Banking

Ana Lacerda

Fall Semester 2024

Course: Banking [2206]

Class 2 (2nd part)

Disclaimer: The views expressed are my own and do not necessarily represent the views of Banco de Portugal.



To be covered today

- Capital
- Liquidity





Capital

- Capital is a key ingredient for safe and sound banks.
- Banks take on risks and may suffer losses if the risks materialise. To stay safe and protect deposits, banks have to be able to absorb such losses. That's what bank capital is used for.
- How much capital should a bank hold? The answer lies in the risks it takes.



- The bigger the risks, the more capital it needs.
- It's essential that banks continuously assess the risks they are exposed to and the losses they may incur.
- Their assessments are checked and challenged by banking supervisors.
 - Supervisors are responsible for monitoring banks' financial health, and checking their capital levels is an important part of this.

Source: SSM website



Capital

Three main questions:

- What is bank capital?
- How does it keep banks safe?
- And what are the levels of capital banks need to hold?



Capital: What is capital?

What is capital?

- **Capital** is the money that a bank has obtained from its **shareholders** and other investors and any **profit that it has made and not paid out**.
- If a bank wants to expand its capital base, it can do so for example by issuing more shares or retaining profits, rather than paying them out as dividends to shareholders.
- Every bank has two sources of funds: capital and debt. Debt is the money that it has borrowed from its lenders and will have to pay back. Debt includes among other things deposits from customers, debt securities issued and loans taken out by the bank.
- Funds from these two sources are employed by the bank in a number of ways, for example to give loans to customers or to make other investments. These loans and other investments are the bank's assets, along with funds that are held as cash.



Capital: What is capital?



A bank's balance sheet



Capital: How does capital keep banks safe?

How does capital keep banks safe?

- Capital acts like a financial cushion against losses.
- If many borrowers are suddenly unable to pay back their loans, or some of the bank's investments fall in value, the bank will make a loss and without a capital cushion might even go bankrupt.
- However, if it has a solid capital base, it will use it to absorb the loss and continue to operate and serve its customers.

Banks use capital to absorb losses





How much capital do banks need to hold?

In European banking supervision, the capital requirements for a bank consist of three main elements:

- **minimum capital requirements**, known as <u>Pillar 1 requirements</u>
- an **additional capital requirement**, known as the <u>Pillar 2 requirement</u>
- buffer requirements

In addition to these three sets of capital requirements, **supervisors expect banks to reserve certain amounts of capital for times of stress** - > <u>Pillar 2 guidance</u>.

On top of the amounts regulators and supervisors demand, **banks are expected to determine themselves how much capital they need to be able to sustainably follow their business models**.



Pillar 1 requirements

• All banks under European banking supervision have to comply with the European law that sets the minimum total capital requirement (called Pillar 1 requirement) at 8% of banks' risk-weighted assets.



Sub components: Common Equity Tier 1 ratio $\geq 4,5\%$ Tier 1 ratio $\geq 6,0\%$



A streamline of the components of regulatory capital

Catagony	Tie	Tior 2	
Category	CET1	AT1	ner z
Composition	Common shares, retained earnings, reserves	Perpetual hybrid instruments	Subordinated debt, other hybrid instruments
Loss Absorption	First line of defense in absorbing losses	Absorbs losses after CET1, may convert to equity or be written down	Absorbs losses after Tier 1 capital is exhausted (during liquidation)
Permanence	Permanent, does not require repayment	Perpetual, but can have callable features or canceled coupons	Less permanent, often with a set maturity (e.g., 5-10 years)
Risk	Highest risk for investors	Lower risk for investors compared to CET1	Lower risk for investors compared to Tier1
Dividends/Coupons	Dividends on common stock are entirely discretionary	Coupon payments can be canceled in distress	Fixed interest payments, but can be deferred in certain circumstances



Components of regulatory capital

Tier 1 (going concern)	Common Equity Tier 1 (CET1)	Sum of common shares (equivalent for non-joint stock companies [*]) and stock surplus, retained earnings, other comprehensive income, qualifying minority interest and regulatory adjustments	CET1 >4.5%
	Additional Tier 1 (AT1)	Sum of capital instruments meeting the criteria for AT1 and related surplus, additional qualifying minority interest and regulatory adjustments	CET1 + AT1 >6%
Tier 2 (gone concern)		Sum of capital instruments meeting the criteria for Tier 2 and related surplus, additional qualifying minority interest, qualifying loan loss provisions and regulatory adjustments	CET1 + AT1 + Tier 2 >8%

* The standard requires instruments issued by non-joint stock companies to meet a set of criteria to be deemed equivalent to common shares and included in CET1.

www.bis.org/fsi/fsisummaries/defcap_b3.pdf



Example (I)

SOLVENCY RATIOS (CONSOLIDATED)

(EUR million)

	CRD IV / CRR	Regulation
	2020-12	2021-12
Own funds		
Common equity tier 1 (CET 1)	7,620	7,775
Tier 1	8,124	7,781
Tier 2	624	629
Total	8,748	8,409
Weighted assets	41,819	42,636
Solvency ratios		
CET 1	18.2%	18.2%
Tier 1	19.4%	18.2%
Total	20.9%	19.7%

Notes: The amounts shown apply to the phasing-in and full implementation process. Own funds include the positive net income approved by the supervisor under the terms of no. 2 of article 26 of regulation (EU) no. 575/2013.

CGD (www.cgd.pt/English/Investor-Relations/Financial-Information/CGD/2021/Documents/Annual-Report-CGD-2021.pdf)



Example (II)

Amounts in millions of Euros

	dec 2021	dec 2020
A - Level 1 own funds (TIER I)	3,918	3,759
Share capital (includes addicional instruments eligible as Tier I)	1,541	1,541
Reserves and Retained earnings (excluding non-controlling interest)	2,349	2,312
Eligible Minority interests	-	
Deduction on base own funds	<mark>(</mark> 62)	(94)
B - Level 2 own funds (TIER II)	381	410
Subordinated debt	328	346
Eligible Minority interests	-	
Other elements/deductions to complementary own funds	53	64
C - Deductions to total own funds	-	
D - Total own funds (A+B+C)	4,298	4,169
E - Assets weighted by risk	14,428	17,982
Ratios		
TIER (A/E)	27,2%	20,9%
CORE CAPITAL (CET 1)	27,2%	20,9%
TIER II (B/E)	2,6%	2,3%
Capital adequacy ratio (D/E)	29,8%	23,2%
LEVERAGE	7,1%	6,5%

Santander



The denominator:

What are risk-weighted assets?

- They are the total assets a bank has, multiplied by their respective risk factors (risk weights). Risk factors reflect how risky a certain asset type is perceived to be. The less risky an asset, the lower its risk-weighted asset amount and the less capital a bank needs to hold to cover for it.
- For example, a mortgage loan that is secured with collateral (a flat or a house) is less risky has a lower risk factor – than a loan that is unsecured. As a result, a bank needs to hold less capital to cover for such a mortgage loan than it does to cover for an unsecured loan.



The denominator:

"	Accounting' Assets		RISK WEIGHTE Regulator	D A y as	SSETS (RWAs) sset base
	Loan Book	RWAs are calculated by a as defined by the regulat	applyi or, to	ng generic risk weights, each asset category.*	
	. Small Businesses . Mortgages		RWA = Net Ass	et valt	JE * KW%
Sheet	. Retail		. Large Corporates	=	~ 80%
nce	Investment portfolio		. Mortgages	=	~ 20%
-Bala	. Sovereign debt		. Consumer loans	=	~ 60%
uО	. Shares		. Sovereign debt	=	0%
	Derivatives		. Other Corp debt	=	f [rating], ~ < 100%
	Property		. Shares	=	~ 100%
	Other		. Property	=	~ 100%

Committed Guarantees

* Standard Method.



The numerator:

- Basel III provides for a comprehensive list of ٠ regulatory adjustments and deductions from regulatory capital.
- These deductions typically address the high ٠ degree of uncertainty that these items have a positive realisable value in periods of stress and are mostly applied to CET1.
- Important deductions are goodwill and other ٠ intangible assets, deferred tax assets and investments in other financial entities

Reconciliation of economic and regulatory capital

EUR million			
	2018	2017	4 counting
Net capital and issuance premiums	59,046	59,098	Accounting
Reserves and retained profits	57,939	55,862	Eauitv
Valuation adjustments	(23,606)	(23,108)	
Minority interests	6,893	7,228	
Prudential filters	(706)	(453)	
Base economic capital available	99,566	98,627	
Deductions	(32,662)	(33,064)	
Goodwill	(25,630)	(25,585)	
Other intangible assets	(3,014)	(2,952)	
DTAs	(3,754)	(3,820)	
Other	(264)	(707)	
Base regulatory (CET1 FL) capital available	66,904	65,563	
Base economic capital available	99,566	98,627	Regulatory
Economic capital required ^A	69,443	71,893	Canital
Capital surplus	30,123	26,734	capitai

A. In order to enhance the comparison with regulatory capital, the differences in goodwill changes are included in the required economic capital.

Source: Santander 2018 Annual report.



Pillar 2 requirements

- Additional capital requirement set by supervisors.
- Supervisors from the ECB and the supervisory authorities of participating countries look at individual banks in detail and assess the risks that each of them is exposed to.
 - They do this via an annual Supervisory Review and Evaluation Process (SREP).
 - If the supervisors conclude that the bank's risks are not sufficiently covered by minimum capital requirements, they ask it to hold additional capital.
- Both minimum and additional capital requirements are binding and there are legal consequences if they are not adhered to. These consequences depend on how serious the breach is if the breach is very serious, the bank may lose its banking licence.



Buffer requirements [macroprudential instruments]

The third capital requirement for banks is that they have additional buffers for different purposes (for general conservation of capital and against cyclical and non-cyclical systemic risk).



https://www.esrb.europa.eu/national_policy/capital/html/index.en.html



Capital conservation buffer

- The capital conservation buffer (CCoB) is a capital buffer amounting to 2.5% of a bank's total exposures. It must be made up of Common Equity Tier 1 capital.
- This buffer is in addition to the 4.5% minimum requirement for Common Equity Tier 1 capital.
- Its objective is to conserve a bank's capital. If a bank's CCoB falls below 2.5%, automatic safeguards apply which limit the amount of dividend and bonus payments the bank can make.
- CCoB rates are updated on a monthly basis.

CCoB rates are updated on a monthly basis (last updated: 02 June 2021).

The following map shows current CCoB rates set in Europe:



The following table shows current CCoB rates as well as pending CCoB rates announced by designated authorities (new data are highlighted in red):



Countercyclical capital buffer

- The countercyclical capital buffer (CCyB) is designed to counter procyclicality in the financial system.
- When cyclical systemic risk is judged to be increasing, institutions should accumulate capital to create buffers that strengthen the resilience of the banking sector during periods of stress when losses materialise.
- This will help maintain the supply of credit to the economy and dampen the downswing of the financial cycle.
- The CCyB can also help dampen excessive credit growth during the upswing of the financial cycle.

Please consult the respective national authorities' websites for the most up-to-date information. The tables below will be updated after the ESRB has received official notifications of the measures (last updated: 03 July 2023).

The following map shows current CCyB rates set (i.e. after the 12-month phase-in period) in Europe:





Systemically important institutions

- Global systemically important institutions (G-SIIs) and, subject to national discretion, other systemically important institutions (O-SIIs) must fulfil supplementary requirements concerning the amount of Common Equity Tier 1 capital they must hold as a buffer.
- These buffers aim to address the potential negative effects that these institutions might have on the international or domestic financial system if they were to fail.
- The European Banking Authority has drafted technical standards and guidelines for identifying G-SIIs and O-SIIs.

The following table shows the number of systemically important institutions and the range of the G-SII and O-SII buffer rates notified to the ESRB in 2020:

Country	Number of O-SIIs	O-SII buffer range	Number of G-SIIs	G-SII buffer range
> Austria	9	1-2%		
> Belgium	8	0.75-1.5%		
> Bulgaria	8	0.5-1%		
> Croatia	7	0.5-2%		
> Cyprus	11	0.5-2%		
> Czech Republic	6	0%		
> Denmark	7	1-3%		
> Estonia	4	1-2%		
> Finland	3	0.5-2%		
> France	7	0.25-1.5%	4	1-1.5%
> Germany	13	0.25-2%	1	1.5%

(...)



Systemic risk buffer

- The systemic risk buffer (SyRB) aims to address systemic risks that are not covered by the Capital Requirements Regulation or by the CCyB or the G-SII/O-SII buffers.
- The level of the SyRB may vary across institutions or sets of institutions as well as across subsets of exposures. There is no maximum limit for this buffer.
- Depending on its proposed level and the potential impact on other Member States, however, authorisation from the European Commission may be required.
- SyRB rates are updated monthly

SyRB rates are updated monthly (last updated: 05 September 2023).

The following map shows current SyRB rates set in Europe:





INTERACTION OF MICRO AND MACRO CAPITAL REQUIREMENTS STACKING ORDER



Supervisory actions



Leverage ratio

A simple, transparent, non-risk based leverage ratio to act as a credible supplementary measure to the risk-based capital requirements

- Intends to limit model risk and errors on RWA calculation
- Simple and comparable among financial institutions
- Imposes a capital requirement => Maximum Tier 1 capital to assets ratio

Implied assumption is that, when exposure exceeds 33 times the capital, either risk models are undermeasuring risk or there is an unacceptable level of systemic risk in the system





Example (I)

LEVERAGE AND LIQUIDITY RATIOS (CRD IV/CRR)

Leverage ratio (fully implemented)	8.7%	8.7%	7.5%
Liquidity coverage ratio	331.1%	449.0%	357.0%
Net stable funding ratio	156.0%	173.0%	165.0%

CGD (www.cgd.pt/English/Investor-Relations/Financial-Information/CGD/2021/Documents/Annual-Report-CGD-2021.pdf)



Capital

Main prudential req	uirements of the E	uropean Union's regulatory fram	ework		
		Pillar 1		Pillar 2	Pillar 3
		Common Equity tier 1 ratio	4,5%		
Que Sunda	Risk weighted	Tier 1 ratio	6,0%	Supervisors may require additional own funds	
requirements		Total capital ratio	8,0%		
	Non-risk weighted	Leverage ratio	3,0%	Supervisors may require additional own funds	Disclosure requirements
Liquidity	Short term	Liquidity coverage ratio	100,0%		to the market
requirements	Medium term	Net Stable funding ratio	100,0%		
Large exposure limit		Exposure to a client or group of connected clients (in % of Tier 1)	25%	Supervisors may require additional own funds	



European regulator urges banks to comply with dividend ban

Payout policy should support local and European economies in time of crisis, says EBA





Guidance strengthened in line with latest calls for a freeze during the coronavirus pandemic from ECB © Bloomberg

Matthew Vincent MARCH 31 2020

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FINANCIAL TIMES

31 March 2020

Europe's banking regulator has demanded that all EU lenders stop their planned dividend payments and share buybacks — stepping up its guidance in line with the latest call for <u>a payout freeze</u> during the coronavirus pandemic by the European Central Bank.



BoE's planned procyclical capital hike bewilders banks

Some doubt regulator will go through with counter-cyclical buffer hike while forecasting recession





05 Sep 2022

Bankers and former regulators are questioning the Bank of England's plan to increase a capital buffer designed to be raised when the economy is booming, at a time when its own monetary policy committee (MPC) thinks recession is looming.

"We've got an economy that isn't rebounding as it was supposed to [after Covid]," says Adrian Docherty, head of bank advisory at BNP Paribas. "It's obvious to anyone with their head screwed on that now is not the time to make it more difficult to provide credit to the economy."

The so-called **counter-cyclical capital buffer** (CCyB) is an add-on to all banks' minimum capital ratios that supervisors can adjust according to the stages of the economic cycle. In rules devised by the Basel Committee on Banking Supervision, the add-on can be notched upwards



EU says more time needed to put in place bank capital rules

Brussels delays until 2025 the implementation of final phase of Basel III reforms

Sam Fleming in Brussels OCTOBER 27 2021

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FINANCIAL TIMES

27 October 2021

https://www.consilium.europa.eu/en/press/pressreleases/2023/06/27/banking-sector-provisional-agreement-reachedon-the-implementation-of-basel-iii-reforms/ Brussels has defended its decision to grant European banks more time to implement new rules on bank capital, saying supervisors need longer to prepare while lenders focus on financing the post-pandemic recovery.

The European Commission confirmed on Wednesday that the new EU rules to implement the final part of the Basel III agreement will come into effect in 2025. The reforms had been due to come into force by 2023 under the global accord.

Valdis Dombrovskis, executive vice-president at the commission, said he was open to international discussion on the topic, but that Europe needed the extra time to pass the required legislation, some of which had to be enacted by individual member states.



Liquidity: Funding Liquidity and Risk Exposure

Funding Liquidity & Liquidity

Risk

- Unexpected change in the liquidity position of the bank
- Inability to fund increases in assets and meet obligations as they come due
- Inability to meet short term financial liabilities without a loss



Liquidity: Normal Flow

Every bank has its own expectation of liquidity position change (cash flow from operations):

- expected deposit withdrawals less new deposits;
- expected usage of credit lines less repayments;
- loan repayments less new loans granted (new loans are a bank decision, not exactly an expectation);
- changes due to bond maturity (bonds can be investments in assets or funding in liabilities, with opposite impact on liquidity on maturity);
- payments and receivables due to normal banking operations (interests, fees, salaries, suppliers, taxes, dividends...).



Liquidity: Origins

Liquidity risk may have an asset origin or a liability origin:

Liability	
side	

- When a depositor ask for the withdrawal of her funds
- When a market funding line is not rolled-over.

Asset side

- When a customer withdraws from her credit line
- Lack of loan payment in due date
- When a loan is rolled-over

Managing liquidity is a normal banking operation, but it can be really dramatic in a more extreme situation.

- The bank run is the biggest nightmare. It can quickly lead to insolvency through the uncontrolled sale of assets.
- The run is often simultaneous in assets and liabilities (including margin calls in off-balance sheet derivatives) making the problem even more serious.



BANCO SANTANDER TOTTA, S. A.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS AS AT DECEMBER 31, 2021

(Expressed in thousands of Euros, except where otherwise stated)

Maturity Gap:

An example

	31-12-2020								
		Up to 3	From 3 months	From 1 to	From 3 to	More than			
	On demand	months	to 1 year	3 years	5 years	5 years	Undetermined	Derivatives	Total
Assets									
Cash, cash balances at central banks and other demand deposits	603,758	-	-		3,932,057	-		-	4,535,815
Financial assets held for trading	-	-	-	-	-	-	-	916,039	916,039
Non-trading financial assets mandatorily									
at fair value through profit or loss	-	-	-	-	-	-	132,905	-	132,905
Financial assets at fair value									
through other comprehensive income	1,299,742	620,270	74,873	270,190	300,190	4,801,198	72,634	-	7,439,097
Financial assets at amortised cost	607,876	1,971,950	5,528,160	10,125,880	7,274,485	18,773,061	-	-	44,281,412
Derivatives – Hedge accounting	-	-	-			-	-	23,719	23,719
Investments in subsidiaries, joint ventures and associates	-		-	-	-	-	62,582	-	62,582
	2,511,376	2,592,220	5,603,033	10,396,070	11,506,732	23,574,259	268,121	939,758	57,391,569
Liabilities									
Financial liabilities held for trading	-		-			-		941,528	941,528
Financial liabilities at amortised cost									
Deposits - Central banks	9,859	-	-	6,593,892			-	-	6,603,751
Deposits - Credit institutions	621,415	857,756	64,727	3,706	-	-	-	-	1,547,604
Deposits - Customers and other loans	21,245,887	5,969,677	6,185,668	1,208,346	1,601,815	69,108	-	-	36,280,501
Debt securities issued	-	36,134	130,414	301,880	1,188,943	1,498,149	-	-	3,155,520
Derivatives – Hedge accounting	-		-		-		-	522,283	522,283
	21,877,161	6,863,567	6,380,809	8,107,824	2,790,758	1,567,257	-	1,463,811	49,051,187



Funding Structure: how to close the gap?



...This is the target financing structure of the bank. It is a strategic decision. The funding gap may not even exist....



Funding strategy: components





Liquidity management: how to close the gap

- Matched book (easier said than done...)
- Marketing try to convince clients to adapt the time profile of the instruments as suitable for the bank
- Hold a very significant proportion of assets in the form of very liquid instruments, finance by stable funding a safe and costly solution
- Purchase liquidity when needed
- Purchase liquidity when the need is expected



Funding strategy: Key pillars (regulatory approach)

Principles

Functional governance and mechanism

Awareness sharing

Collateral management

Active management under normal conditions

Risk measurement: metrics under extreme conditions

Recommendations

- Internal contribution of liquidity risk
- Segregation of duties
- IT systems and processes
- Approval of liquidity strategy by Board
- Awareness of liquidity risk
- Liquidity risk due to documentation risk
- Disclosure of adequate information
- Collateral management
- Cash and collateral intraday management systems
- Liquidity-generating capacity
- Factors for netting arrangements
- Intraday liquidity management
- Short-term liquidity within structural liquidity risk
- Cash flow planning
- Monitoring of funding sources
- Liquidity stress tests
- Contingency plans
- Liquidity buffers



Funding strategy: stress testing





Liquidity Ratio: Liquidity Coverage Ratio

 Banks must maintain an adequate level of high-quality assets to meet liquidity needs for a 30-day time horizon under an acute stress scenario

concept

Global

• Stress scenario = idiosyncratic factors + systematic factors (asset / run-off factors)





Liquidity Ratios: Net Stable Funding Ratio

- Minimum acceptable amount of stable funding based on the liquidity characteristics of a bank's assets and activities over a 1-year horizon
- Global concept
- "Stable funding": those types of equity and liabilities expected to be reliable sources of funds under an extended stress 1-year scenario
 - Goal: promote medium to long term funding in order to reduce incentives for short-term wholesale funding





Liquidity ratios: comparison



Note: When LCR is not met, including during times of stress, the bank must report daily and submit a plan for the timely restoration of required level.



Capital and liquidity

Main prudential req	uirements of the E	uropean Union's regulatory fram	lework		
		Pillar 1		Pillar 2	Pillar 3
		Common Equity tier 1 ratio	4,5%		
Own Funds	Risk weighted	Tier 1 ratio	6,0%	Supervisors may require additional own funds	
requirements		Total capital ratio	8,0%		
	Non-risk weighted	Leverage ratio	3,0%	Supervisors may require additional own funds	Disclosure requirements
Liquidity	Short term	Liquidity coverage ratio	100,0%	-	to the morker
requirements	Medium term	Net Stable funding ratio	100,0%		
Large exposure limit		Exposure to a client or group of connected clients (in % of Tier 1)	25%	Supervisors may require additional own funds	





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