal	●	17-Apr	€ 366M	€ 337M	€ 14M	≤ € 1,52B	1,52 - 1,6	> € 1,6B
	Non-EUR portfolio Nominal	●	17-Apr	€ 1 136M	€ 1 042M	€ 333M	≤ € 1,71B	1,71 - 1,8	> € 1,8B
	Fx Linked Notes VaR 99% 10d	●	17-Apr	€ 3M			≤ € 12M	12 - 15	> € 15M
	Fx Linked Notes Stop Loss	●	17-Apr	- € 9M			≥ - € 10M	- 10; - 15	< - € 15M
Pension Fund Risk	Assets VaR 99% 22d **		17-Apr	10,2%	2,8%	3,9%	≤ 6,5%	6,5 - 7,5	> 7,5%
	Pension Fund Assets Stop Loss **		17-Apr	- € 111M	€ 114M	- € 30M	≥ - € 50M	-50; - 100	< - € 100M
Operational Risk	Threshold € 500k by event	●	Mar-20	0 event	1 event	2 events	< € 100M	100-500	≥ € 500M
	Net Loss Limit YTD: 3.15M€	●	Mar-20	€ 139k	€ 2,4M	€ 5,3M	< € 1,47M	1,47 - 3,15	≥ € 3,15M
	(265k€ monthly)	●	Mar-20	€ 40k	€ 879k	€ 2 700k	< € 125k	125 - 265	≥ € 265k
IT Risk	zero tolerance - 2 limits	●	Mar-20	0 breaches	0 breaches	0 breaches			
Compliance Risk	zero tolerance - 2 limits	●	Mar-20	1 breach	19 breaches	32 breaches			
Operative Risk	zero tolerance - 1 limit	●	Mar-20	0 breaches	3 breaches	6 breaches			

Non Financial Risks: ● = Total Red limits < 25%; ● = Total Red Indicators [25%; 50%[; ● = Total Red Limits >= 50%

* Temporary waiver approved by the Board of Directors on March 19th

** Temporary waiver approved by the Board of Directors on March 17th

Source: Risk Appetite dashboard from a private bank.

Risk Management
The 3-line of defence approach

1ST LINE: FRONT-OFFICE

- Business units (front office, customer-facing activity) are the first responsible for identifying, assessing and controlling the risks of business.
- Internal policies and procedures should be clearly specified in writing and communicated to all personnel.

2ND LINE

Risk officer

- Facilitates implementation of risk management framework;
- Responsible for further identifying, monitoring, analysing, measuring, managing and reporting on risks (holistic view on all risks);
- Challenges and assists in implementation of risk management measures by the business lines

  => ensure process and controls at the first line of defence are properly designed and effective.

Compliance officer

- Monitors compliance with legal and regulatory requirements and internal policies
- Provides advice on compliance to the management body and other relevant staff,
- Establishes policies and processes to manage compliance risks and to ensure compliance.

3RD LINE: INTERNAL AUDIT

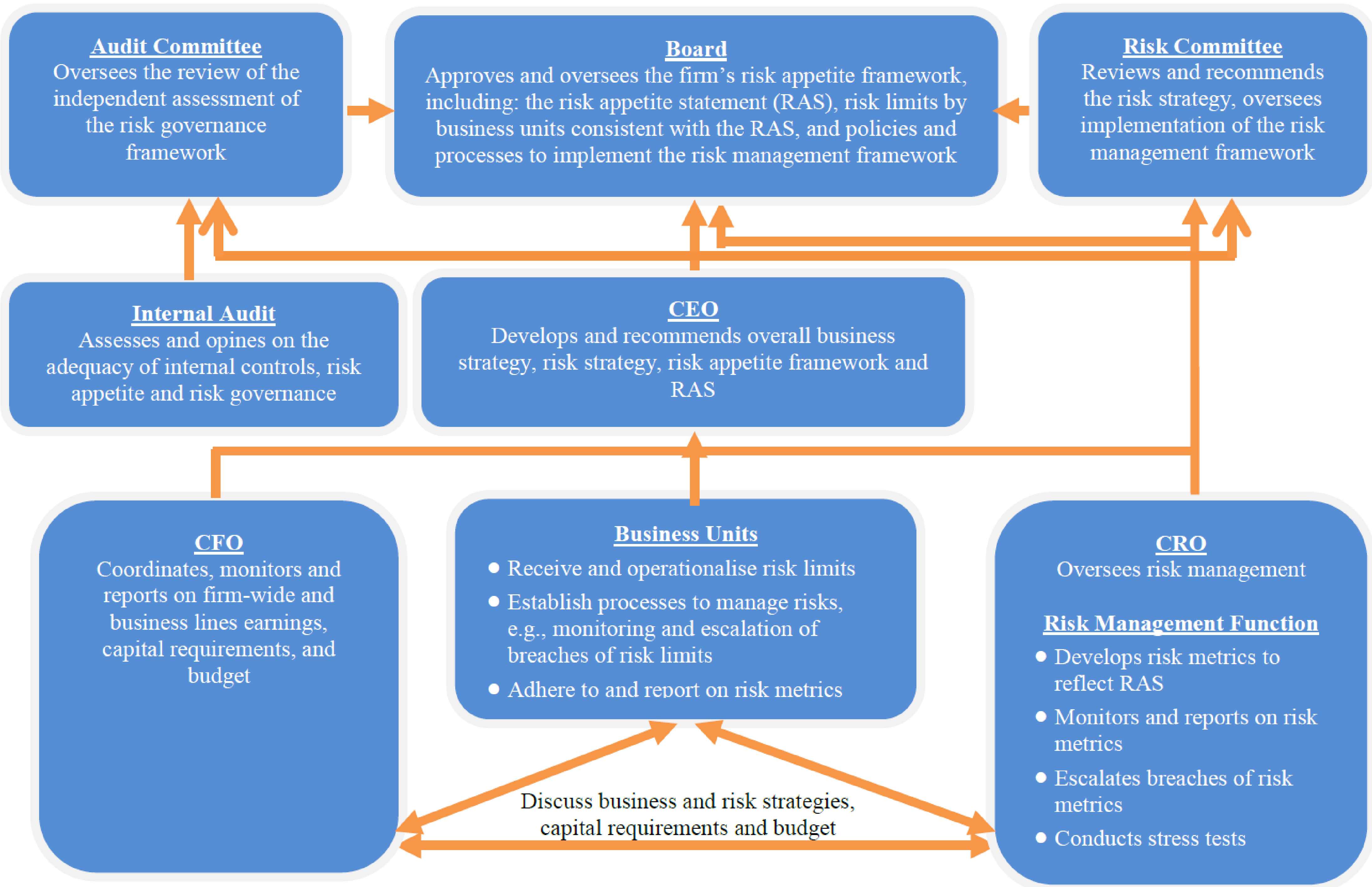
- Conducts risk-based and general audits;
- Reviews internal governance arrangements, processes and mechanisms to ascertain that they are sound and effective, implemented and consistently applied.
- Carries independent review of the first two lines of defence.

All internal control functions need to be independent of the business they control, have the appropriate financial and human resources to perform their tasks, and report directly to the management body.

Risk Management

Governance

Chart 2: An example of a risk governance framework[9]



Source: FSB: Thematic Review on Risk Governance - Peer Review Report

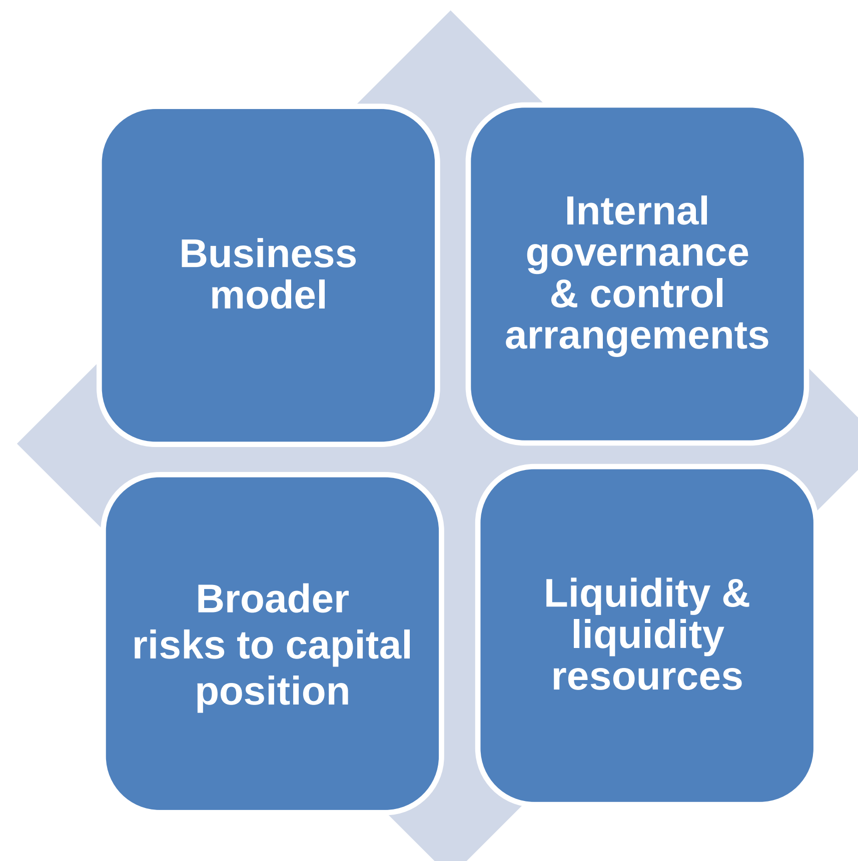
Stress testing
A different kind of capital

Regulatory Capital*

$$\frac{\text{OWN FUNDS}}{\text{Credit risks + Market risks + Operational Risks}} \geq 8\ \%$$

Economic Capital

Depending on the assessment of the risks entailed in the specific business strategy & model of each bank, the regulator may require additional capital above the minimum thresholds.



...Moving from a BAIL-OUT to a BAIL-IN approach...

** Minimum ratio excluding the several buffers plus SREP requirements.*

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Stress testing
For what & for whom

	Type	Aim	Use
Firms	Firms own stress testing (risk, portfolio or institution)	Risk management	Banks' risk management and planning
Supervisors	Micro- prudential stress tests (risk, portfolio or institution)	Bank-by-bank information on risks and vulnerabilities	Supervisory risk analysis and action, early warning tools
Macro-prudential authorities	System-wide macro-prudential stress tests (institution)	Aggregated information on systemic risks	Systemic stability, economic policy implications

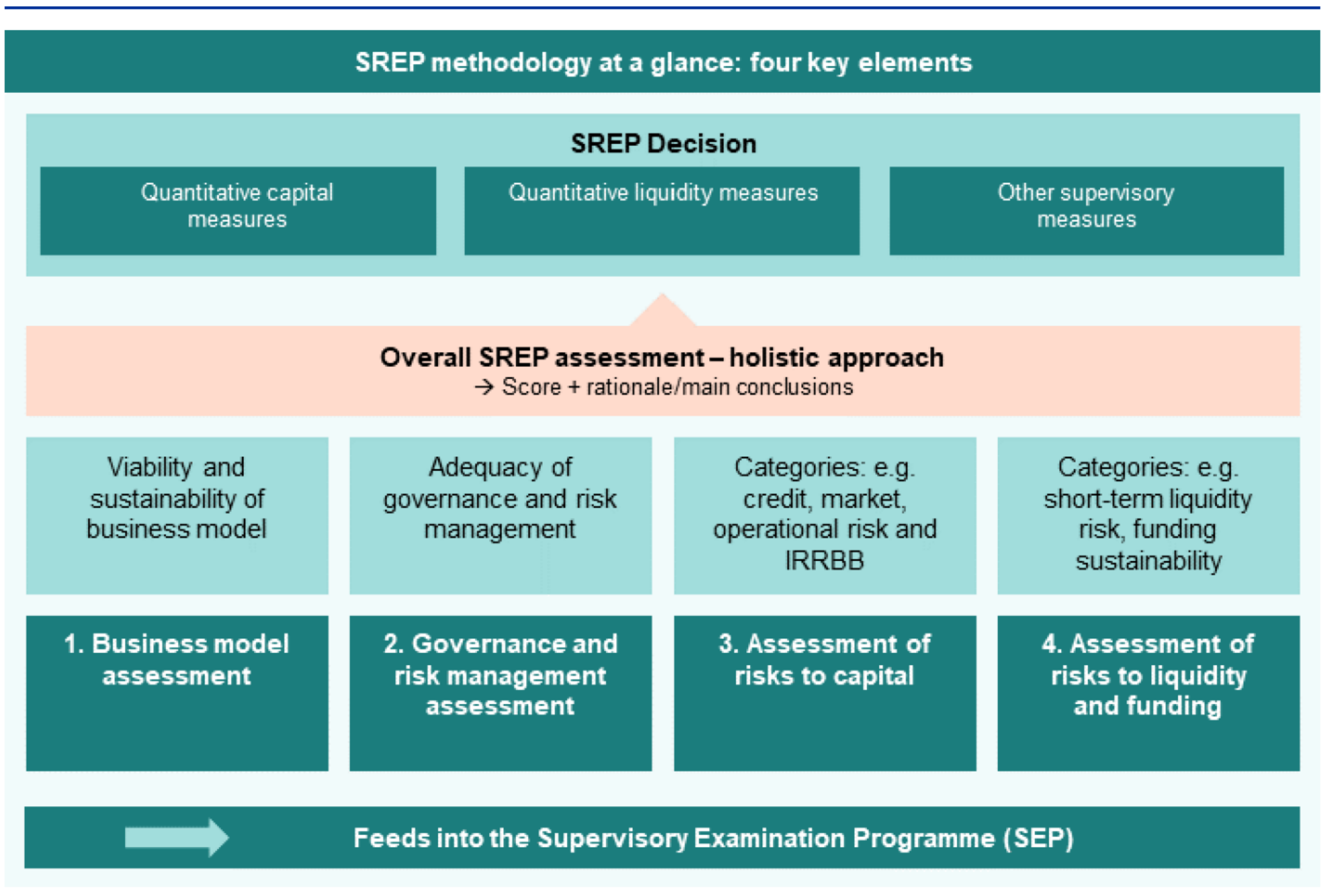
Supervisory Review and Evaluation Process (SREP)

Supervisors assess the risks banks face and check that banks are equipped to manage those risks properly. This activity is called the Supervisory Review and Evaluation Process, or SREP, and its purpose is to allow banks' risk profiles to be assessed consistently and decisions about necessary supervisory measures to be taken.

What is the SREP?

SREP
General overview

Figure 1
The SREP methodology



Source: EBA – SREP methodology.

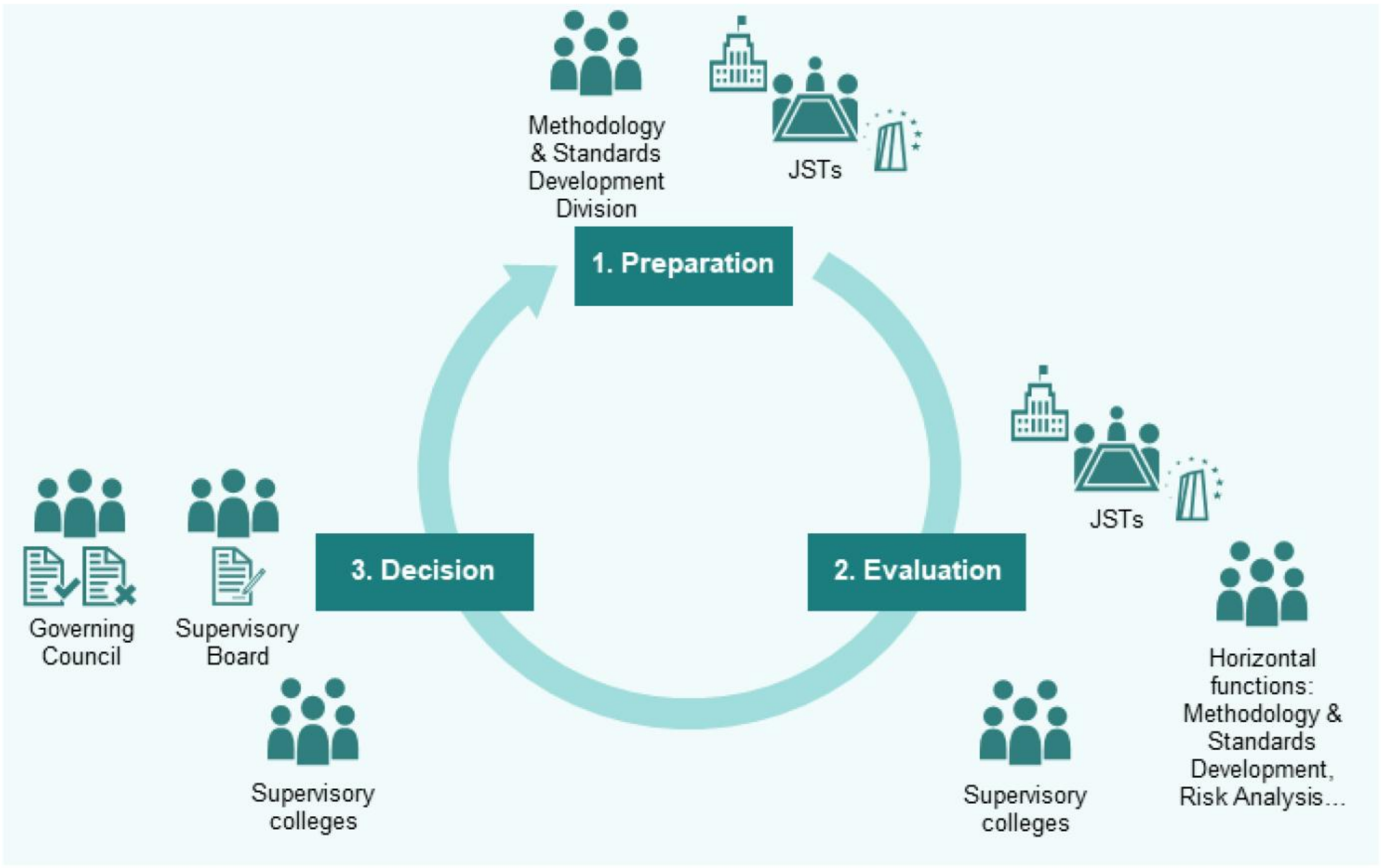
SREP goals

- Guide harmonization of banking supervision at an European level
- Increasing the consistency and quality of supervision across the Banking Union.

3 The overall SREP

Figure 3

The overall SREP



Source: EBA – SREP methodology 2024.

Risk: level versus Control

Figure 5

The three complementary phases of risk level and risk control assessments

Three phases in ongoing risk assessment for each of four elements		
Phase 1 Data gathering and materiality assessment	**Phase 2** Automated score of risk level	**Phase 3** Assessment

Risk level vs. risk control

	1. Business model	2. Internal governance and risk management	3. Assessment of capital risks	4. Assessment of risks to liquidity and funding
Risk level	✓	n/a	✓	✓
Risk control	n/a	✓	✓	✓

Source: EBA – SREP methodology 2024.

SREP

Risk: level versus Control

Common scores for the assessment of the risk level

1 = “Low”: There is no discernible risk of significant impact on the prudential elements of the group or its entities, given the inherent risk level.

2 = “Medium-low”: There is a low risk of significant impact on the prudential elements of the group or its entities, given the inherent risk level.

3 = “Medium-high”: There is a medium risk of significant impact on the prudential elements of the group or its entities, given the inherent risk level.

4 = “High”: There is a high risk of significant impact on the prudential elements of the group or its entities, given the inherent risk level.

Common scores for the assessment of risk control

1 = “Strong control”: There is no discernible risk of significant impact on the prudential elements of the group or its entities, given the quality of management, organisation and controls. The level of risk management and control is high. The risk management and control framework is clearly defined and fully compatible with the nature and complexity of the institution’s activities.

2 = “Adequate control”: There is a low risk of significant impact on the prudential elements of the group or its entities, given the quality of management, organisation and controls. The level of risk management and control is acceptable. The risk management and control framework is adequately defined and sufficiently compatible with the nature and complexity of the institution’s activities.

3 = “Weak control”: There is a medium risk of significant impact on the prudential elements of the group or its entities, given the quality of management, organisation and controls. The level of risk management and control is weak and needs improvement. The risks are insufficiently mitigated and controlled, leaving an excessive residual risk. The risk management and control framework is poorly defined or insufficiently compatible with the nature and complexity of the institution’s activities.

4 = “Inadequate control”: There is a high risk of significant impact on the prudential elements of the group or its entities, given the quality of management, organisation and controls. The level of risk management and control is very low and needs drastic and/or immediate improvement. The risks are not – or only inadequately – mitigated and are poorly controlled. The risk management and control framework is not defined or is not compatible with the nature and complexity of the institution’s activities.

Source: EBA – SREP methodology 2024.

SREP

Core Components

Business model analysis

- **Business model viability** on a year time horizon?
- **Strategic sustainability** in the next 3 years?
- **Main vulnerabilities** that may impact the bank or lead to a situation of recovery/resolution?

Assessment of internal governance and institutional-wide controls

- Adequacy of **Governance model and implemented controls** to risk profile, business model, size and complexity of the bank?
- **Compliance** degree with **requirements** and standards of a good **governance** / internal control practices?

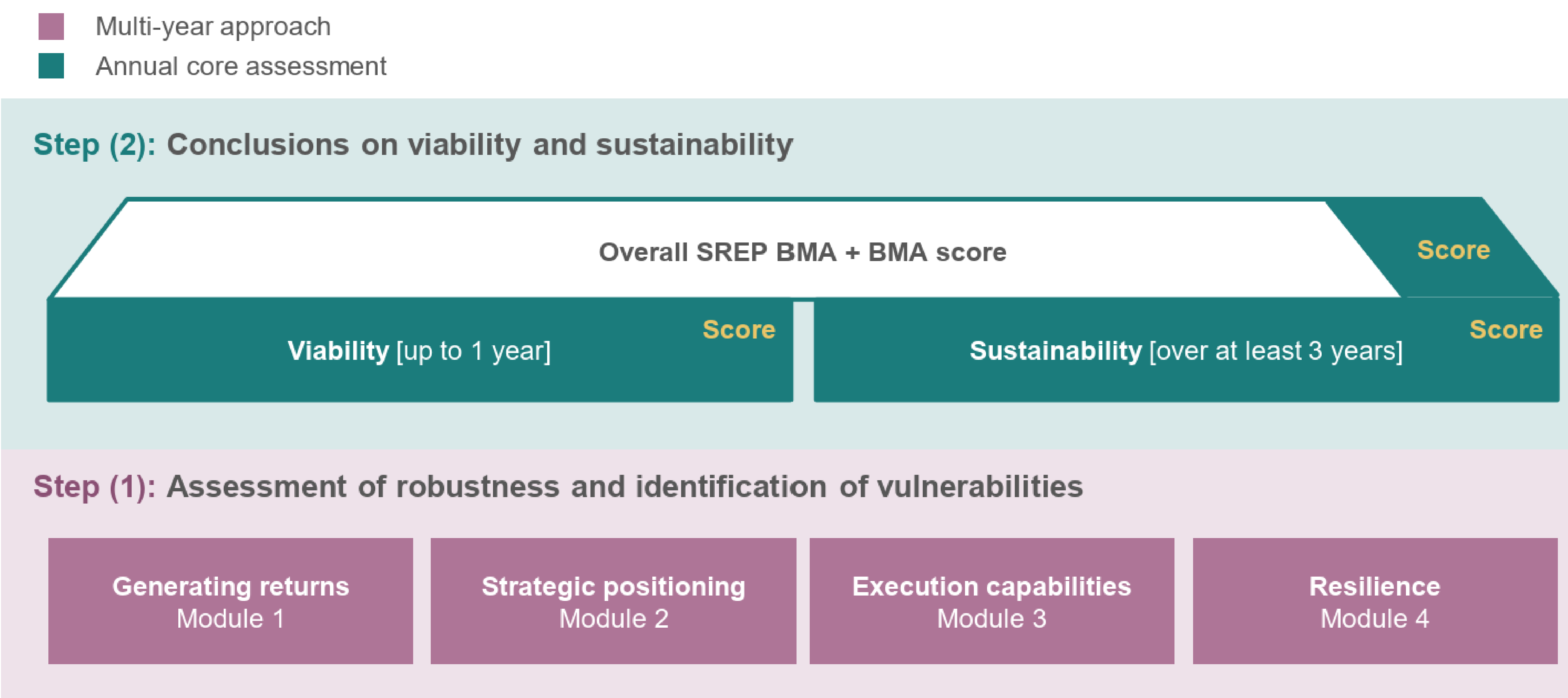
Assessment of risks to capital

- Material risks will result in a grade based on the inherent risk and management/ control of existing risks.
- This evaluation will use ICAAP as its main tool. The output will then be used to determine the adequate capital levels.

Assessment of risks to liquidity and funding

- Assessment focused on liquidity and funding risks & liquidity management / internal controls.
- Assessment will use ILAAP as its main tool;
- Assessment can lead to specific measures to comply with the liquidity requirements previously defined.

Overview of Phase 3 assessment



Source: EBA – SREP methodology 2024.

SREP
Business Model Analysis

Generating returns Module 1	Strategic positioning Module 2	Execution capabilities Module 3	Resilience Module 4

Module 1
- **Profitability drivers**
- **Business Environment**
- **Forward looking view**
- **Returns**

Module 2
- **Strategy**
- **Trade-off between diversification and complexity**
- **Supervisory view over the cycle**

Module 3
- **Cost allocation frameworks**
- **Funds Trasfer Pricing framework**
- **Exposure to Money Laundering and Financing of Terrorism risks**

Module 4
- **Climate related risks**
- **Digitalisation**

Source: EBA – SREP methodology 2024.

SREP
Potential implications

Overall SREP assessment → **Supervisory measures**

Different supervisory measures, dependent on the impacted areas and the criticality level:

- *capital and liquidity measures*
- *changes to business plan,*
- *organizational changes,*
- *reduction of exposure*
- *etc.*

- Components will be evaluated by the regulators on a scale from 1 to 4.
- Overall assessment (OA) results from a synthesis of all components (diferent from a weighted average) on the following scale:

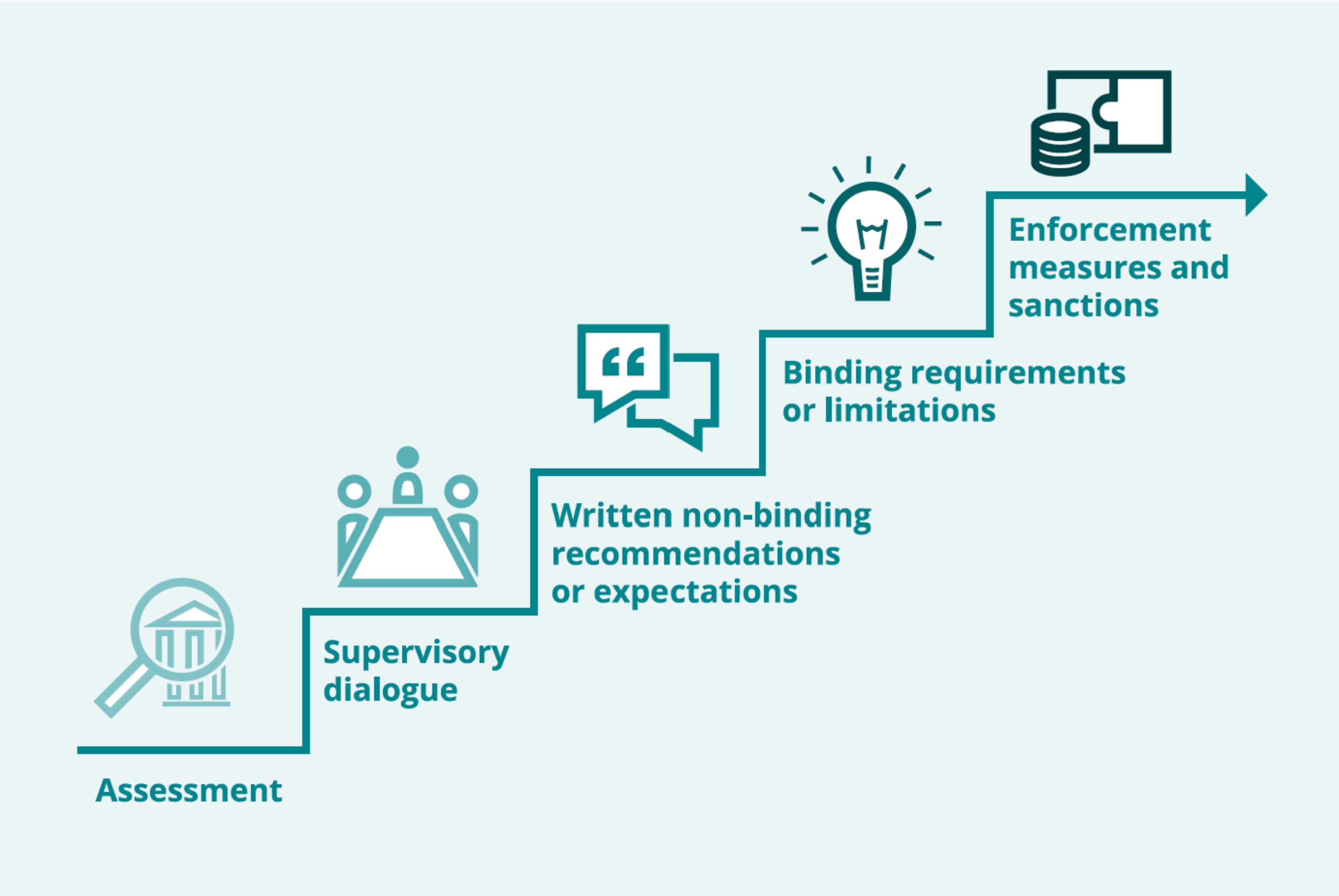
- **1: No discernible risk;**
- **2: Low risk;**
- **3: Medium Risk;**
- **4: High Risk;**
- **F: "*Failing*" or "*Likely to fail*".**

OA of 4 OR
OA of 3 with at least one component assessed as 4. → **Early intervention measures**

Potential resolution
(eg: OA of 4 of a bank which failed to implement early intervention measures).

SREP

When the regulator gets angry

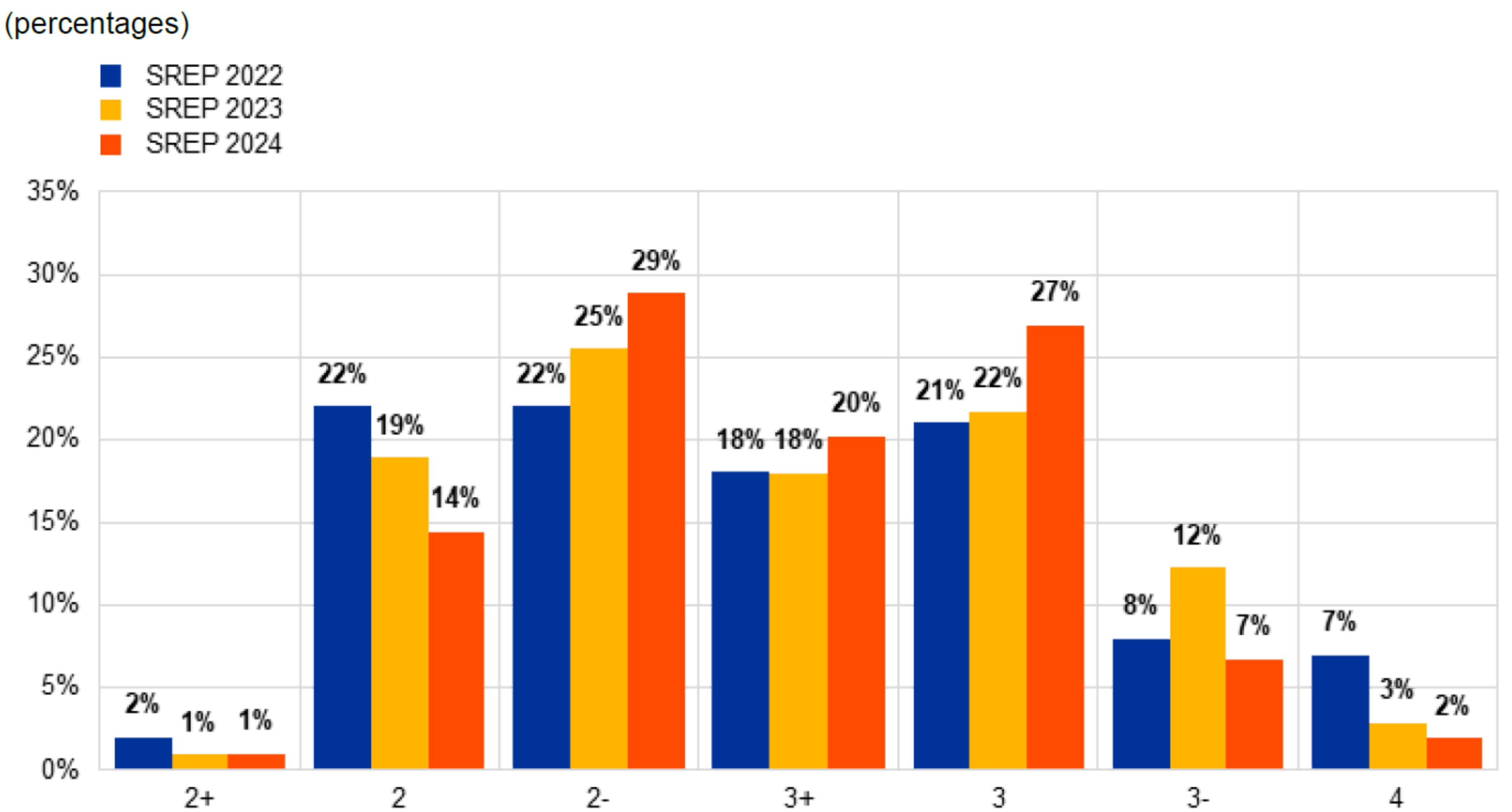


There is no automatic sequence of steps – supervisory judgement is used to determine the right step based on the severity of the findings. For each element shown there are alternative tools available with different levels of intensity and intrusiveness, depending on the nature and severity of the findings.

Source: ECB - Supervisory measures.

SREP
2024 risk levels

Overall SREP scores



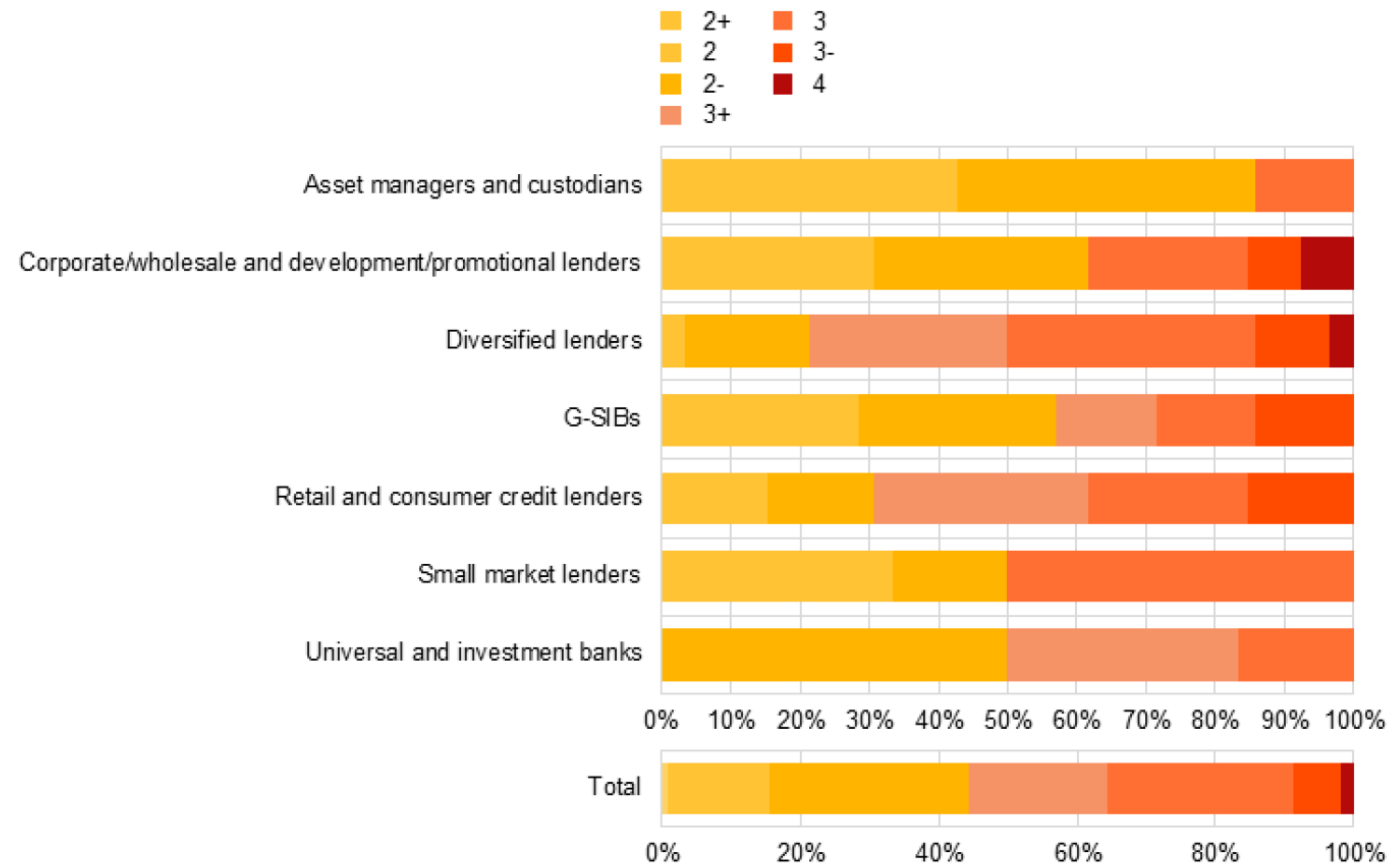
Source: ECB SREP database.
Notes: 2022 SREP values based on assessments of 101 banks, 2023 SREP values based on assessments of 106 banks; 2024 SREP values based on assessments of 104 banks. There were no banks with an overall SREP score of 1 in either 2022, 2023 or 2024. Rounding differences may apply to data throughout this document. All data shown throughout this document relate to institutions directly supervised by the ECB.

Source: EBA – Aggregated results of the 2024 SREP .

SREP
2024 risk levels

Breakdown of overall SREP scores by business model

(percentages)

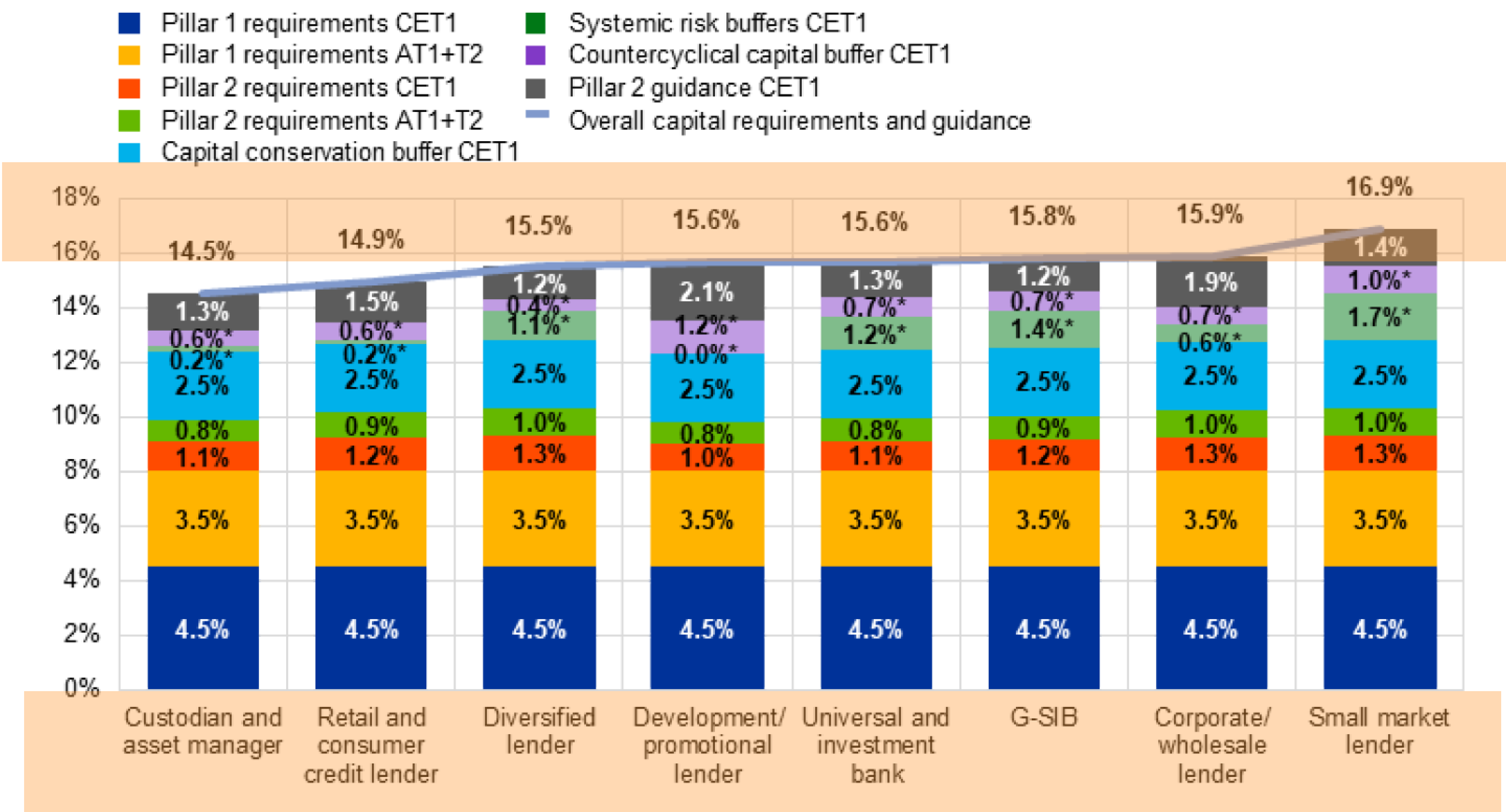


Source: ECB SREP database.
Notes: 2024 SREP values based on assessments of 104 banks. Corporate/wholesale lenders and development/promotional lenders have been grouped together in this chart to preserve statistical confidentiality.

Source: EBA – Aggregated results of the 2024 SREP .

Overall capital requirements and guidance by business model

(percentages of RWA)



Source: EBA – Aggregated results of the 2024 SREP .

SREP
The implications (I)

Banco Santander, S.A., ("**Santander**") in accordance with the provisions of the securities market legislation, communicates the following**:**

INSIDE INFORMATION

Santander has been informed by the European Central Bank ("**ECB**"), after following its Supervisory Review and Evaluation Process ("**SREP**"), of its decision regarding the minimum prudential capital requirements effective as of 1 January 2024.

The ECB's decision establishes a Pillar 2 requirement ("**P2R**") of 1.74% at a consolidated level of which at least 0.98% must be covered with Common Equity Tier 1 capital ("**CET1**"). The revised P2R entails an increase of 16 basis points over the previous decision, of which (i) 15 basis points are due to a methodological change in the determination of the P2R by the ECB, and (ii) 1 basis point reflects the increase of the capital add-on due to the ECB's prudential expectations on calendar provisioning in connection with non-performing loans.

The following table shows the minimum CET1 and total capital requirements applicable at the consolidated level as of 1 January 2023 and as of 1 January 2024, as well as Santander's ratios[1] as of 30 September 2023:

	Minimum Requirement		Data
	As of 01/01/2023	As of 01/01/2024	As of 30/09/2023
CET1	8.91%	9.60%[2]	12.35%
Total Capital	13.11%	13.86%[3]	16.31%

As described in the table above, Santander maintains a surplus of capital over these requirements, both in CET1 and total capital terms.

Boadilla del Monte (Madrid), 11 December 2023

Source: BPI, Annual Report 2017

SREP

The implications (II)

Main events in 2022

In 2022, in the current demanding and challenging context, the Bank kept its focus on supporting households and companies.

Following the geopolitical crisis with the invasion of Ukraine, the Bank acted in accordance with the guidelines of the European Union and implemented a set of mechanisms to monitor measures to support the Ukrainian people.

In the scope of the Supervisory Review and Evaluation Process (SREP), BCP has been notified of the decision of the European Central Bank (ECB) regarding minimum prudential requirements to be fulfilled on a consolidated basis from March 1, 2022: CET1 9.16%, T1 11.13% and Total 13.75%.

Source: Millennium BCP, Annual Report 2022

As of end December 2023, the total phased-in capital ratio (applying the IFRS 9 transitional arrangements) stood at 16.4% and the phased-in CET1 ratio at 12.3%. We comfortably meet the levels required by the European Central Bank on a consolidated basis (estimated 13.5% for the total capital ratio and 9.3% for the CET1 ratio)[2]. This results in a distance to the maximum distributable amount (MDA) of 269 bps and a CET1 management buffer of 304 bps.

2. According to a recent resolution from Banco de España, our D-SIB buffer will increase from 1% to 1.25% from January 2024 following a change in methodology. Institutions must hold capital at the consolidated level for the higher of the G-SIB and D-SIB requirements. As at year end 2023 Santander applies a 1% CET1 surcharge, globally (G-SIB) and locally (D-SIB), as they are both set at 1%. Additionally, the ECB revised Banco Santander, S.A.'s P2R requirement establishing a minimum of 1.74% applicable from 1 January 2024.

Source: Santander, 2024

NOTIFICATION BY THE ACPR OF THE DESIGNATION OF BNP PARIBAS ON THE LIST OF G-SIBs

BNP Paribas has received the notification by the "Autorité de Contrôle Prudentiel et de Résolution" (ACPR), dated 27 November 2023, that the Group has been designated on the 2023 list of Global Systemically Important Banks (G-SIBs) in the bucket 2 corresponding to its score based on end-2022 data.

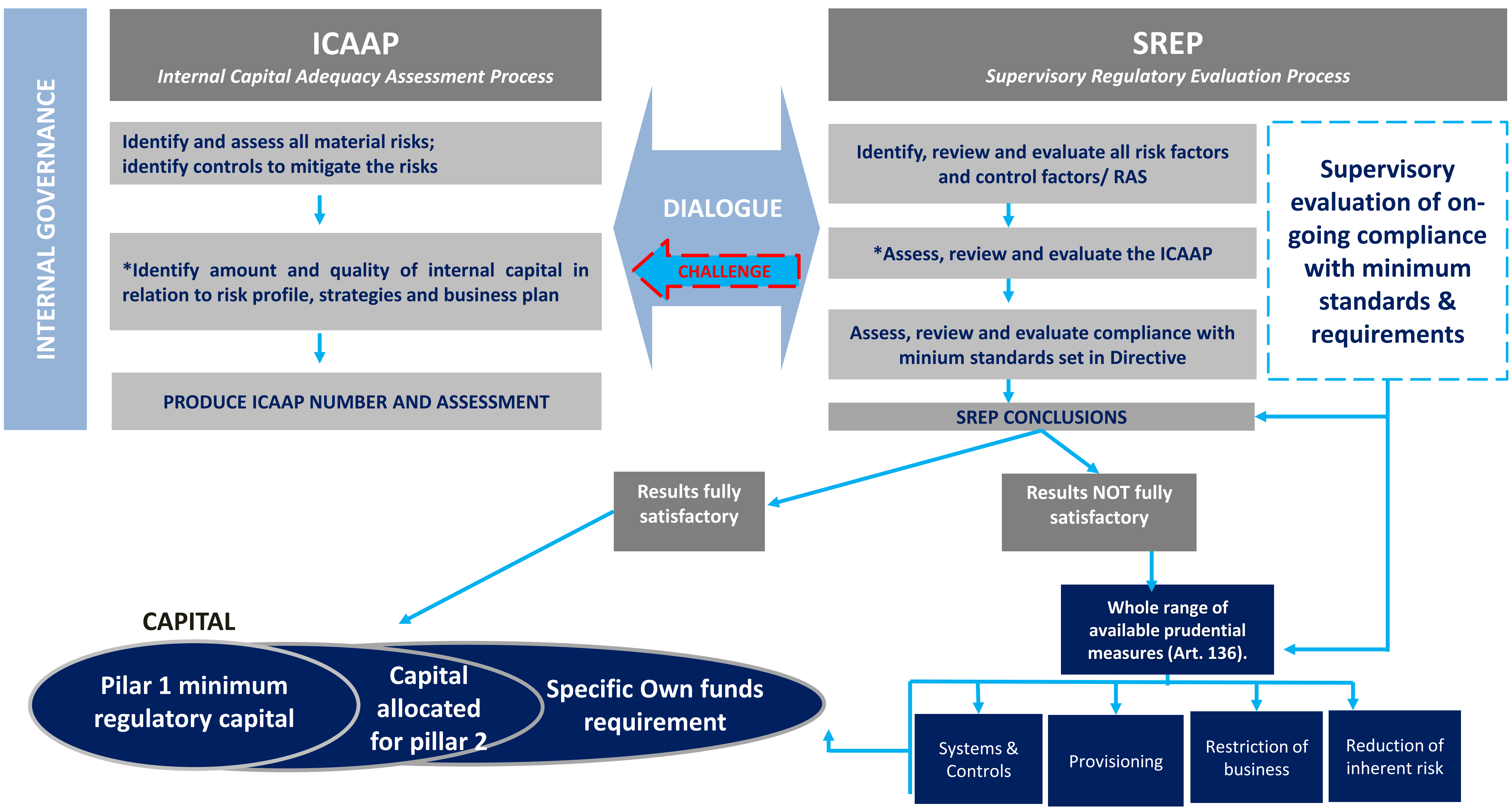
Consequently, the requirement of the G-SIB buffer applicable for the group remains at 1.5% of the total risk-weighted assets beginning 1st January 2024, unchanged compared to the level currently applicable.

The Group is well above the regulatory requirements with, as at 30 September 2023, a CET1 ratio at 13.4%[1], a Tier 1 ratio at 15.5%[1] and a Total Capital ratio at 17.8%[1].

Source: BNP Paribas website

Source: company websites

SREP & ICAAP
Sleeping with the regulator?



*Narrow scope supervisory review

Source: *Guidelines on the Application of the Supervisory Review Process under Pillar 2*, CEBS, 25 Jan 2006

ICAAP

How do banks cope?

Overview of ICAAP perspectives and key features

ICAAP
Aimed at maintaining the capital adequacy on an ongoing basis over the medium term from two complementary internal perspectives.

Normative internal perspective

- Ongoing fulfilment of all relevant regulatory requirements and external constraints.
- Medium-term projections for at least three years:
  - Ensures the ongoing fulfilment of OCR plus P2G in the baseline, and TSCR in adverse scenarios.
  - Takes into account all material risks (not limited to Pillar 1 risks).
  - Considers upcoming changes in the legal / regulatory / accounting frameworks.
- Adequate and consistent internal methods for quantifying impacts on Pillar 1 ratios.
- Additional management buffers determined by the institution.

Mutual information

Economic internal perspective

- Risks that may cause economic losses are covered by internal capital.
- Capital adequacy concept based on economic value considerations (e.g. net present value approach).
- Internal definition of capital.
- Point-in-time risk quantification of the current situation feeding into a medium-term assessment covering future developments.
- Adequate and consistent internal risk quantification methods.
- Internal indicators, thresholds and management buffers.

- Sound governance
- Integration in decision-making, strategies and risk management
- Sound data quality, data aggregation and IT architecture
- Subject to regular internal review, including independent validation

Source: ECB Guide to the internal capital adequacy assessment process (ICAAP) – Principles, November 2018.

INTERNAL CAPITAL ADEQUACY ASSESSMENT PROCESS

Concept

- Annual exercise of stressed financial forecasting in order to prove the bank is adequately capitalised over the projection period (there is a capital buffer)
- The bank defines the types of stress tests, frequency, methodological details and models used, governance arrangements, interaction between solvency and liquidity stress test

Objectives

- Evaluate the bank's robustness under stressed environments, in particular capital adequacy.
- To allow the bank to better understand, plan and manage its risks, capital and liquidity.
- To allow for the identification of concentrations.
- To allow for the early identification of mitigating actions.

Stress test	Sensitivity	Multi-year scenario	Reverse
Objectives	To investigate the impact of one risk driver on a particular portfolio/risk type	To investigate the impact of a confluence of events on the bank	To understand what possible events could cause the bank to fail
Scenario	The source of the shock is not important	A full description of the scenario, through time, is required	A full description of the scenario, through time, is required (if applicable)
Outputs	Limited to just one variable	Wide range of outputs produced	Outputs will depend on the definition of failure

Type of risk	Background	Rationale	Stress methodology	Capital requirements	
Credit risk	Largest Balance sheet exposure	Unexpected Losses Standard + IRB	Use PDs/LGD rules as per EBA's stress test scenario	474 648	49,05%
Concentration risk	Top20 debtors > 25% loan book	Large exposures rule: no single debtor can exceed 25% of own funds	Simulate that Top 3 creditors increase exposure by 10%	62 838	6,49%
Real estate risk	Foreclosed assets = 3rd largest asset category	Foreclosed assets need to be sold	Simulate RE portfolio would need to be sold in less than 7 years	289 611	29,93%
Strategy risk	Asset sales (Real estate assets + non-core subsidiaries) lagging behind	Capital ratios compliance depends heavily on RWA deleverage	Simulate that RE sales would take twice to be sold and that non-core subsidiaries would be sold with 50% discount vs budget	37 811	3,91%
Business risk	Recurrent negative deviations versus business plan		Simulate impact of -15% deviation in net income	11 830	1,22%
Liquidity risk	Too heavy reliance on short-term unsecured wholesale funding		Simulate that funding gap would have to be covered by deposits @ higher rates	17 900	1,85%
Market risk	Sovereign bond portfolio = 2nd largest exposoure	Recalculate VaR assuming worse bond price series	Simulate historic VAR assuming range of bond prices had shown twice the volatility level	25 142	2,60%
Interest rate risk	Mismatch between rates of deposits (fixed rate) and loan rates (floating)		Simulate that deposits would have priced at higher rates because of market stress	13 122	1,36%
Operational risk	Impact from operational risk events (fraud/clients' complaints)			34 712	3,59%
Total capital requirements				**967 614**	**100%**
RWAs (= total capital requirements * 12,5)				**12 095 175**	

Source: private project carried by a Big Four consultancy firm in 2014.

Stress testing
EBA 2025: purpose & scope

The EBA launches its 2025 EU-wide stress test

The European Banking Authority (EBA) today launched its 2025 EU-wide stress test and released the macroeconomic scenarios. This year's exercise is designed to provide valuable input for assessing the resilience of the European banking sector in the current uncertain and changing macroeconomic environment. The adverse scenario is based on a narrative of hypothetical worsening of geopolitical tensions, with large, negative, and persistent trade and confidence shocks having strong adverse effects on private consumption and investments, both domestically and globally. The severe nature of the adverse scenario reflects the purpose of the stress test exercise, which is to assess the resilience of the European banking system to a hypothetical severely deteriorated macroeconomic environment. The EBA expects to publish the results of the exercise at the beginning of August 2025.

Scope

- Sample of 70 Banks, both EU and non-EU
- Minimum €30bn assets
- Highest level of consolidation
- Exclusion of Insurance activities

Coordination

- Initiated and coordinated by the EBA
- In cooperation with National CAs, the European Systemic Risk Board (ESRB) and the European Commission (EC)

Assumptions

- A common macroeconomic baseline scenario and a common adverse scenario. The scenarios cover the period 2025-2027.
- Static Balance sheet assumption
- Forecast horizon of 3 years
- No workout of defaulted asset is assumed
- Banks maintain the same business mix and model
- Roll-out of new internal models nor modifications of existing internal models are allowed
- Common simplified tax rate of 30%
- …

Results

- Impact in CET1 capital
- No hurdle rate is provided
- Stress results are an input to SREP

1.3.8. Static balance sheet assumption

33. The EU-wide stress test is conducted on the assumption of a static balance sheet. This assumption applies on a solo, sub-consolidated and consolidated basis for both the baseline and the adverse scenario. Assets and liabilities that mature or amortise within the time horizon of the exercise should be replaced with similar financial instruments in terms of type, currency, credit quality at date of maturity, and original maturity as at the start of the exercise. No workout or cure of S3 assets is assumed in the exercise. In particular, no capital measures taken after the reference date 31 December 2024 are to be assumed.

Stress testing

EBA 2025: Some highlights

Key constraints

NII cannot increase under the adverse scenario

Under the adverse scenario, assumptions cannot lead (at group level) to an increase in the bank's NII compared with the 2022 value before considering the impact of the increase of provisions for non-performing exposures on interest income

The income on non-performing exposures is calculated net of provisions, and under the adverse scenario subject to a cap on the applicable EIR at aggregate level

Under the baseline scenario, banks are required to reflect a proportion of the changes in the sovereign bond spread of the country of exposure in the margin component of the EIR of their repriced liabilities

Under the adverse scenario, the margin paid on liabilities must increase at the highest amount between a proportion of the increase in the sovereign spread and that of an idiosyncratic component

Under both the baseline and the adverse scenario, the increase of the margin on repriced assets is equal to a proportion of the increase in sovereign spreads

Key constraints

'Dividend income' and the 'share of the profit of investments in subsidiaries, joint ventures and associates outside the scope of consolidation' cannot exceed the 2024 level in the baseline, while a minimum reduction of net income from each item compared with 2024 is prescribed for the cumulative projections in the adverse scenario.

In the baseline scenario, NFCI growth rate parameters are subject to a floor. In the adverse scenario NFCI growth rate parameters are subject to a cap and a floor. NFCI in the adverse scenario includes FX variations to the starting point.

'Other remaining administrative expenses', 'remaining other operating expenses', 'depreciation', and 'other provisions or reversals of provisions' cannot fall below the 2024 value, unless an adjustment for one-offs is permitted. 'Cash contributions to resolution funds and deposit guarantee schemes' cannot fall below the 2024 value except for the contributions to the building-up of national DGSs. One-off adjustments are subject to a threshold of 5bps of 2024 REA. Other remaining administrative expenses include FX variations

Common tax rate of 30% applied

No P&L contribution for realised gains or losses, derecognition, goodwill, FX effects other than on 'NFCI' and 'Other remaining administrative expenses'

Other operating income capped at the 2024 value. Operating leasing income is subject to a minimum reduction of 10% compared with 2024 in the adverse scenario.

For dividends paid: pay-out ratio based on publicly declared dividend policies. If no policy is available, the pay-out ratio in the baseline is the maximum of 30% and the median of the pay-out ratios in profitable years 2020-2024; in the adverse, the same pay-out ratio as in the baseline scenario shall be assumed (0 accepted in years in which a bank is making losses)

Stress testing

EBA 2025: Some highlights

4.1.1 Real GDP

		Historical growth (%)	Baseline growth (%)			Adverse growth (%)			Cumulative growth from the starting point (%)	Minimum growth from the starting point (%)	Level of deviation in 2027 (%)
		2024	2025	2026	2027	2025	2026	2027			
Belgium	BE	1.0	1.2	1.4	1.2	-1.1	-3.7	-0.7	-5.4	-5.4	-8.9
Bulgaria	BG	2.2	2.7	3.4	2.7	-3.9	-3.6	2.0	-5.5	-7.3	-13.3
Czech Republic	CZ	1.0	2.4	2.4	2.4	-3.1	-5.5	0.6	-7.9	-8.4	-14.3
Denmark	DK	2.1	2.3	1.5	1.4	-2.9	-4.5	1.5	-5.9	-7.3	-10.6
Germany	DE	-0.2	0.2	0.8	0.9	-3.6	-4.2	0.3	-7.5	-7.7	-9.2
Estonia	EE	-0.7	1.6	2.9	2.9	-5.0	-4.4	0.9	-8.3	-9.2	-14.8
Ireland	IE	-1.3	4.0	4.5	3.7	-0.7	-3.7	0.4	-3.9	-4.3	-14.7
Greece	GR	2.3	2.5	2.3	2.0	-1.4	-4.3	-0.5	-6.1	-6.1	-12.2
Spain	ES	3.1	2.5	1.9	1.7	-2.5	-3.5	2.0	-4.1	-5.9	-9.8
France	FR	1.1	0.9	1.3	1.3	-1.3	-3.9	-0.7	-5.9	-5.9	-9.0
Croatia	HR	3.7	3.3	3.0	2.3	-1.0	-4.4	1.1	-4.3	-5.3	-12.1
Italy	IT	0.5	0.8	1.1	0.9	-1.6	-4.4	-1.5	-7.4	-7.4	-9.9
Cyprus	CY	3.7	3.0	3.1	3.0	-2.5	-4.7	0.7	-6.4	-7.1	-14.6
Latvia	LV	0.1	2.1	3.0	3.3	-2.7	-3.9	0.8	-5.8	-6.6	-13.2
Lithuania	LT	2.4	3.1	3.1	3.0	-1.0	-4.4	1.1	-4.3	-5.3	-12.6
Luxembourg	LU	1.3	2.0	2.5	2.5	-2.2	-4.0	1.0	-5.1	-6.1	-11.5
Hungary	HU	1.4	3.2	4.0	3.0	-1.7	-4.8	1.3	-5.1	-6.4	-14.2
Malta	MT	4.9	3.9	3.6	3.4	-1.8	-4.7	1.6	-4.9	-6.4	-14.5
Netherlands	NL	0.9	1.5	1.5	1.2	-1.6	-4.0	0.0	-5.5	-5.5	-9.4
Austria	AT	-0.5	1.1	1.6	1.3	-3.1	-3.8	1.2	-5.7	-6.8	-9.4
Poland	PL	2.7	3.6	3.5	2.3	-0.8	-4.7	-0.2	-5.7	-5.7	-14.0
Portugal	PT	1.7	2.2	2.2	1.7	-1.8	-3.8	-0.2	-5.8	-5.8	-11.3
Romania	RO	1.1	2.7	3.3	3.8	-1.9	-4.1	0.1	-5.8	-5.9	-14.4
Slovenia	SI	1.4	2.2	2.8	2.4	-1.4	-4.2	0.6	-5.0	-5.6	-11.6
Slovakia	SK	2.1	2.1	1.8	2.3	-2.9	-5.3	0.3	-7.8	-8.1	-13.3
Finland	FI	-0.5	0.8	1.8	1.3	-4.2	-2.8	-0.5	-7.3	-7.3	-10.9
Sweden	SE	0.7	2.1	2.3	1.8	-3.4	-5.3	0.5	-8.0	-8.5	-13.5
Euro area	**EA**	**0.7**	**1.1**	**1.4**	**1.3**	**-2.3**	**-4.0**	**0.0**	**-6.2**	**-6.2**	**-9.8**
European Union	**EU**	**0.9**	**1.4**	**1.6**	**1.5**	**-2.3**	**-4.2**	**0.0**	**-6.3**	**-6.3**	**-10.4**

Stress testing

EBA 2025: Some highlights

4.1.4 Residential real estate prices

		Historical growth (%)	Baseline growth (%)			Adverse growth (%)			Cumulative growth from the starting point (%)	Minimum growth from the starting point (%)	Level of deviation in 2027 (%)
		2024	2025	2026	2027	2025	2026	2027			
Belgium	BE	0.6	2.4	2.1	2.1	-5.1	-10.7	-6.1	-20.4	-20.4	-25.4
Bulgaria	BG	14.1	8.8	6.8	5.7	-2.2	-11.7	-6.6	-19.4	-19.4	-34.3
Czech Republic	CZ	4.8	6.1	4.2	4.1	-2.6	-10.7	-5.2	-17.5	-17.5	-28.4
Denmark	DK	3.3	3.2	3.2	2.7	-5.8	-12.7	-7.3	-23.8	-23.8	-30.4
Germany	DE	-1.9	2.0	2.2	2.2	-3.2	-6.6	-3.6	-12.8	-12.8	-18.1
Estonia	EE	-1.1	3.8	5.5	5.2	-6.4	-12.8	-6.7	-23.8	-23.8	-33.8
Ireland	IE	8.9	9.7	6.3	3.5	-0.7	-10.4	-7.1	-17.4	-17.4	-31.5
Greece	GR	9.2	4.4	3.2	2.5	-4.6	-12.3	-7.2	-22.3	-22.3	-29.6
Spain	ES	7.9	7.0	6.1	4.3	-2.3	-9.8	-6.2	-17.2	-17.2	-30.1
France	FR	-3.9	0.9	0.6	0.7	-3.4	-6.4	-3.7	-13.0	-13.0	-14.8
Croatia	HR	10.6	9.7	7.4	5.2	-0.7	-9.9	-6.6	-16.5	-16.5	-32.6
Italy	IT	2.6	2.4	2.0	1.2	-2.6	-6.3	-3.7	-12.0	-12.0	-16.8
Cyprus	CY	7.1	4.7	3.0	2.5	-3.4	-9.5	-6.1	-17.9	-17.9	-25.7
Latvia	LV	4.5	8.1	8.0	8.0	-2.7	-11.2	-5.3	-18.2	-18.2	-35.1
Lithuania	LT	9.7	7.5	7.5	7.2	-2.4	-10.0	-8.6	-19.7	-19.7	-35.1
Luxembourg	LU	-6.1	1.5	4.2	4.2	-7.5	-12.0	-6.1	-23.5	-23.5	-30.6
Hungary	HU	8.0	3.4	3.9	3.0	-6.1	-13.0	-8.6	-25.3	-25.3	-32.5
Malta	MT	6.2	4.4	4.0	3.9	-1.9	-6.5	-4.5	-12.4	-12.4	-22.4
Netherlands	NL	8.9	7.5	4.1	4.1	-3.4	-13.7	-8.2	-23.5	-23.5	-34.3
Austria	AT	-2.8	0.7	3.3	3.7	-6.7	-10.3	-5.7	-21.1	-21.1	-26.8
Poland	PL	10.3	-1.5	0.0	-0.4	-5.7	-9.8	-5.7	-19.8	-19.8	-18.2
Portugal	PT	6.8	4.2	3.0	3.0	-5.4	-13.8	-7.7	-24.7	-24.7	-31.9
Romania	RO	-0.1	0.5	1.4	2.5	-3.2	-4.9	-2.0	-9.8	-9.8	-13.7
Slovenia	SI	6.5	5.1	4.9	4.6	-2.0	-7.1	-5.3	-13.8	-13.8	-25.3
Slovakia	SK	0.5	5.0	2.4	3.5	-3.1	-11.4	-5.1	-18.6	-18.6	-26.9
Finland	FI	-3.1	1.1	2.7	2.8	-2.0	-3.6	-2.6	-8.1	-8.1	-13.9
Sweden	SE	1.8	3.0	3.4	3.5	-6.4	-13.3	-7.9	-25.2	-25.2	-32.2
Euro area	**EA**	**1.6**	**3.3**	**2.7**	**2.4**	**-3.1**	**-7.9**	**-4.5**	**-14.8**	**-14.8**	**-21.6**
European Union	**EU**	**1.8**	**3.0**	**2.7**	**2.3**	**-3.5**	**-8.4**	**-4.7**	**-15.7**	**-15.7**	**-22.2**
United Kingdom	UK	2.4	1.9	1.9	1.9	-4.0	-13.0	-12.2	-26.7	-26.7	-30.8

Stress testing

EBA 2025: Some highlights

4.1.5 Commercial real estate prices

		Baseline growth (%)			Adverse growth (%)			Cumulative growth from the starting point (%)	Minimum growth from the starting point (%)	Level of deviation in 2027 (%)
		2025	2026	2027	2025	2026	2027			
Belgium	BE	0.7	1.0	1.5	-11.1	-16.0	-9.3	-32.3	-32.3	-34.5
Bulgaria	BG	5.2	1.7	1.3	-6.9	-17.1	-12.3	-32.2	-32.2	-37.4
Czech Republic	CZ	4.5	3.5	3.7	-10.6	-19.2	-10.7	-35.5	-35.5	-42.5
Denmark	DK	2.8	2.1	1.8	-10.9	-18.9	-11.0	-35.7	-35.7	-39.8
Germany	DE	-0.5	0.4	1.0	-12.1	-15.2	-10.6	-33.3	-33.3	-33.9
Estonia	EE	-0.8	2.2	3.6	-12.8	-21.9	-9.8	-38.6	-38.6	-41.5
Ireland	IE	3.5	3.1	1.5	-5.9	-14.0	-9.7	-26.9	-26.9	-32.5
Greece	GR	4.0	1.8	1.3	-6.1	-15.6	-10.2	-28.8	-28.8	-33.6
Spain	ES	2.9	3.0	1.6	-5.8	-12.1	-7.3	-23.2	-23.2	-28.8
France	FR	0.7	0.5	0.9	-12.3	-11.5	-7.5	-28.2	-28.2	-29.7
Croatia	HR	4.2	2.7	1.2	-5.9	-15.2	-10.3	-28.4	-28.4	-33.9
Italy	IT	2.4	1.3	0.6	-4.0	-11.5	-8.8	-22.5	-22.5	-25.6
Cyprus	CY	2.3	1.1	0.7	-8.6	-14.7	-11.6	-31.1	-31.1	-33.9
Latvia	LV	4.3	4.6	4.0	-8.1	-17.2	-10.9	-32.2	-32.2	-40.3
Lithuania	LT	4.0	3.3	2.9	-7.6	-15.2	-14.1	-32.8	-32.8	-39.1
Luxembourg	LU	-0.7	2.8	3.7	-14.3	-18.5	-10.2	-37.2	-37.2	-40.7
Hungary	HU	1.0	1.1	2.4	-7.1	-15.1	-9.9	-29.0	-29.0	-32.0
Malta	MT	3.5	3.6	3.6	-6.1	-12.1	-9.0	-24.9	-24.9	-32.5
Netherlands	NL	5.5	1.8	2.0	-3.4	-15.9	-9.9	-26.8	-26.8	-33.1
Austria	AT	-0.4	1.5	2.7	-12.4	-15.7	-9.1	-32.9	-32.9	-35.4
Poland	PL	-1.1	-1.0	0.0	-16.2	-19.4	-9.8	-39.1	-39.1	-37.9
Portugal	PT	3.4	2.0	2.1	-7.0	-16.6	-10.7	-30.7	-30.7	-35.6
Romania	RO	0.1	1.5	3.2	-13.4	-13.2	-7.5	-30.5	-30.5	-33.7
Slovenia	SI	2.0	2.1	2.2	-7.7	-12.3	-9.3	-26.6	-26.6	-31.0
Slovakia	SK	0.9	-1.0	1.5	-12.0	-23.0	-11.1	-39.8	-39.8	-40.6
Finland	FI	0.2	1.9	2.5	-8.0	-9.8	-7.5	-23.2	-23.2	-26.7
Sweden	SE	5.3	2.9	2.6	-5.7	-18.3	-12.5	-32.7	-32.7	-39.4
Euro area	EA	1.4	1.2	1.2	-9.1	-13.6	-9.1	-28.6	-28.6	-31.3
European Union	EU	1.5	1.3	1.3	-9.4	-14.3	-9.3	-29.5	-29.5	-32.3

NOVA SCHOOL OF BUSINESS & ECONOMICS

Stress testing

EBA 2025: Some highlights

4.1.7 Stock prices

	Deviation from the starting point (%)		
	2025	2026	2027
European Union	-50	-46	-42
Norway	-42	-39	-36
United Kingdom	-52	-48	-45
United States	-61	-56	-52
Japan	-35	-32	-30
Canada	-35	-33	-30
Switzerland	-43	-40	-37
Australia & New Zealand	-40	-37	-34
Rest of the world	-66	-61	-57

Note: Under the baseline scenario, stock prices are assumed to remain unchanged.

Stress testing
EBA 2025: In practical terms

EBA 2025

About https://www.eba.europa.eu/risk-and-data-analysis/risk-analysis/eu-wide-stress-testing

Documentation https://www.eba.europa.eu/risk-and-data-analysis/risk-analysis/eu-wide-stress-testing

Stress Test 2023

Results https://www.eba.europa.eu/publications-and-media/press-releases/eba-publishes-results-its-2023-eu-wide-stress-test

FAQs https://www.eba.europa.eu/sites/default/documents/files/document_library/Risk%20Analysis%20and%20Data/EU-wide%20Stress%20Testing/2023/Scenarios/1051441/FAQs%20on%202023%20EU-wide%20stress%20test.pdf

Results 2021 https://tools.eba.europa.eu/interactive-tools/2021/powerbi/st21_visualisation_page_1.html

Stress testing
Some practical examples (I)

Bank stress tests ✓ Added

EU stress tests show world's oldest bank would be wiped out in economic shock

Verdict on Monte dei Paschi di Siena comes as UniCredit is in talks to buy ailing lender

30 July 2021

Fed to test banks' ability to withstand 55% fall in equity prices

Regulators lay out criteria for annual stress exercise with stocks at record highs

12 Feb 2021

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Stress testing

Some practical examples (II)

ECB tells banks to run cyber stress tests after rise in hacker attacks

Lenders will assess online resilience after 'significant increase' in incidents since outbreak of Ukraine war

The ECB is designing a scenario involving a theoretical breach of the financial system's cyber defences, which will be sent to all of the 111 banks it supervises © Carl Court/Getty Images

9 Mar 2023

DEC 13, 10:38

Bank of England to stress test non-bank financial markets

Laura Noonan in London

The Bank of England will carry out a first of its kind stress test of vulnerabilities in non-bank financial markets next year, after September's implosion of UK pension funds exposed gaps in policymakers' understanding of systemic risk in key markets.

Jul 12, 07:14

Laura Noonan in London

Bank of England stress tests find lenders would be 'resilient' in an economic crisis

The UK's top eight banks "would continue to be resilient" in an economic environment "much worse" than the one they face, and are well positioned to support households and businesses through rising interest rates, the Bank of England said on Wednesday.

The verdict of the BoE's latest 'stress tests' on banks' capacity to weather imagined catastrophes came as bank officials warned that the wider financial sector faced risks from a "highly uncertain" economic outlook and a "challenging" environment for risk.

The latest tests, which cover NatWest, HSBC, Barclays, Standard Chartered, Lloyds, Santander, Nationwide and Virgin Money, were based on a doomsday scenario imagined in September 2022, before a spate of US bank collapses and the demise of Credit Suisse.

12 Jul 2023

Stress test discrepancy prompts Bank of America to delay dividend announcement

Lender's own risk managers thought bank would perform less favourably in Federal Reserve exercise

Bank of America's internal stress test showed it would lose $52bn in a severe economic downturn and that its capital as a percentage of total assets would fall at most to 8.3% © Bloomberg

Stephen Gandel in New York JULY 3 2023

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Stress testing

Some practical examples (III)

Bank stress tests Added

US banking lobby sues Federal Reserve over stress test framework

Announcement comes a day after central bank unveiled proposed changes to annual examinations

The Federal Reserve had proposed changes it said were meant to make the stress test process more transparent © Reuters

Joshua Franklin in New York

Published DEC 24 2024 | Updated DEC 24 2024, 16:03

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Goldman Sachs wins challenge to Federal Reserve over stress tests

Capital requirements cut after first successful appeal by a US lender against central bank's annual assessment

Goldman's overall capital requirement remains the highest of any US-based bank © Andrew Kelly/Reuters

Brooke Masters in New York

Published AUG 28 2024

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Stress testing
Expanding scope

EBA Pilot stress-test exercise on Climate (2021)

Figure 7: Breakdown of exposures by NACE level 1 section into CPRS 1-6 categories, (% of total exposures)

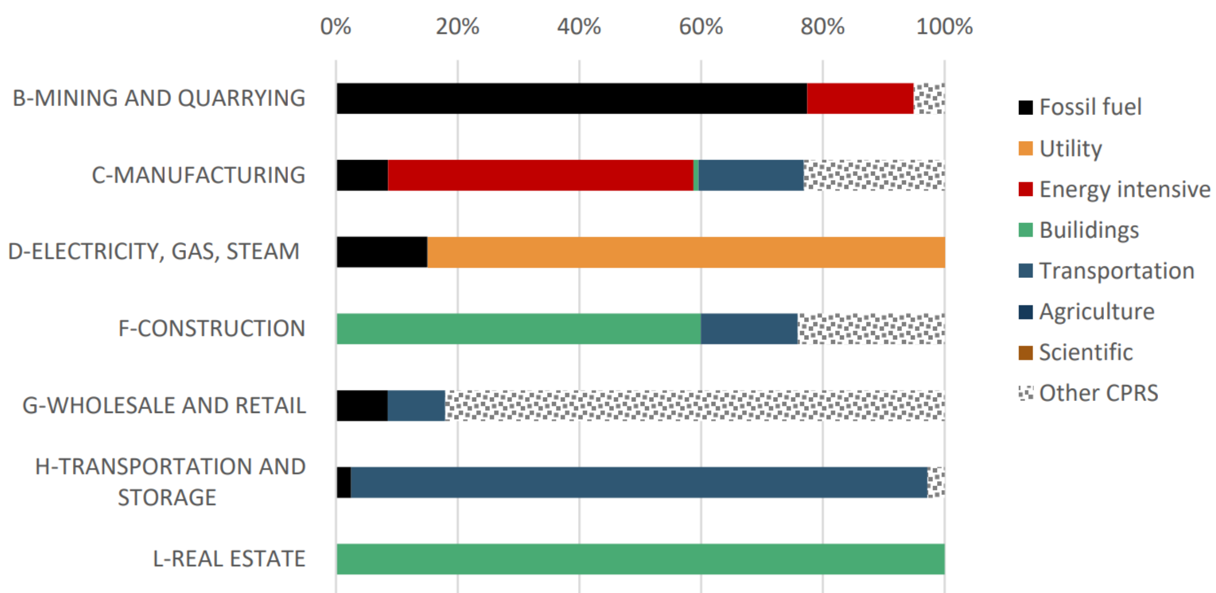
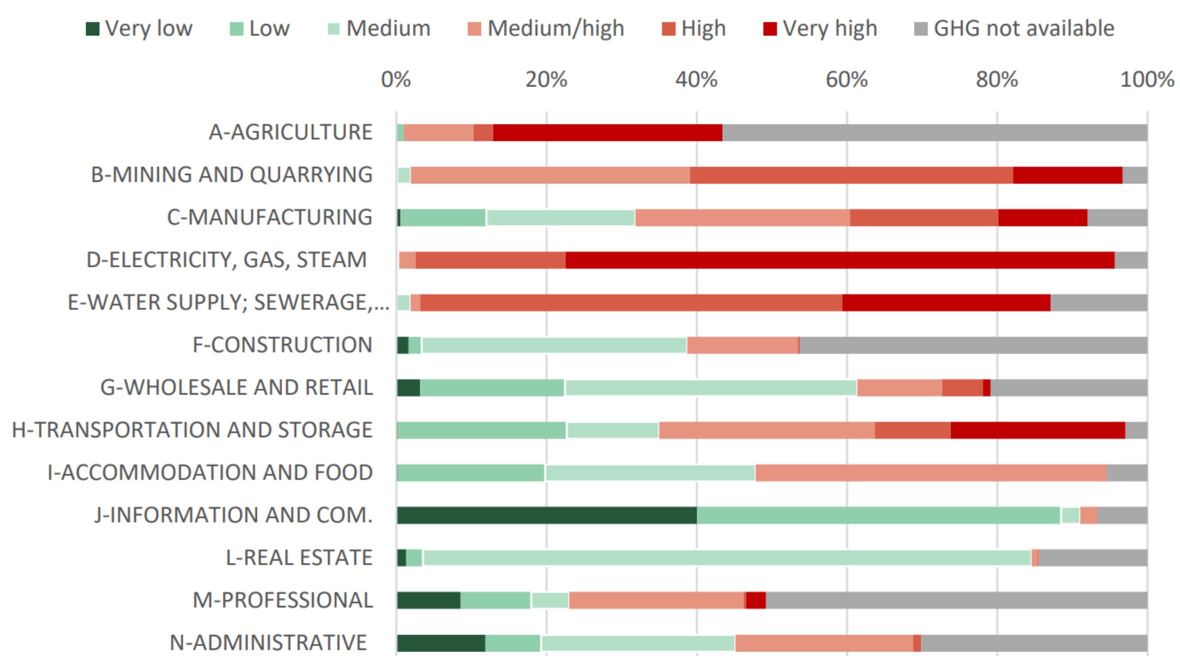


Figure 12: Exposures associated to GHG emission intensity buckets in NACE 1 sections (% of total)



Source: [Mapping climate risk: Main findings from the EU-wide pilot exercise, EBA, May 2021.]

ECB warns banks of capital hit if they fail to tackle climate risk

Central bank sets 2024 deadline after finding 'major gaps' among lenders in assessing financial impact

2 Nov 2022

Banks need financial prod to tackle climate change, warns chief supervisor

FSB's Dietrich Domanski says without measures such as a carbon tax, lenders will resist reforms

1 Jan 2023

Stress testing

The plus

- ✓ Easy to implemente & communicate
- ✓ Scenario flexibility is huge
- ✓ Exposes vulnerabilities that we prefer to discover under test
- ✓ Reverse stress testing: how bad must the scenario be for the bank to fail
- ✓ The best outcome of the test is the learning
  - ✓ define a strategy for a crisis
  - ✓ have a panel with critical variables to follow

Stress testing

The minus

- ✓ Endogeneity: tests ignore management reaction to the bad scenario (but they are paid for that!).
- ✓ There are second order impacts: after a shock, the most probable scenario is a crisis run-off and not the historical average (model is autoregressive).
- ✓ Beware of what is tested: if a patient does a lung check-up, he may die from an unpredicted heart attack…Dexia failed a few weeks after passing the test.
- ✓ A pass on a test means the bank survives that test, not a stronger shock.
- ✓ No matter the test sophistication, reality is much more creative!

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Measuring and managing risks

2206 - Banking | 2025S2 | Session 6 | Carla Rebelo