



Ce que les crises financières nous enseignent: évolution des pratiques et de la régulation

Master 2 Probabilités et Finance

2023/2024





A l'issue de ce cours, vous serez capables de comprendre

- les mécanismes économiques et financiers à l'origine de la crise
- la machine réglementaire : comment la régulation se construit et se met en application
- ce qui se passe pour une banque en cas de crise si celle-ci est sur le point de faillir.



La réglementation bancaire a notamment pour objectifs :

- Adapter ou améliorer les règles de fonctionnement et ainsi participer à la modernisation et la stabilité du secteur bancaire,
- Limiter la prise de risques excessive,
- Prévenir le risque systémique,
- Assurer aux clients une information de qualité.

A blurred background image of a stack of papers or files. In the foreground, two file folder labels are clearly visible. The top label is white with black text that reads 'Clients'. Below it, another label is partially visible, with the word 'Regulations' clearly legible in large, bold, black letters.

Clients

Regulations



Silicon Valley Bank

FIRST REPUBLIC BANK

CREDIT SUISSE

Mars 2023



Les crises bancaires de 2023

- SVB a perdu plus de 40 Mds de ses dépôts en une journée (9 mars);
- La FDIC a transféré tous les actifs et les dépôts de SVB dans une banque relais, sous l'application d'une exception de "risque systémique" (12 mars);
- La FDIC a fait de même pour Signature Bank (19 mars).

Communiqués de presse un peu partout dans le monde pour calmer les remous sur le marché de l'obligation AT1 à cause du précédent suisse et réaffirmation de la hiérarchie des créateurs. (ECB/SRB; BoE; Bank of Canada; HKMA); Réaction positive des marchés.

FDIC propose un "special bank assessment" pour renflouer les pertes du deposit insurance fund estimée à 15.8 Mds ciblant toutes les banques éligibles



9-19 mars

19 mars

20 mars

1er mai

11 mai

Juin – août

UBS rachète CS:
 (i) les actionnaires de reçoivent 3 Mds CHF en compensation alors que 16 Mds d'obligations AT1 sont annulées; (ii) UBS reçoit une garantie du gouvernement pour assurer les pertes éventuelles (jusqu'à 9Mds, après 5Mds pour UBS) et un accès à des lignes publiques de liquidités and access to two public funding lines (200 Mds).

Sous l'impulsion de la FDIC, JPM entre dans une convention d'acquisition et de prise en charge de First Republic Bank, offrant à JPM un accord pour partager les pertes signifiant une ristourne en capital et un prêt taux fixe de 50 Mds pour 5 ans.

- UBS finalise l'acquisition de CS, suivie d'une restructuration (12 juin) ;
- UBS annonce ne plus avoir besoin des garanties publiques (11 août)



“crisis management framework”?

Bank Recovery and Resolution Directive (BRRD) - phases

Preparation	Recovery	Resolution
Recovery Plan <ul style="list-style-type: none">- prepared by the bank- reviewed and approved by supervisor (NCA)	Administered by NCA <ul style="list-style-type: none">- early intervention (preventative)- significant deterioration of financial condition (capital, NPLs)	Administered by NRA <ul style="list-style-type: none">- “failing or likely to fail”- no private sector solution- liquidation not feasible or not in public interest- conditions for State Aid not fulfilled
Resolvability Assessment <ul style="list-style-type: none">- feasibility of liquidation- prepared by resolution authority (NRA)	Recovery options <ul style="list-style-type: none">- Intra-group support- (Temporary) administration- Sale of business	 Resolution Plan implemented  Resolution tools deployed
Resolution Plan <ul style="list-style-type: none">- directed by NRA (supported by college)		



BRRD - guidelines

Protection of depositors, secured and other privileged creditors

- Exclusion of guaranteed deposits (< EUR 100k), secured (e.g. covered) bonds, short-term liabilities and other privileged creditors

“No creditor worse off than in liquidation” (Art. 73 BRRD)

- No creditor should be left worse off than it would have been if the bank became insolvent
- Bail-in of creditors generally follows prevailing creditor hierarchy

“Burden sharing” (Art. 44/5 BRRD)

- Investors to contribute at least 8% of total liabilities and own funds to the cost of resolution before external funds can be accessed
- “ex ante” test for G-SIIs/O-SIIs proposed by EBA but rejected by Commission



Resolution

Aims

- To minimize disruption to the financial system: failure should be orderly
- To avoid interruption to critical economic functions & services provided to customers
- To ensure taxpayers are not exposed to losses: costs borne by shareholders and creditors, as for every other firm that fails

Different tools are used to **safeguard public interests**, including the continuity of the bank's critical functions and financial stability, at minimal cost to taxpayers.

Sale of business tool

The sale of business tool allows for the total or partial disposal of the entity's business.

Bridge institution tool

Part or all of the entity is transferred to a temporary entity, which is totally or partially publicly owned.

HELP TO
PROTECT
MARKETS AND
CITIZENS FROM
FUTURE CRISES

Assets, rights or liabilities can be transferred to an asset management vehicle, which is totally or partially publicly owned.

Asset separation tool

Equity and debt can be written down or converted, placing the burden on share holders and creditors rather than taxpayers.

Bail-in tool

Si une faillite met le système bancaire en danger, les pouvoirs publics interviennent. La banque naufragée peut être recapitalisée par l'État, ses prêteurs, d'autres banques...

REGARDEZ, NOTRE PLUS GROS CONCURRENT VIENT NOUS SAUVER!



... VOIRE ÊTRE NATIONALISÉE, OU RACHETÉE PAR UNE AUTRE BANQUE.

... C'EST CE QUI EST ARRIVÉ AU CRÉDIT SUISSE EN MARS 2023.





Des soucis avec le “crisis management framework”?

TOPICS

Est-ce que le cadre de la résolution post GFC a tenu? Oui ... mais l'exception confirme la règle

Risques liés au business model

Un manque de régulation et de capacité à absorber les chocs

Liquidité et financement en résolution: le rôle d'un “public backstop”

Coopération et coordination à l'international

Flexibilité du cadre, choix des outils

Opérationnaliser le Bail-in

Bank-runs: Rôle et design de la garantie des dépôts?

Bank-runs: Défi de la numérisation

...



Crise de 2008



La crise des subprimes

- Subprimes?
 - Prêts risqués qui peuvent être hypothécaires, des cartes de crédit, de location de voitures etc
 - Accordés à une clientèle peu solvable ou à l'historique de crédit difficile.
 - Marché développé aux États-Unis à partir de 2001
 - 2002 : 200 milliards de dollars pour les prêts hypothécaires
 - 2006 : 640 milliards de dollars (23 % du total des prêts immobiliers souscrits)

La crise des subprimes

■ Subprimes?

- Emprunteurs à risque peuvent contracter un emprunt immobilier contre un taux d'intérêt variable indexé généralement sur le taux directeur de la Fed majoré d'une prime de risque très élevée
- Marché encouragé par des taux historiquement bas incitant les institutions de crédit à accroître la part des subprimes dans leur portefeuille pour profiter des importantes marges imposées à ces crédits



La crise des subprimes

- Que s'est-il passé le 15 septembre 2008 ?
- A quel(s) instrument(s) financier(s) la crise de 2008 est-elle attribuée ?
- Quel(s) facteur(s) ont induit les gens en erreur ?
- In our modern societies, who and how money is created (monetary expansion) in normal times?

JURT | EDWARD ASNER | BILLY CRUDUP | PAUL GIAMATTI | TOPHER GRAD
NTHIA NIXON | BILL PULLMAN | TONY SHALHOU | JAMES WOODS

WALL STREET TOOK THE FALL. WALL STREET GOT THE CHECK.



TRUE STORY BEHIND THE 2008 ECONOMIC CRISIS.

FILMS presents SPRING CREEK PRODUCTION A DEUCE THREE PRODUCTION A FILM BY CHRIS HANSON "TOO BIG TO FAIL" WILLIAM HURT EDWARD ASNER PAUL GIAMATTI TOPHER GRAD CYNTHIA NIXON BILL PULLMAN TONY SHALHOU JAMES WOODS PAUL GELFONI CLAUDIO MELISCA TOTTA STEVEN KLEIN RYAN REED JEFFREY LIEBERMAN ROBERT SAWYER DAVID BOB SHANAHAN KRISTEN MORGENTHALER AS CO-PRODUCERS CAROL FENSTERWALD PRODUCED BY PAULA HENSTEN JEFFREY LEVINE AND CHRIS HANSON WRITTEN BY ANDREW ROSS SORKIN DIRECTED BY PETER GOULD EDITED BY CHRIS HANSON

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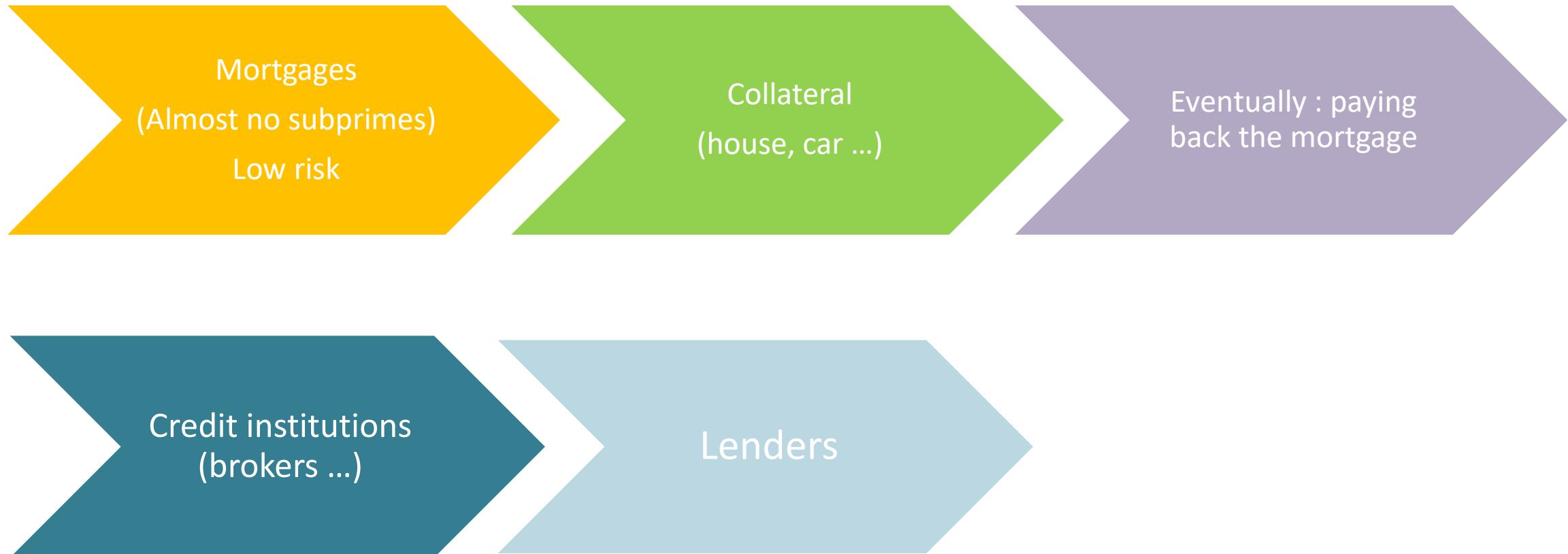
L'HISTOIRE VRAIE D'UN pari fou

THE BIG SHORT
LE CASSE DU SIECLE

EST UN PRODUIT PLAN B ENTERTAINMENT UN FILM DE ADAM MCKAY CHRISTIAN BAILE STEVE CARELL RYAN GOSLING BRAD PITT "THE BIG SHORT LE CASSE DU SIECLE" / "THE BIG SHORT"
HANK CORWIN ACP JEAN CLAYTON HARTLEY JEREMY BARRY ACKROYD B.C.P. LOUISE ROSNER-MEYER KEVIN MESSICK PROD BRAD PITT DIR. DEDE GARDNER
JEREMY KLENER ARNON MILCHAN DIR. MICHAEL LEWIS SCRI. CHARLES RANDOLPH ET ADAM MCKAY DIR. ADAM MCKAY thebigshort.fr
theBigShortLeCasse du Siecle.FR #TheBigShort @paramountfr Twi /ParamountFrance

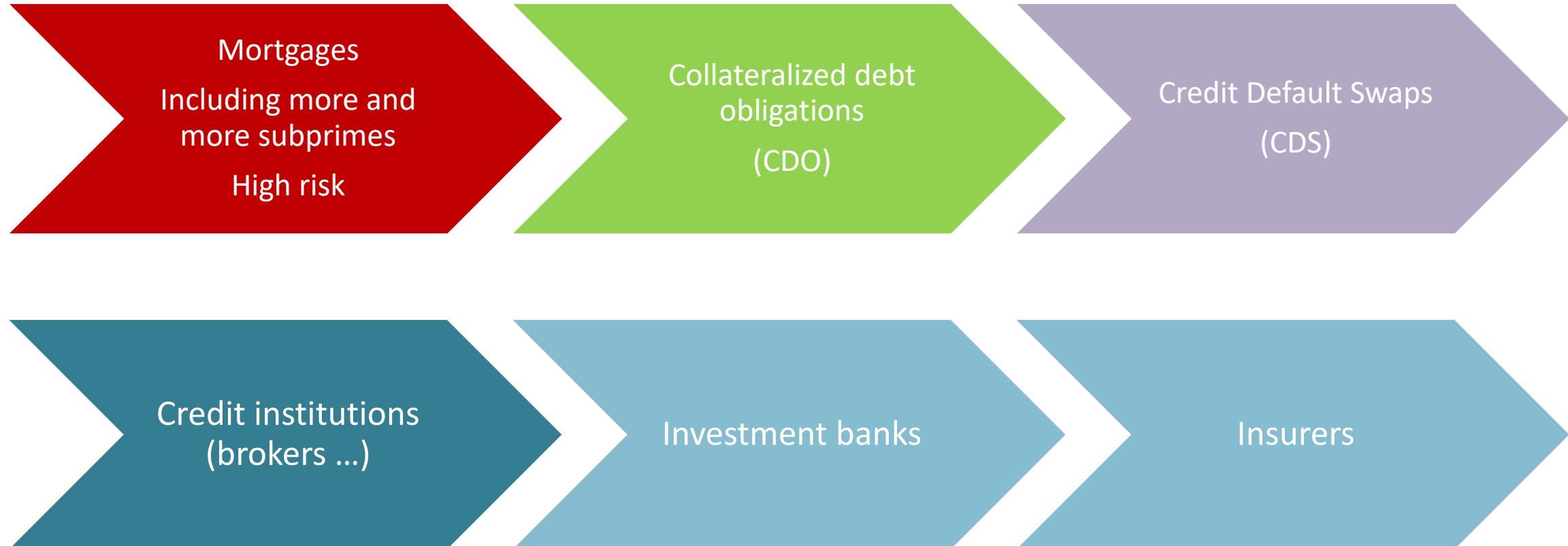
La crise des subprimes - Instruments et acteurs

Emprunter avant les subprimes ...



La crise des subprimes - Instruments et acteurs

Après 2001 ...



THE THEORY OF HOW THE FINANCIAL SYSTEM CREATED AAA-RATED ASSETS OUT OF SUBPRIME MORTGAGES

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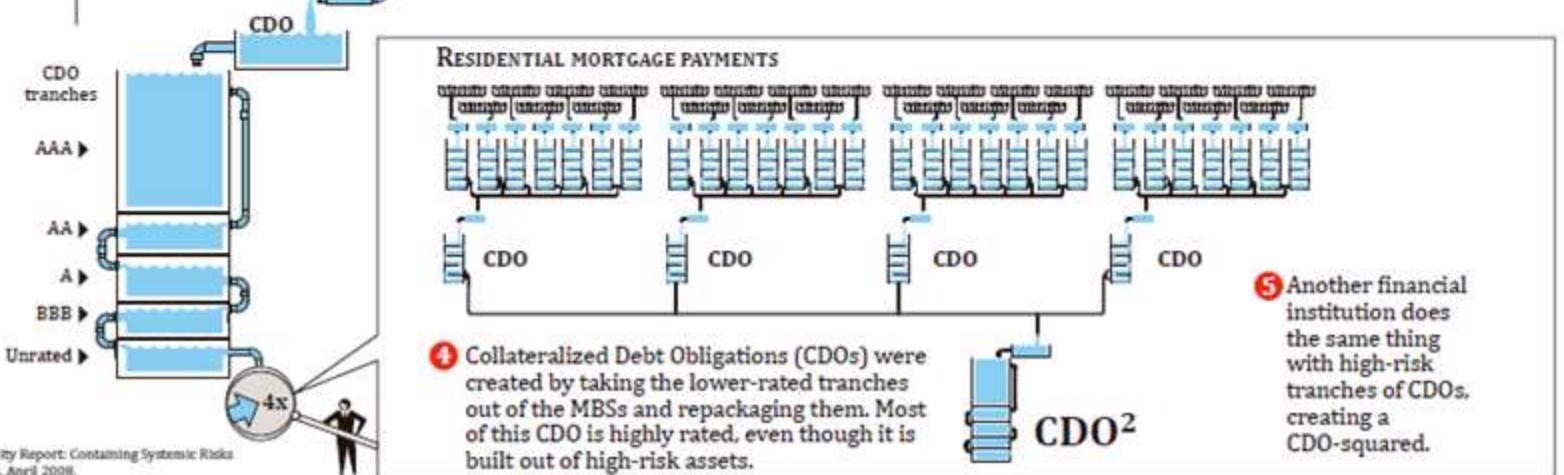
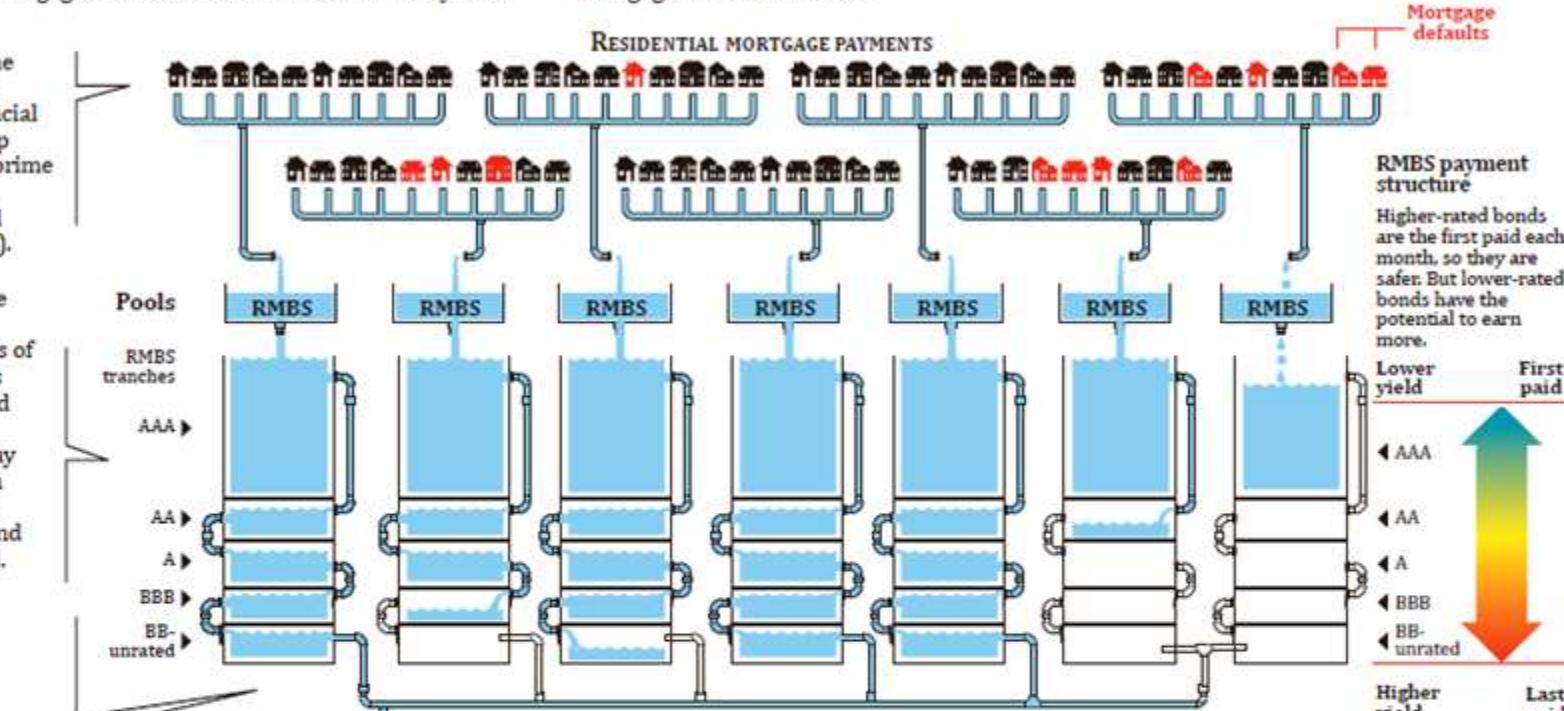
In the financial system, AAA-rated assets are the most valuable because they are the safest for investors and the easiest to sell. Financial institutions packaged and re-packaged securities built on high-risk subprime mortgages to create AAA-rated assets. The system

worked as long as mortgages all over the country and of all different characteristics didn't default all at once. When homeowners all over the country defaulted, there was not enough money to pay off all the mortgage-related securities.

- ① People all over the country take out mortgages. Financial institutions group hundreds of subprime mortgages into Mortgage Backed Securities (MBSs).

- ② The securities are grouped into tranches by levels of risk and earnings potential for bond holders. When everybody can pay their mortgage in full each month, each group of bond holders gets paid.

- ③ The mortgage payments are collected by a financial institution and payments distributed to bond holders. Higher rated tranches are paid first. When monthly mortgage payments are not made, payments may not reach holders of lower-rated tranches.



La crise des subprimes - Transfert de risque

Les banques ne se mouillent pas



Rating agencies





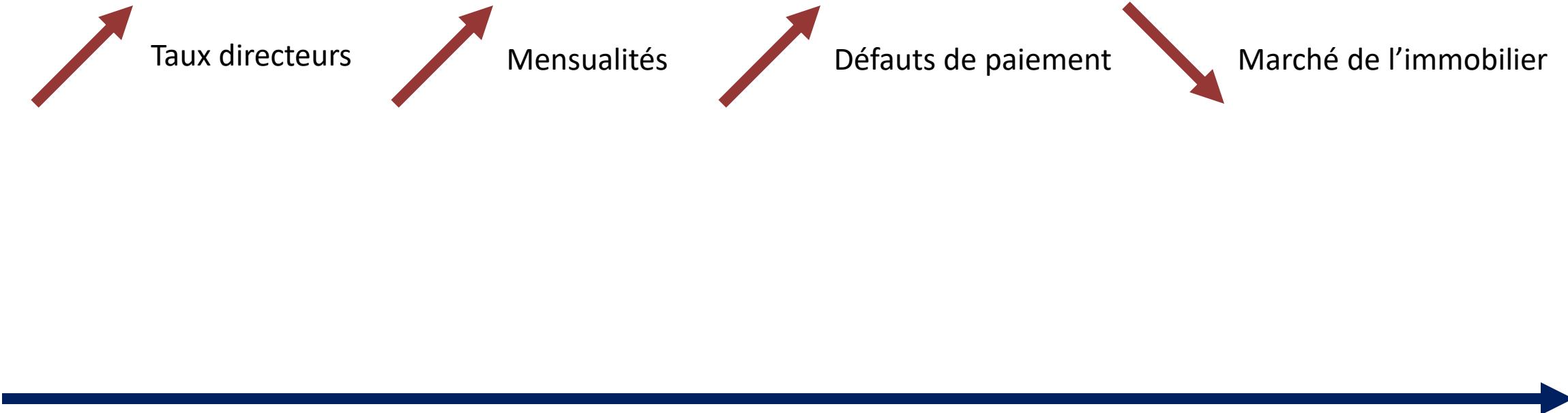
La crise des subprimes

- Conjonction de bulles spéculatives
 - Crédit
 - Immobilière
 - Assurance
 - Financière
 - Monétaire (création de monnaie via les emprunts)
 - Crise économique globale

La crise des subprimes

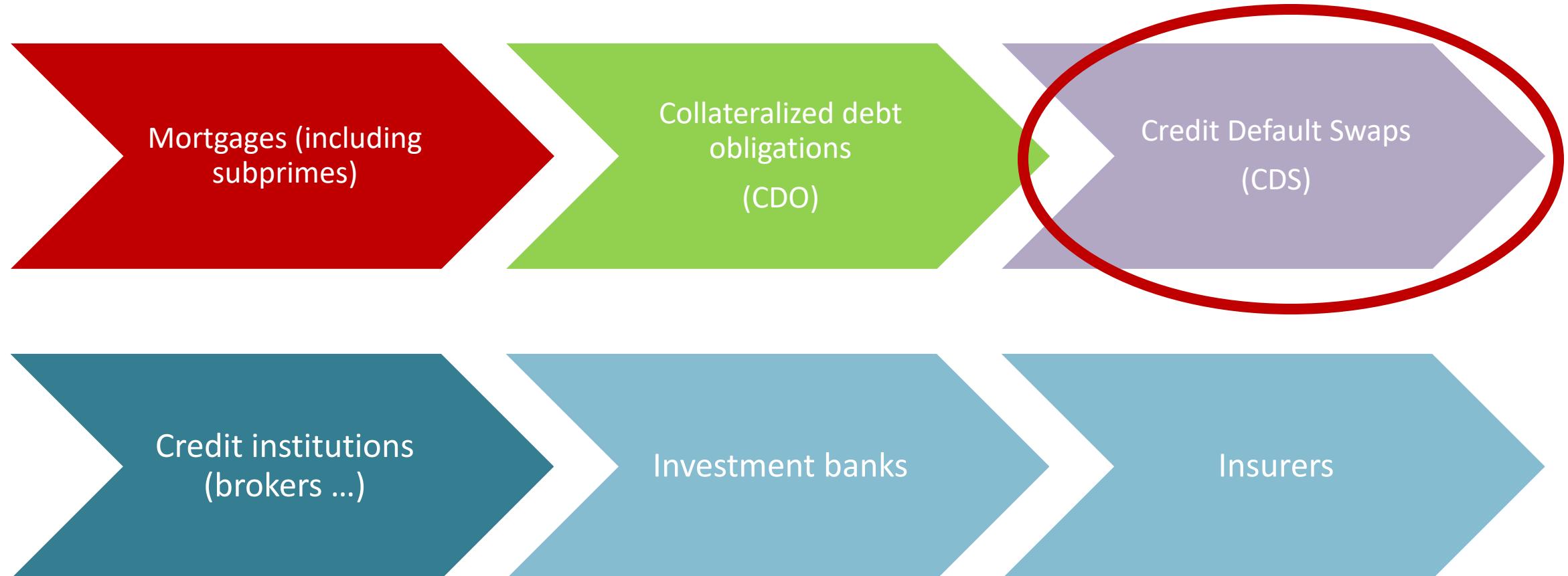
crise de crédit et de l'immobilier

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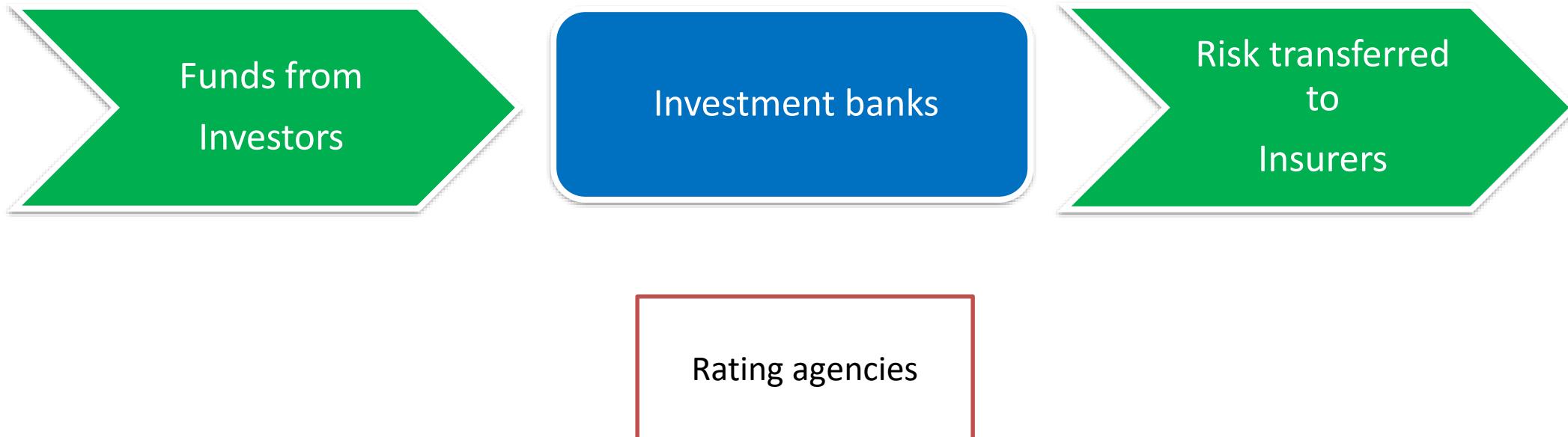
La crise des subprimes

Crise de l'assurance



La crise des subprimes

Crise financière



Les limites du boom des dérivés et des modèles

- Le sentiment de sécurité donné par l'argument scientifique
- Le modèle ne modélise que les facteurs de risques repérés à l'avance, c'est une simplification
- Le "vrai" prix n'est pas la réponse donnée par une formule, mais ce que les investisseurs veulent bien payer
- Les modèles sont complexes et pas compris par tout le monde, ou mal utilisés
- Toutes les hypothèses ne sont pas toujours vérifiées
- Erreurs d'implémentation
- Les stratégies de couvertures non respectées
- Permet une utilisation "industrielle" de produits complexes, à fort effet levier, utilisés pour la spéculation

La crise des subprimes

Faillites et contagion

Effet de contagion sur le système bancaire américain

Eté 2007, les banques du monde entier ont dû passer chaque trimestre dans leurs comptes des dépréciations de la valeur de leurs actifs liées aux subprimes, en particulier les ABS et les CDO. De l'été 2007 à l'été 2008, ces dépréciations ont totalisé 500 milliards de dollars, ce qui a fait chuter d'autant les capitaux propres des banques. Certaines ont épongé ces pertes grâce à des augmentations de capital, en vendant en bourse de nouvelles actions.

Ces augmentations de capital ont totalisé 300 milliards de dollars de la mi-2007 à la mi-2008. Plusieurs fonds souverains, de pays asiatiques notamment, ont ainsi pris des participations significatives au capital des grandes banques américaines.

Faillites

La généralisation de la crise

Banques d'investissements toutes interconnectées

Fin du TBTF : Lehman n'est pas la première à tomber, mais elle n'a pas eu de filet de sureté.

La crise des subprimes crise monétaire

In our modern societies, who and how money is created (monetary expansion) in normal times?

Dans nos économies, il existe deux manières de “créer de l’argent” : la monnaie directement générée par les banques centrales (BoE, FED, BCE ...) et l’argent créé par les banques privées via les prêts et crédits

- *Central bank money (all money created by the central bank regardless of its form, e.g., banknotes, coins, electronic money)*
- *Commercial bank money (money created in the banking system through borrowing and lending)*

Aujourd’hui la monnaie est essentiellement scripturale (environ 90 %) : elle est créée par les banques par un jeu d’écritures, sur simple demande, et dans certaines limites, en échange d’une promesse de remboursement (émission d’un crédit bancaire).

Il y a ainsi création monétaire lors de l’octroi d’un crédit, et destruction monétaire lors du remboursement de ce crédit.

« À chaque fois qu'une banque fait un prêt, elle crée simultanément un dépôt sur le compte en banque de l'emprunteur, créant ainsi de la nouvelle monnaie »

La crise des subprimes

Discussion Quantitative Easing

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- ECB Mandate ?
- ECB Tools ?
- What is money ?

Mandat
- Inflation
- Stabilités



Politique monétaire

- Taux
- LTRO
- QE...

Banque
Marchés
Finance



Entreprises
Economie Réelle

MMATH (FINANCIAL BALANCE SHEET ENGINEERING)

Applied mathematics, computer science, statistics, economic theory, expected volatility, interest rate swaps, eurodollar futures, foreign exchange forwards, basis swaps, multicurrency basis swaps, multicurrency swaptions, credit default swaps... **imagination**



MEURODOLLAR (INTERNATIONAL)

Global claims on domestic 'dollars' / collateral through shadow and wholesale conduits that lie outside of domestic regulatory framework

MSHADOW (DOMESTIC)

Custom, over-the-counter 'dollars' / collateral generated by private non-bank entities (e.g. insurance companies, mutual funds, mortgage lenders) unencumbered by the banking regulatory framework

MWHOLESALE

Standardized production of 'dollars' / collateral:
M3 + commercial paper, government short-term bills, security repurchase agreements, 'money' market funds

M3

M2 + onshore repurchase agreements, offshore deposits, institutional money market

M2

M1 + retail deposits at financial institutions available nearly on demand

M1

M0 + retail deposits at private banks available on demand

MB

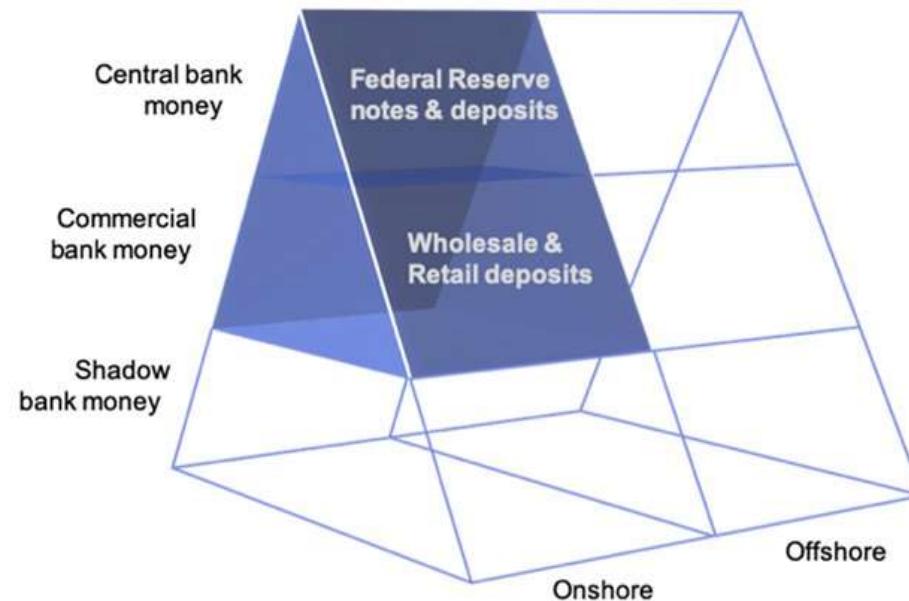
M0 + reserves at central bank

M0

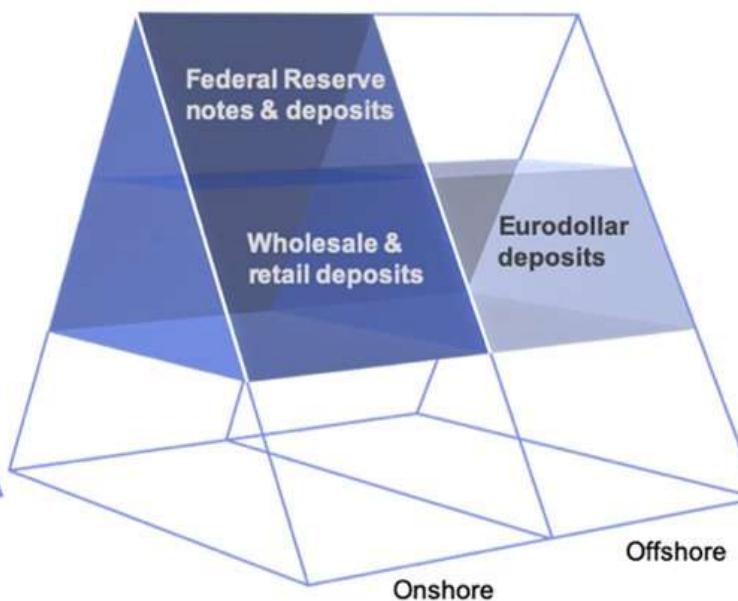
Physical currency

GOLD

From 1944



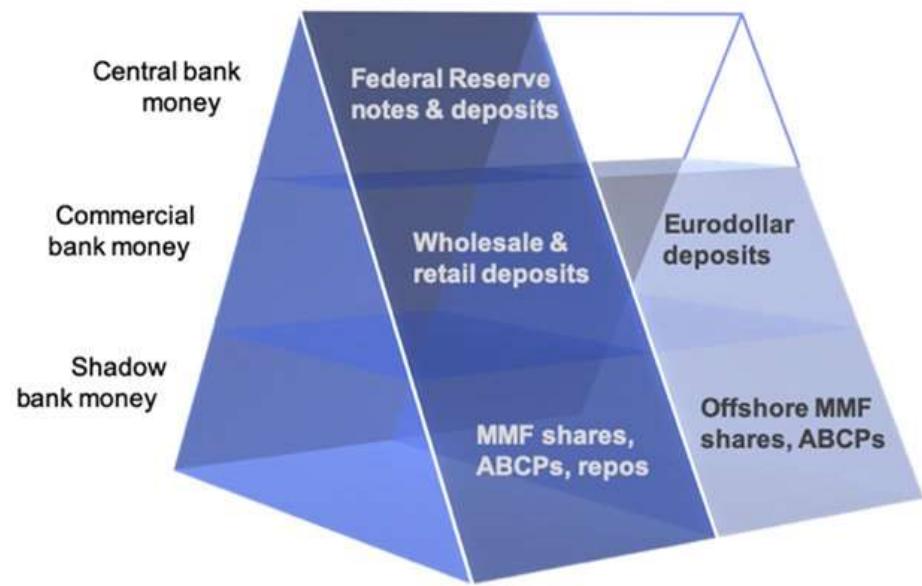
1960s



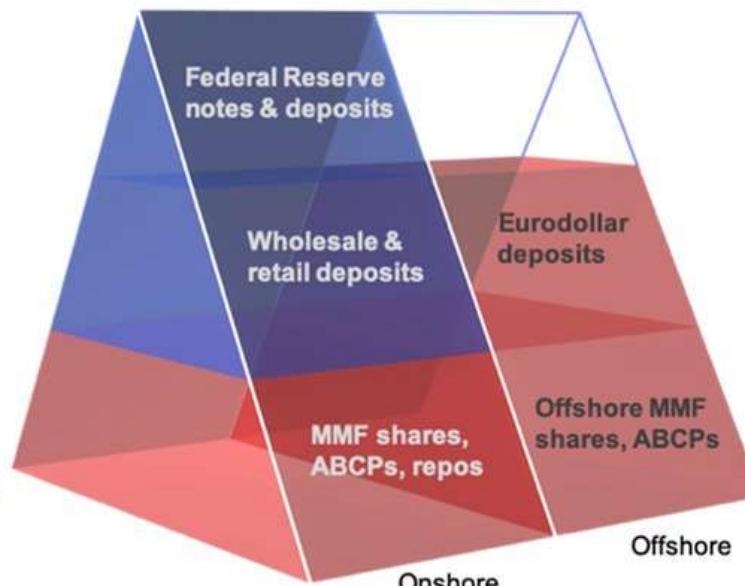
1970s



1980s



2007-9 Crisis



2010s



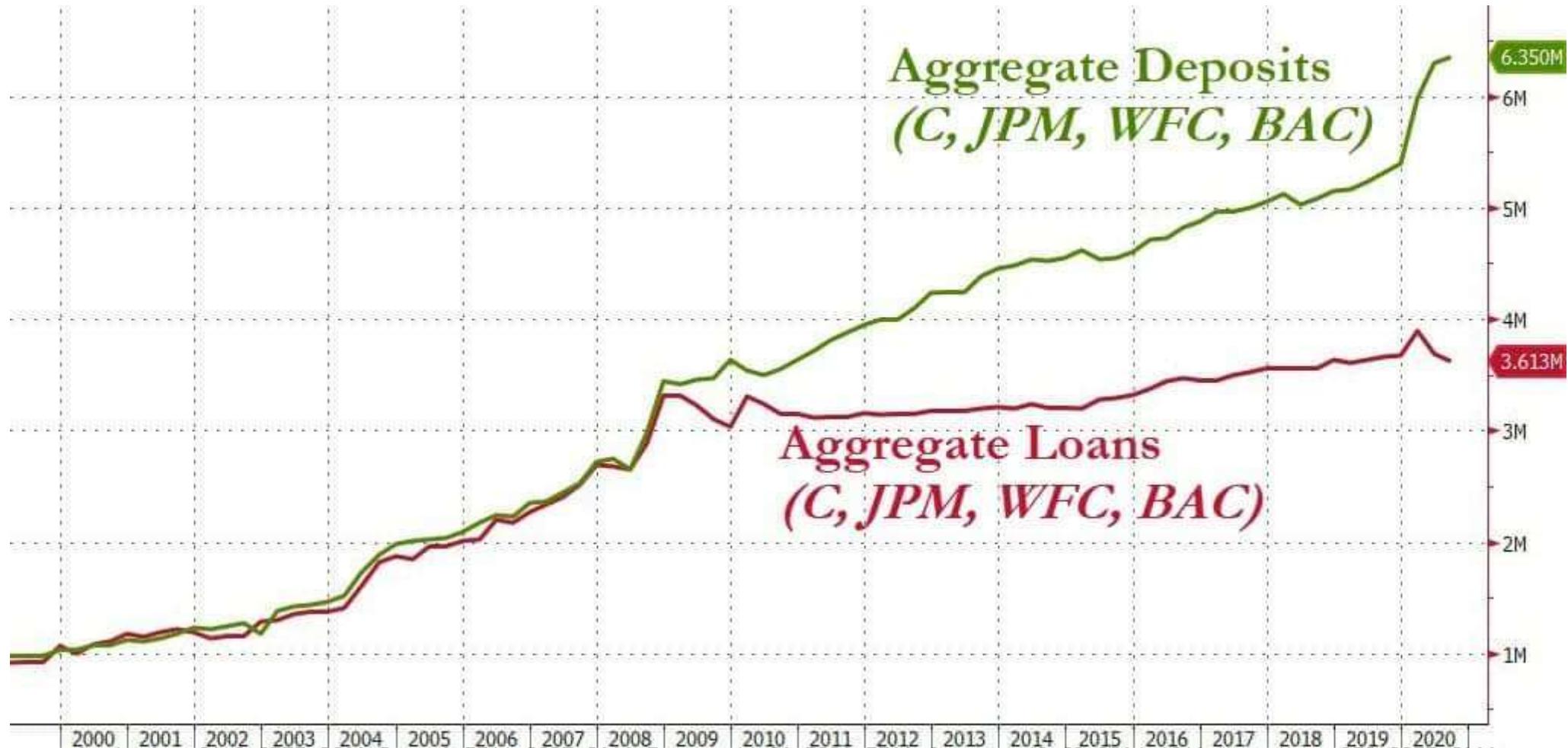
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La crise des subprimes

Discussion Quantitative Easing

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<https://www.ecb.europa.eu/pub/annual/balance/html/index.en.html>





Crise de 1929





Where it ends and where it begins

- Krach de 1929
- Réponse par une forte régulation → 40 ans de prospérité financière
 - Contexte : Glass-Steagall Act in 1934 (ring fencing)
 - Les établissements bancaires sont beaucoup plus modestes qu'aujourd'hui, par exemple durant cette période une banque comme Morgan Stanley n'avait "que" 12 millions en capital.
 - Principal raison : Partnership (with partners money).

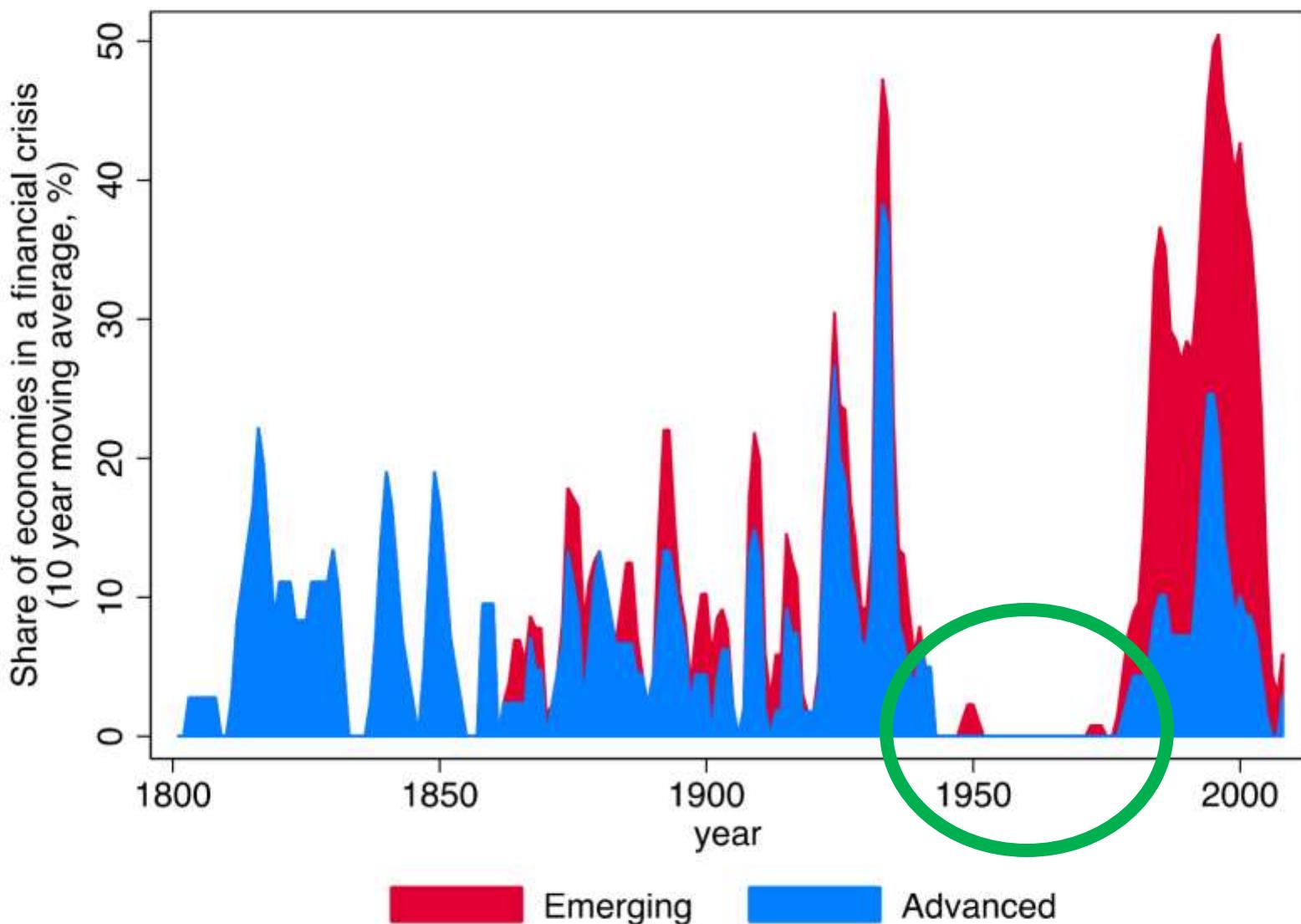
Les années 80

Where it ends and where it begins

- Années 80 : Reagan pousse une libéralisation massive. “Banks went public” (as opposed to private partnership)
- Même tendance en Europe sous l’impulsion de Thatcher – Création de banques d’investissement européennes
 - 30 ans de dérégulation / Reagan / Clinton / Bush Jr
- Massive profits. (for example, MS had then several billions capital compared to the 12 millions before)
- Pinnacle with 1999 with the end of Glass-Steagall act
- Retours des bulles dès 2001 avec la bulle internet
- Boom technologique 80-90 / Boom des dérivés / Boom des quants / ISDA
- Mondialisation de la finance

Banking Crises in the Last Two Centuries

© Théo Jalabert



Notes and source: The chart shows the *cumulative* percentage of economies in a banking crisis in each year from 1800 to 2008, ten-year moving average. Data from Qian, Reinhart, and Rogoff (2010).

Les leçons de la crise

- Bailout nationaux
- Augmentation des déficits
- Baisse de la croissance
- Chômage
- Scandale du libor
- ...
- Agenda de réformes de la régulation financière
 - Arrêter le Too Big to fail
 - Agenda prudentiel (renforcer capital) , ring fencing, resolution ...



A large iceberg is shown floating in a blue ocean under a cloudy sky. The visible part of the iceberg is above the water's surface, while a much larger, submerged portion is visible below, representing the 'tip of the iceberg' concept. The text 'Les risques émergents' is overlaid on the submerged part of the iceberg.

Les risques
émergents



Digitalization

Le risque climatique

Mark Carney : “Breaking the tragedy of the horizon”

<https://www.bis.org/review/r151009a.pdf>

Le risque climatique est un risque financier :

- Risque physique
- Risque de transition
- Risque de responsabilité



Impact sur l’immobilier côtier, les récoltes dans le sud ...

stranded assets (*actifs échoués*) – 20 000 milliards ?

Cheffe d’entreprise / investisseur dont le business dépend énormément du cours du pétrole: Comment vont-ils se protéger ? En passant à l’éolien ou en achetant des CDS ?



La crise de demain ?

Pétrole Évolution du cours du baril de WTI pour livraison en mai 2020



THE GREEN SWAN

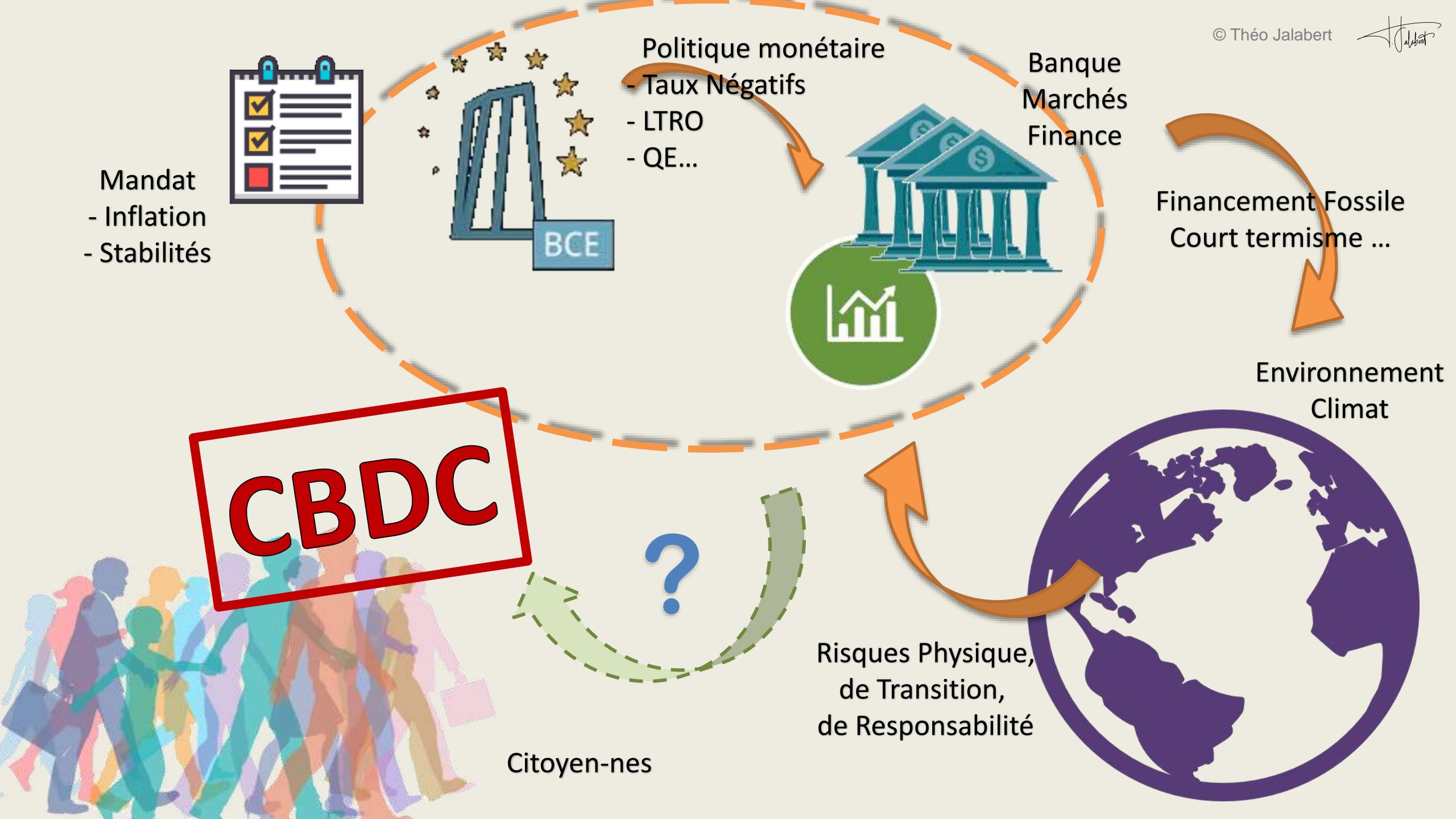


BANQUE DE FRANCE

EUROSYSTÈME



In this new report called « [The Green Swan](#) » – in reference to black swan events that are hard to grasp – the **Bank for International Settlements** (Basel) and the **Banque de France** are addressing the new challenges climate change brings to central banks, regulators and supervisors. This is not yet another report on financial stability : this ambitious contribution tackles all aspects, from energy to sociological implications, and criticizes the way risk has been and is being assessed at the moment, as **climate change requires a true epistemological change** in the backward looking methods used by economists and regulator. By reviewing ways of addressing these new risks within current central banks' mandate, this is a **surprisingly refreshing and ambitious take on the matter**, especially from the institutional world. A must read !



Taxonomie verte, reporting, prudentiel ...



 Institut Veblen pour les réformes économiques

Mettre la réglementation bancaire au service de la transition écologique

Emmanuel Carré, Jérôme Couppet-Soubeyran, Clément Fontan, Pierre Monnin, Dominique Pilon, Michael Vincent
30/04/2022

L'Accord de Paris sur le Climat engage les pays signataires à rendre les flux financiers « compatibles » avec les objectifs climatiques du régime accordé. Respecter cet engagement implique une profonde transformation des flux financiers et du système financier, ce qui ne se fera pas sans une régulation volontariste, prête à intégrer pleinement les objectifs de transition dans la réglementation et, dans la mesure du possible, dans les normes prudentielles. Celle-ci contribue au début sur les modalités concrètes de cette intégration, plaidant pour un certain nombre de mesures prudentielles mais aussi pour des mesures structurelles, agissant sur les émissions des bilans bancaires et insérées dans un policy-mix plus global.

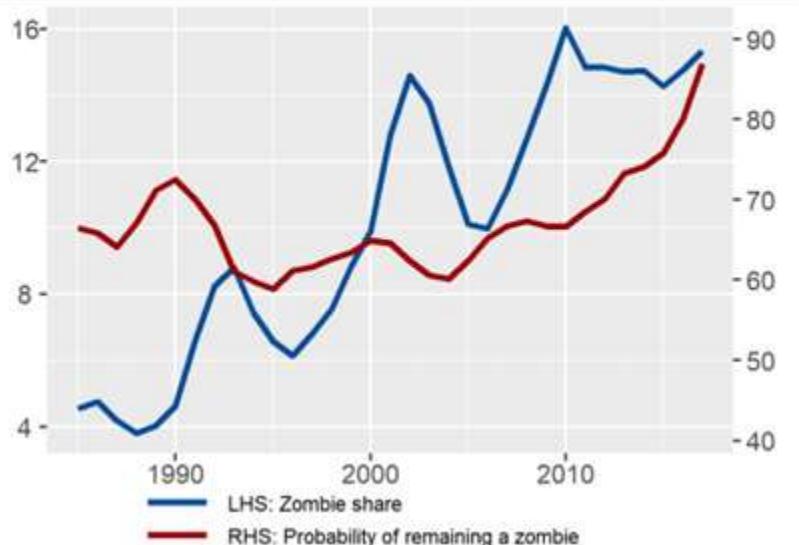
Créances douteuses

- Entreprises zombies
- Non Performing Loans
- Titrification
- Bad banks



Zombie share and persistence¹

In per cent

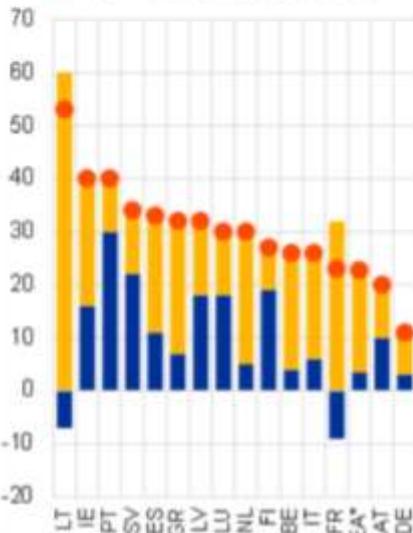


Le rapport sur la stabilité financière de la BCE table sur une hausse des défaillances d'entreprises de 20-25 % pour la France. Seule l'Allemagne ferait beaucoup mieux, avec une hausse limitée à 10 % sur la période 2020-2021.

Insolvency forecasts for 2020 and 2021

(percentage change over same period in previous year)

■ 2020 forecast
■ 2021 forecast
● Cumulative change 2020-2021



12:32 PM · 25 nov. 2020 · Twitter Web App

Le Monde

« La BCE estime que, dans un scénario grave mais plausible, les prêts douteux des banques de la zone euro pourraient atteindre 1 400 milliards d'euros, bien au-dessus des niveaux des crises de 2008 et 2011 »

EU regulations – institutions, processes & key rules



Hierarchy of regulations and supervision



Global Level



EU Level



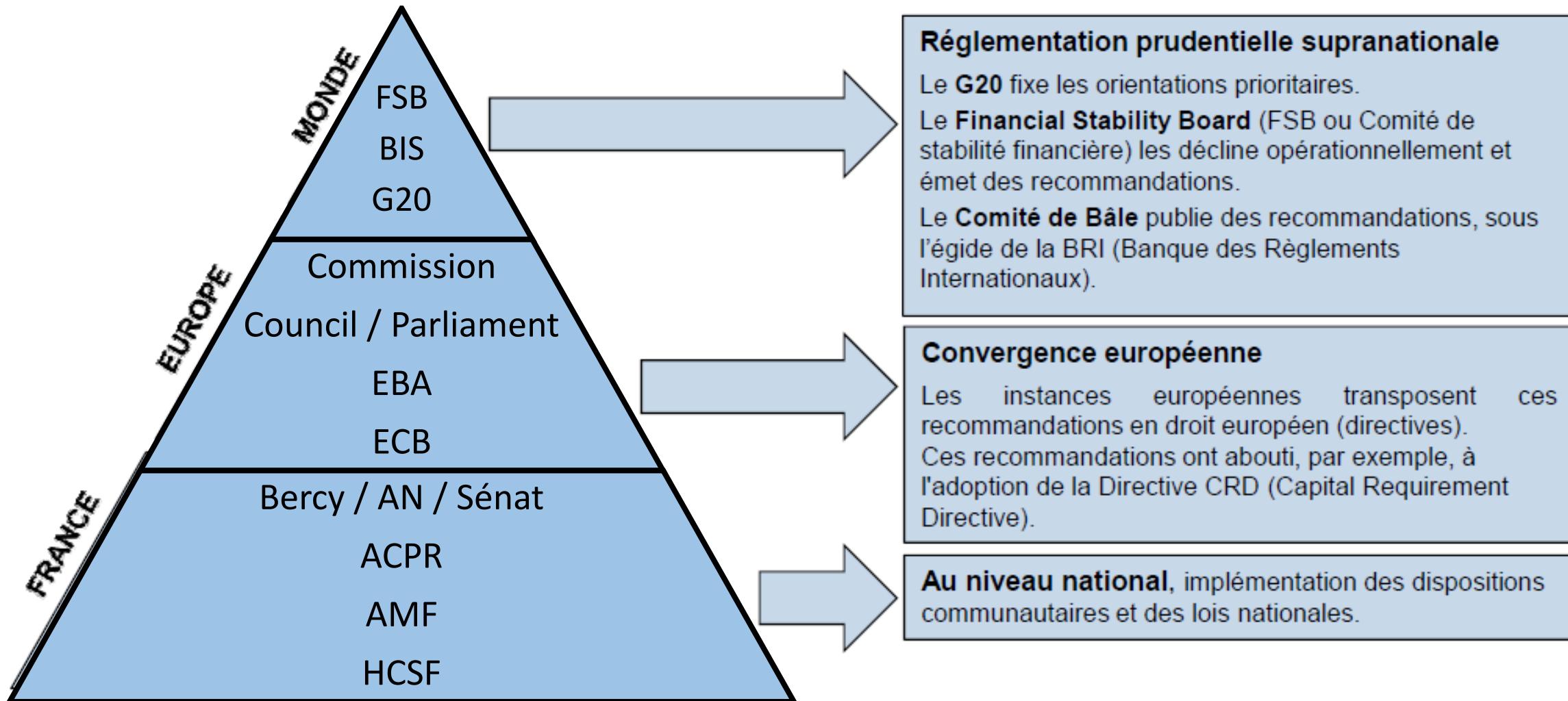
Member State Level



Institutions - Stakeholders



Hierarchy of regulations and supervision





Hierarchy of regulations and supervision

Anyone missing ?

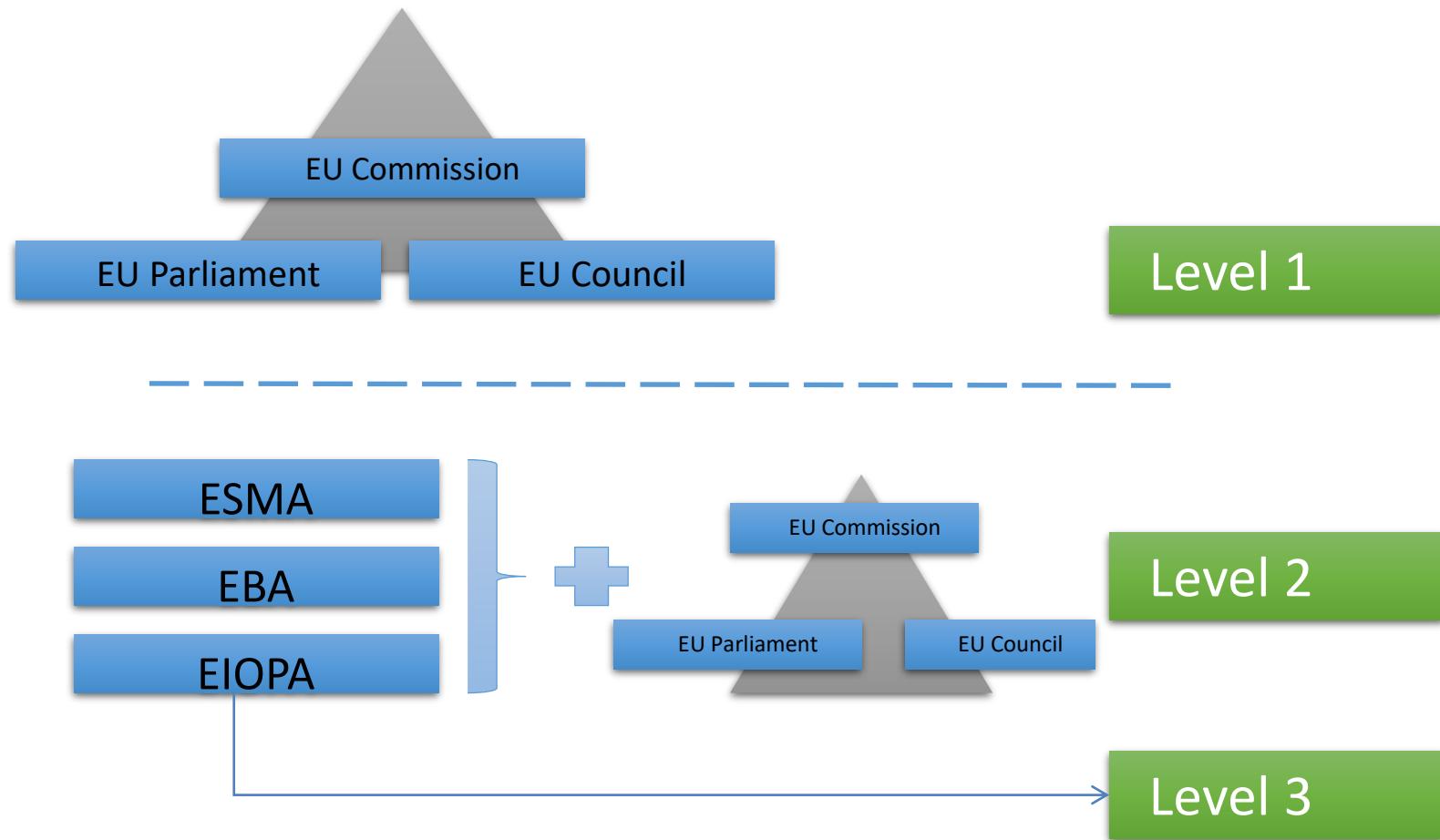
“The industry”

- Last but not least, the main stakeholders ... the banks themselves.
- They take their full part in the process:
 - “industry” regulatory consultations
 - Summits
 - Lobby at national and supranational level
 - Private organizations: ISDA, BBA, AFME, Finance Watch ...



General approach the 3 levels

- Regulatory structure at EU level (introduced in 2001)



EU institutions





Why does the EU have competence in the
field of banking ?

(and since when, really?)



TEU

Aims of the EU

- Article 3 of the TEU states the aims of the EU in six points.
 - I. Promote peace, European values and its citizens' well-being.
 - II. Free movement with external border controls in place.
 - III. Internal market.
 - IV. Euro.
 - V. EU shall promote its values, contribute to eradicating poverty, observe human rights and respect the charter of the United Nations.
 - VI. EU shall pursue these objectives by "appropriate means" according with its competences given in the treaties.





EU institutional Framework

Subsidiarity

- Principle of subsidiarity defined in Article 5 of the Treaty on European Union.
- Aims to ensure that decisions are taken as closely as possible to the citizen and that constant checks are made to verify that action at EU level is justified (compared to possibilities available at national, regional or local level).
- In practice, EU does not take action (except in the areas that fall within its exclusive competence), unless it is more effective than action taken at national, regional or local level.

Proportionality principle

- Regulates the exercise of powers by the European Union (EU) : It seeks to set **actions** taken by EU institutions **within specified bounds**.
- Under this rule, the action of the EU must be limited to what is necessary to achieve the objectives of the Treaties. In other words, the content and form of the action must be in keeping with the aim pursued.

EU institutions



PARLEMENT EUROPÉEN

705 députés élus au suffrage universel direct
Rôle clé dans l'élection du Président de la Commission
A le dernier mot sur le budget de l'UE et sur les accords économiques internationaux

Navette législative

CONSEIL EUROPÉEN

Composé chefs d'Etat ou de gouvernement des Etats membres
Décide des grandes orientations politiques de l'UE



Conseil européen

Investit, sur proposition du Conseil européen, et contrôle



CONSEIL DE L'UNION EUROPÉENNE

Composé des ministres des gouvernements
Partage les compétences budgétaires et législatives avec le Parlement

Propose les lois

COMMISSION EUROPÉENNE

Composé de 27 commissaires nommés par les gouvernements et approuvés par le Parlement
Responsable de la proposition et mise en application des lois européennes, du suivi des traités.



Commission européenne



EU institutional Framework

EU Commission

- President elected by EP (majority of members) on proposal by European Council (by qualified majority, taking into account the election results of EP), 1 per country (27) – *RIP Spitzenkandidat 2014-2019.*
- Is the agenda setter (propose regulations)
- It is the “executive” arm of the EU
- Nominated for 5 years by the EU Parliament (EP)
 - There is a hearing of each Commissioner (public)
 - The EP can block or reject, individual or collectively
- Limitation of powers where Member States sovereignty is “at risk”
 - Taxation
 - Social rights
 - Defence & military matters



Within the EU Commission

- Although collective decision is taken each Commissioner is assigned a field of competences.
- Regarding financial market it used to be the Vice-President of the Commission for “An Economy that Works for People” (no joke) from Latvia: **Valdis Dombrovskis** (ex-Euro and Social Dialogue, also in charge of Financial Stability, Financial Services and Capital Markets Union Commissioner)
- Valdis has been promoted in October 2020 to TRADE and **FISMA** is looked after by **Commissioner Mairead McGuinness** after Phil Hogan golfgate
- The DG **FISMA** with 5 big departments
- In charge of financial regulations (markets, banks, products)
- It is the key player in the financial regulation
- It has initiated most major texts (MiFID, CRD ...)
- It creates the EU legal framework
- Website: http://ec.europa.eu/dgs/finance/index_en.htm



EU institutional Framework

- EU Parliament (<http://www.europarl.europa.eu/portal/en>)

- 705 since Brexit
- (renamed ordinary legislative procedure): all EU expenses; more international agreements; justice, freedom and security; energy; structural funds; civil protection; tourism.
- Election of the Commission's president
- Official role in Treaty revisions
- Works with dedicated committees (JURI, **ECON**...)
- Elected every 5 years (June) in all MS (lastly on 26th May 2019)
- Has 2 seats (+1)
 - Brussels
 - Strasbourg
 - (Luxembourg)
- MEPs are grouped in “EU parties”
 - EPP, Socialists, Liberals, Greens, “diverse” (far right, left, non-aligned...)
 - MEPs are usually very open and welcome visits from the industry and other stakeholders

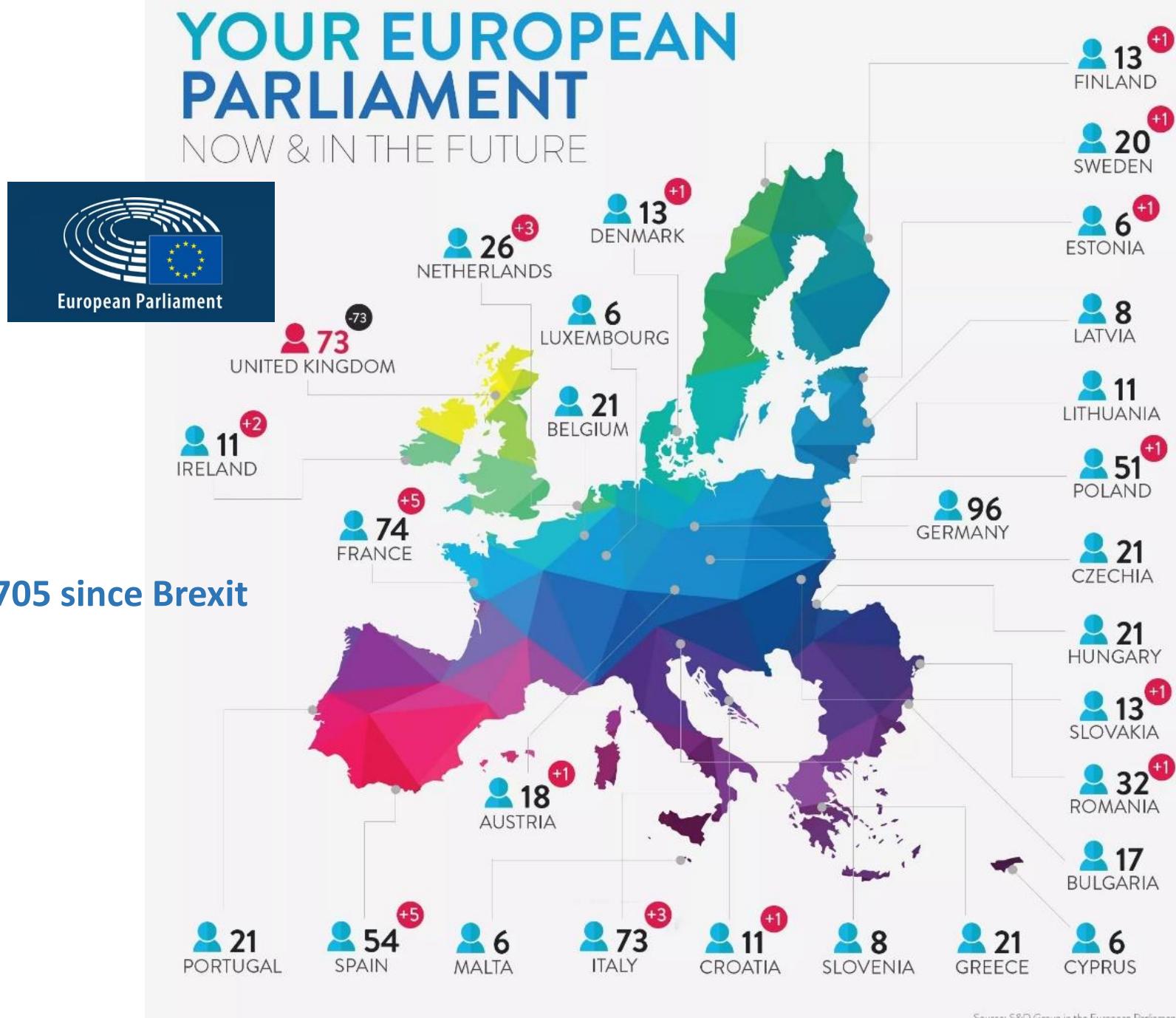


YOUR EUROPEAN PARLIAMENT

NOW & IN THE FUTURE

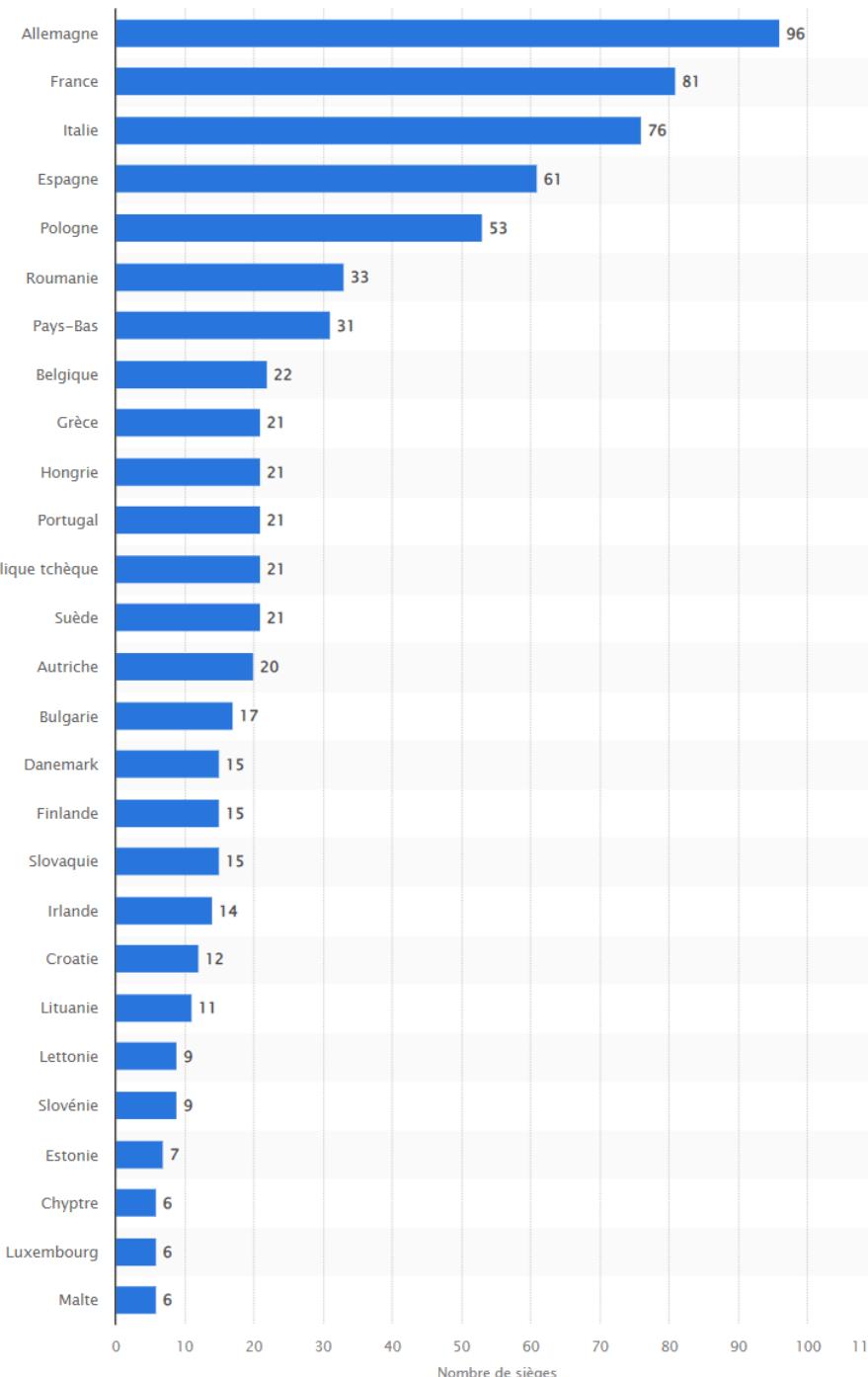


751 MEPs → 705 since Brexit



2024

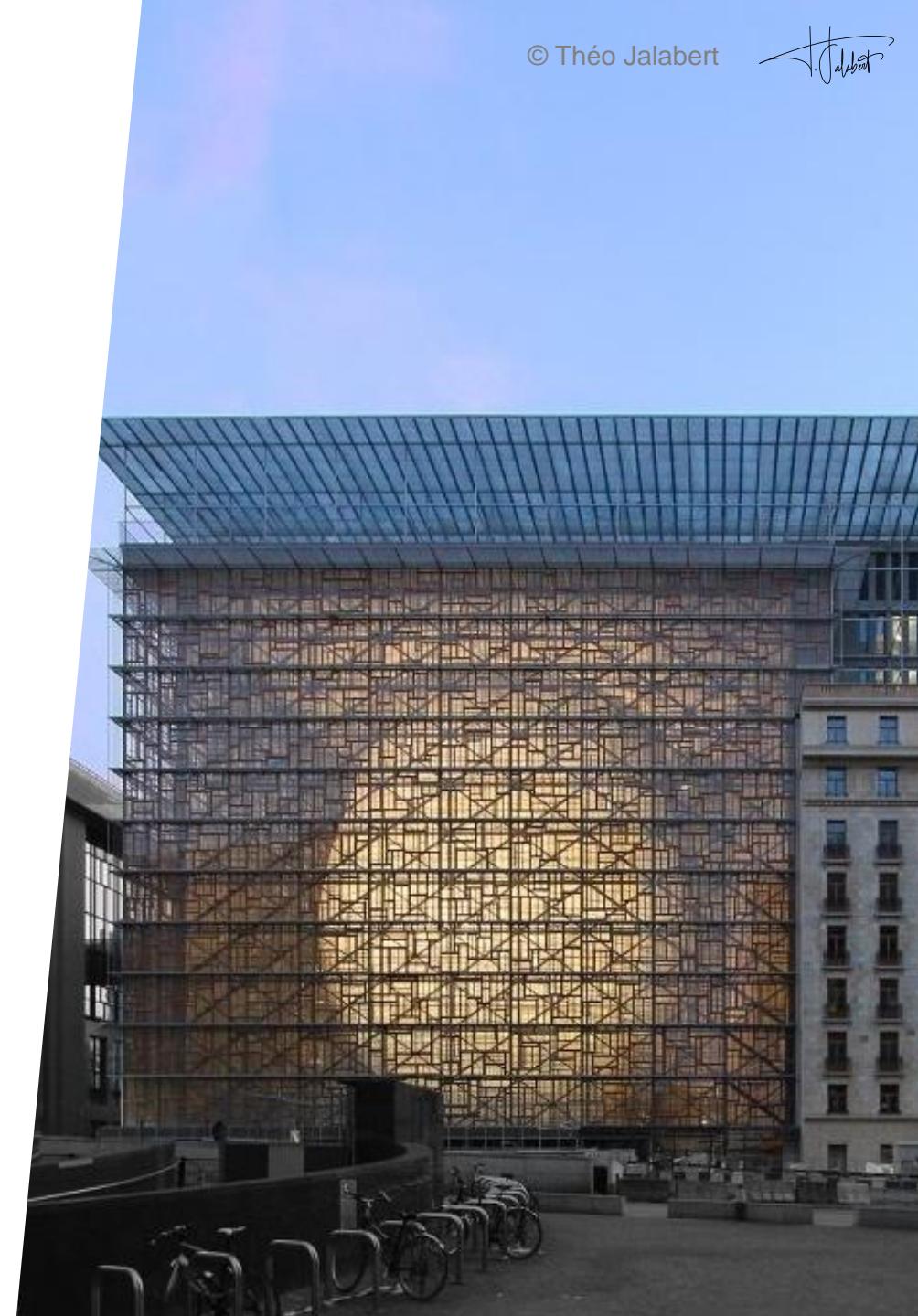
- De 705 à 720



EU institutional Framework

Council of the EU

- Composed directly of Representatives from the MS
- 27 Members, one President
- Give a chance to each MS (rotating presidency)
- Switch every $\frac{1}{2}$ years
- Specific “configurations”
 - (agriculture, environment, external relations... and finance, the **ECOFIN**)
- Is the “co-executive power” and establishes broad guidelines for the EU Commission, it balances EU interests with MS priorities
- <http://www.consilium.europa.eu/>



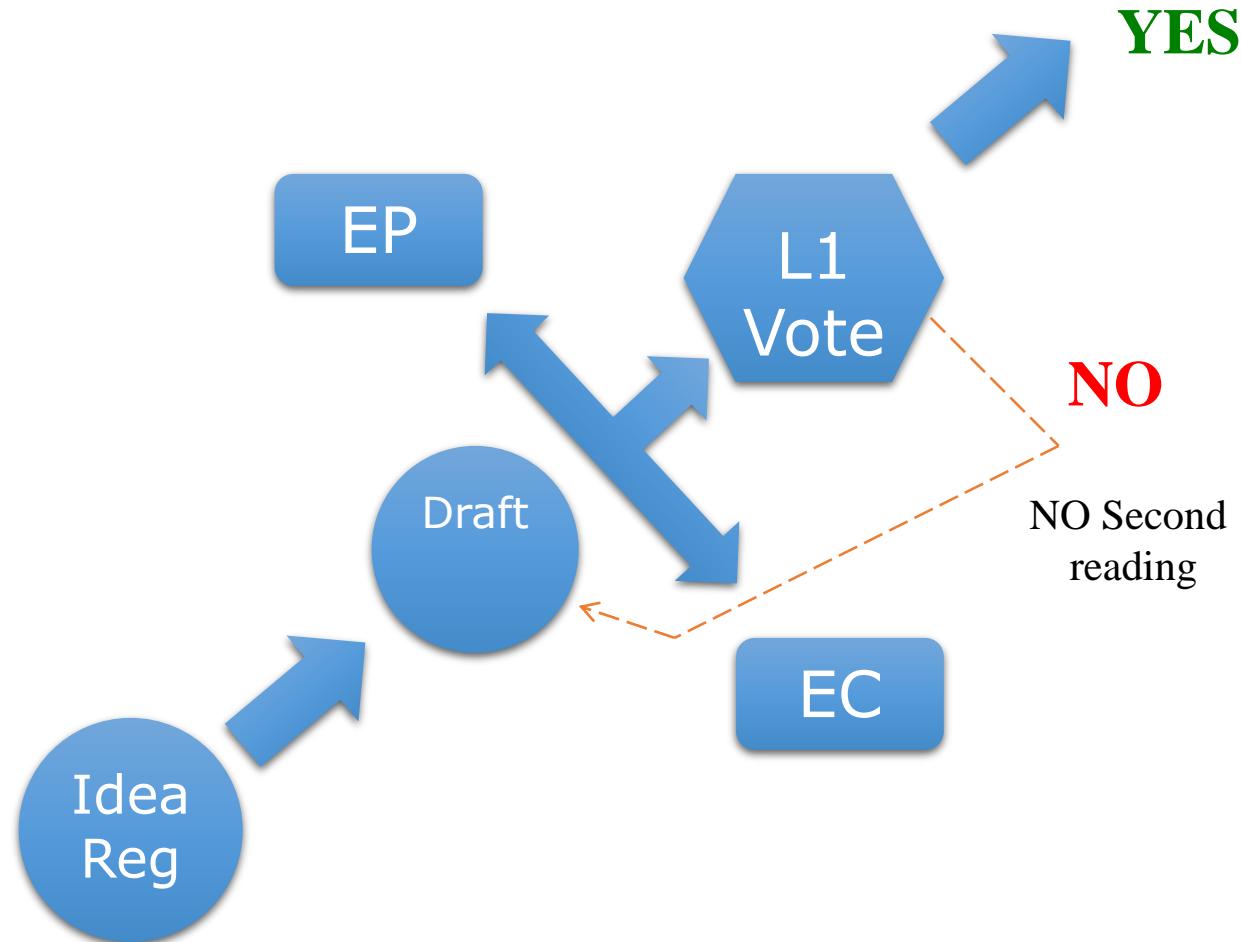
Not to be confused with European Council, nor with Europe Council



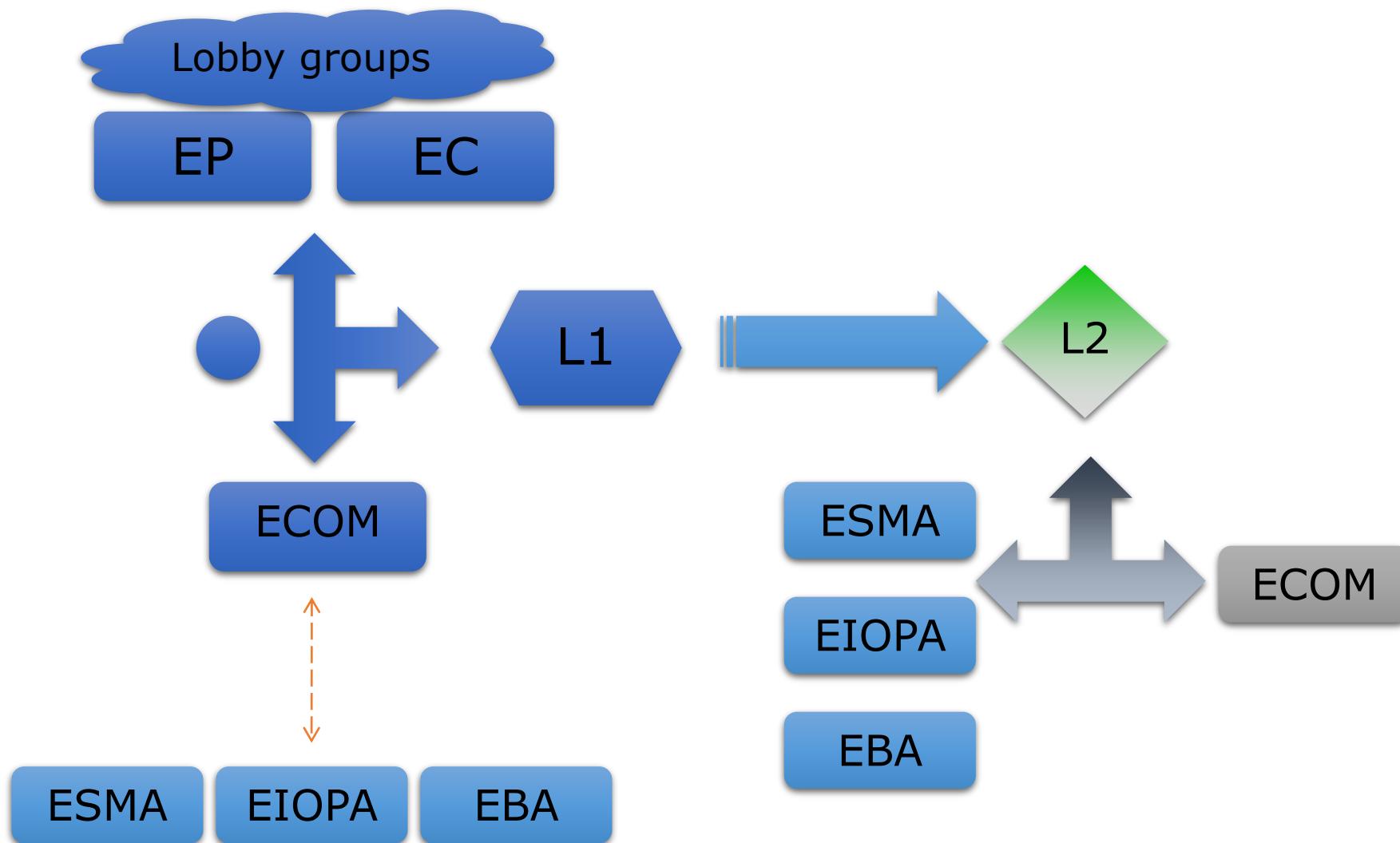
EU Legal instruments

- **Regulations (++)**
 - Directly applicable at EU level without integration in national laws
 - Favours convergence and harmonisation
 - Easier for facts based measures
- **Directives (+)**
 - Drafted at EU level but need to be “translated” into national member state legal framework
 - Allows some national tailoring
 - Offers MS the possibility to best integrate EU rules into national framework
- **Also decisions (+/-) only binding on those to whom it is addressed (directly applicable) and recommendation (-) that are non binding**

Creation of rules - basics



Creation of rules - advanced





In practice... Overview

- Preliminary work is done to identify potential needs and impacts of a new regulation
- Then the EU Commission proposes a draft regulation
- At this stage it is handled under 3 different work streams, one per institutions:
 - EU com is first, because of its initiative right
 - Then EP and Council of the EU; who will be first to finalise a position?
 - Often poor interactions between the 3 streams
- Once each Institution has defined its preferred version of a text there is a tentative of reconciliation into one single and final version
- That last version once translated... will be the Official text



In practice... at EU Commission

- Text is prepared by a team, usually with a lot of meetings with third parties
- Need to prepare an impact assessment
- When text is ready at “team level” it shall be validated by the relevant commissioner
- Next step is circulation within each Commissioner cabinet the expert of each field shall prepare an opinion
- Every Wednesday
- Written procedure and oral (may be tricky)
- Usually a text is not presented before informal pre-approval

And in practice...at EP level

- A Rapporteur is designated (following a complex procedure based on points, each group has a right to an amount of points that could be spent on priorities)
- Rapporteur is helped by his/her assistants and political group + committee assistant
- Beside there are as many shadow Rapporteurs as political groups
- Rapporteur has to draft a preliminary opinion
- Members of the committee (ECON) propose additional amendments to the Rap text or the original EU Com proposal
- Discussion(s) for compromise (sometimes several)
- Vote in committee about a month later
- Vote in plenary to “create the EP preferred version of the text”
- The concept of deadlines and delays is relatively loose
- Beside normal procedure can prepare own initiative reports!!

In practice...at Council of the EU

- Technical meeting (once a week) with national representatives
- Read article by article, but may cover several texts in a single meeting
- Political agreement as soon as possible
 - Securitisation 2 months
 - Money Market Funds regulation 3 years and counting
- Presidency aims to reach a compromise (at all costs?)
- Usually built on consensus, but need to seek allies (arm twisting)
- Peer pressure is a very useful tool
- Once agreed at COREPER (political level by Min Fin representative) the text shall be approved by ECOFIN (nearly always in written procedures)
- For difficult dossiers funny compromise can be worked out to reach an agreement

EU authorities



European Securities and
Markets Authority





ESAs & ESFS

- ESFS: European System of Financial Supervisors
 - ESAs: European Supervisory Authorities
 - EBA - European Banking Authority
 - ESMA – European Securities & Market Authority
 - EIOPA – European Insurance and Occupational Pension Authority
 - ESRB – European Systemic Risk Board

EBA & ESMA shared features

- Develop technical standards, guidelines and recommendations to help the EU Commission prepare level 2 rules (delegated acts)
- Draw up specific rules across the EU - Regulatory or Implementation Technical Standards (RTS or ITS);
- Monitor how rules are being enforced by national supervisory authorities
- Take actions in emergencies, including the banning of certain products;
- Mediate and settle disputes between national supervisors,
- Ensure the consistent application of EU laws,
- Share a group of stakeholder representatives (professionals, clients, academics...) and
- Where necessary, the new Authorities will have the possibility of settling disagreements between national authorities, in particular in areas that require cooperation, coordination or joint decision-making by supervisory authorities from more than one Member State



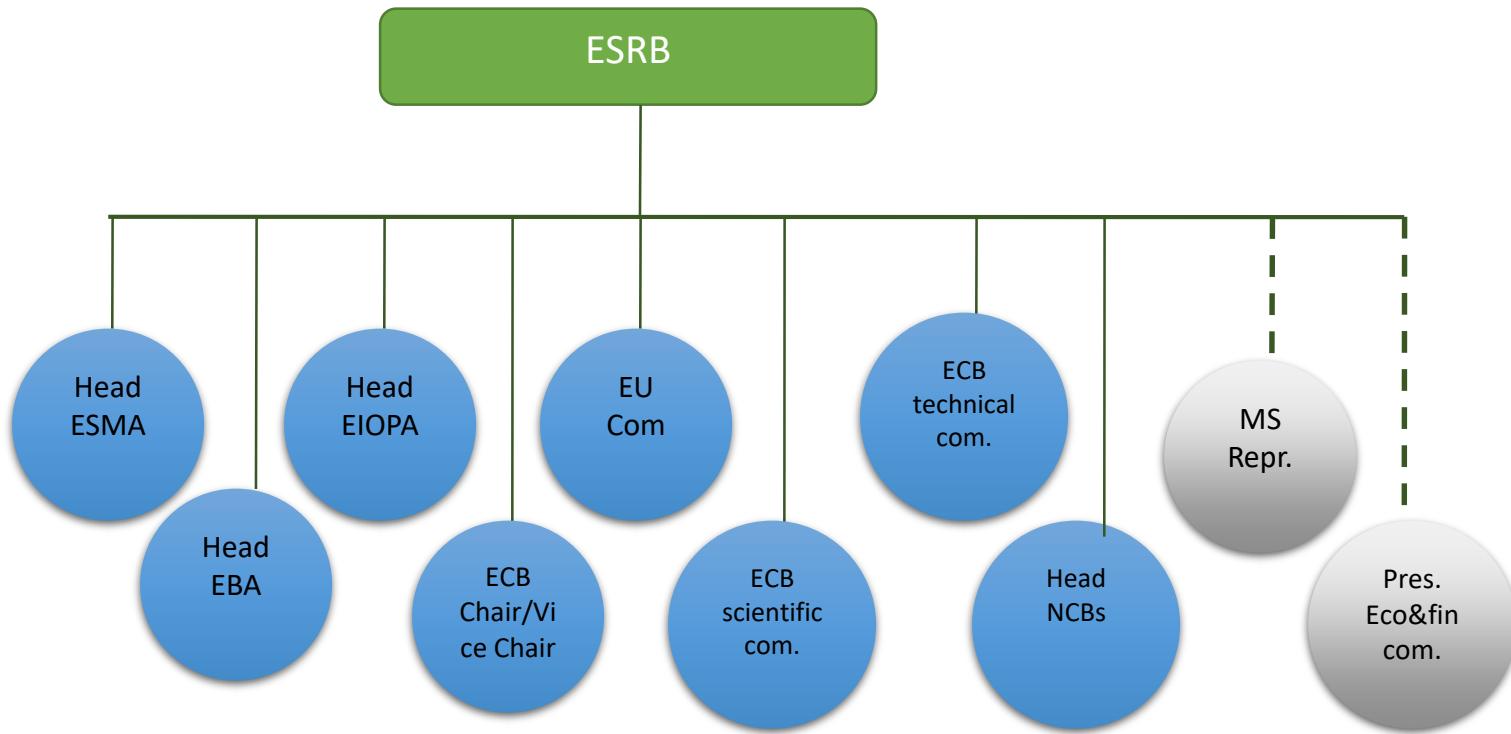
EBA specificities

- EBA will concentrate on **prudential** banking issues
 - Subjects linked to CRD, Basel, FRTB, **Stress tests** related issues or more broadly the balance sheet of the bank
- It will act as a platform where national authorities will meet and resolve dispute on interpretation of EU legal texts
- Seated in Paris since 2019 (London before Brexit)
- <http://www.eba.europa.eu/>

ESMA - specificities

- ESMA will cater for securities matters
 - Financial market regulation (stock exchanges/trading platforms)
 - Securities' users be they banks or clients
- ESMA will supervise alone
 - Credit rating agencies
 - Trade repositories and short selling
 - Some aspects of AIFM and CSD regulation (identification of equivalent third countries) and CCPs (under EMIR)
- ESMA will produce “internal” guidance for national authorities
- ESMA will offer a mechanism of conflict resolution for authorities and market participants
- www.esma.europa.eu

ESRB - European Systemic Risk Board



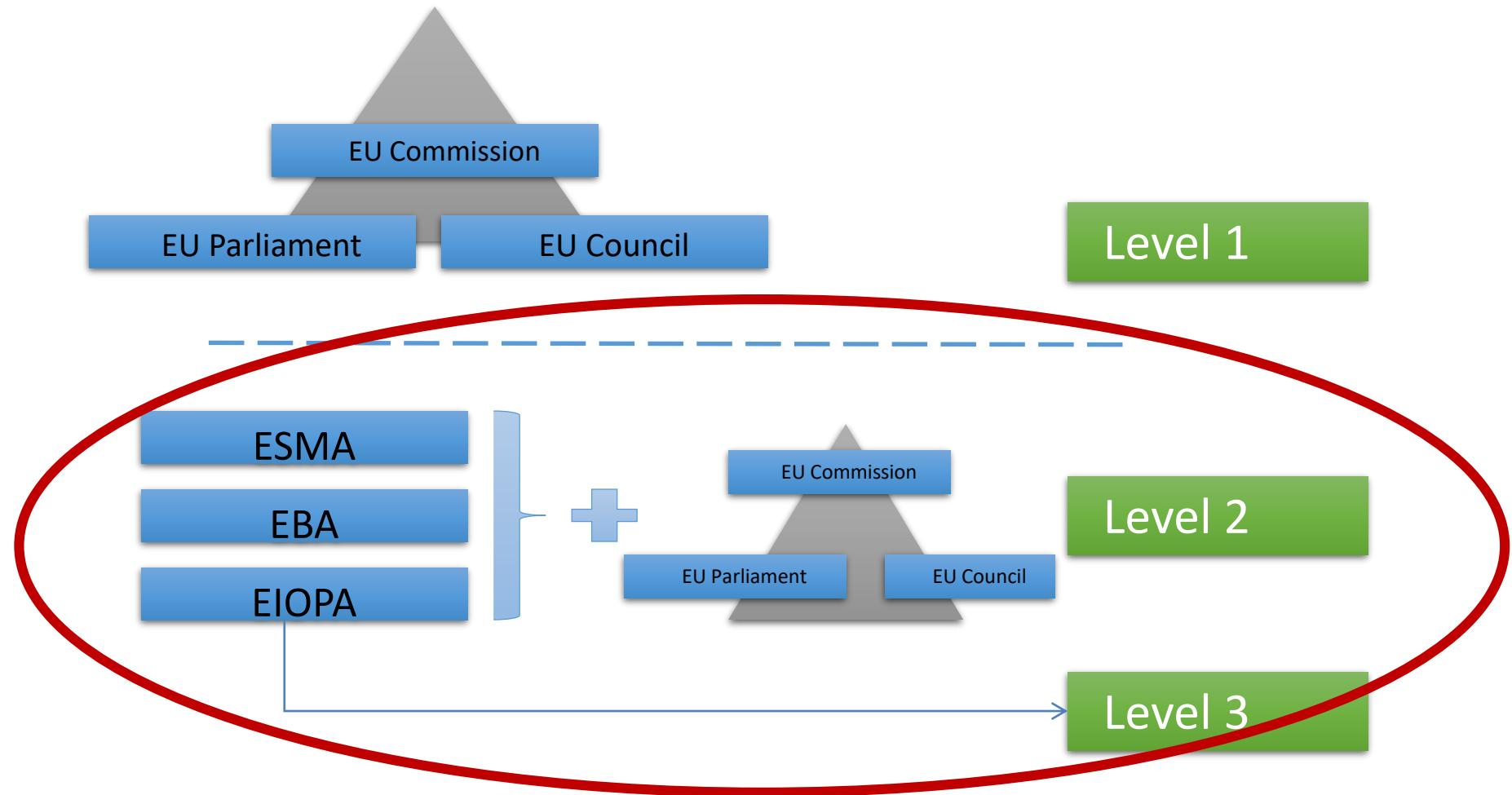
ESRB board over 60 members
Warns on financial macro-prudential risks
Prevent systemic crisis
<http://www.esrb.europa.eu/>



Subsidiary acts or level 2&3

General approach the 3 levels

- Regulatory structure at EU level (introduced in 2001)



Delegated acts

(article 290 of the TFEU)

- These are legal acts as valid and forcefull than any other EU rules (they are directives or regulations)
- Non-legislative acts of general application to supplement or amend certain non-essential elements of a basic legislative act
- EC has the power to adopt ➡ no institutional comitology but consultation with experts appointed by M/S as per Declaration 39 TFEU
- Explicit delegation by EP and Council in basic legislative act, setting conditions: objectives, content, scope and duration

Delegated acts

(article 290 of the TFEU)

- EP and Council have (i) right of revocation and/or (ii) a right of objection. If (ii), delegated act shall not enter into force

- Delegated acts



Regulatory Technical Standards

Other



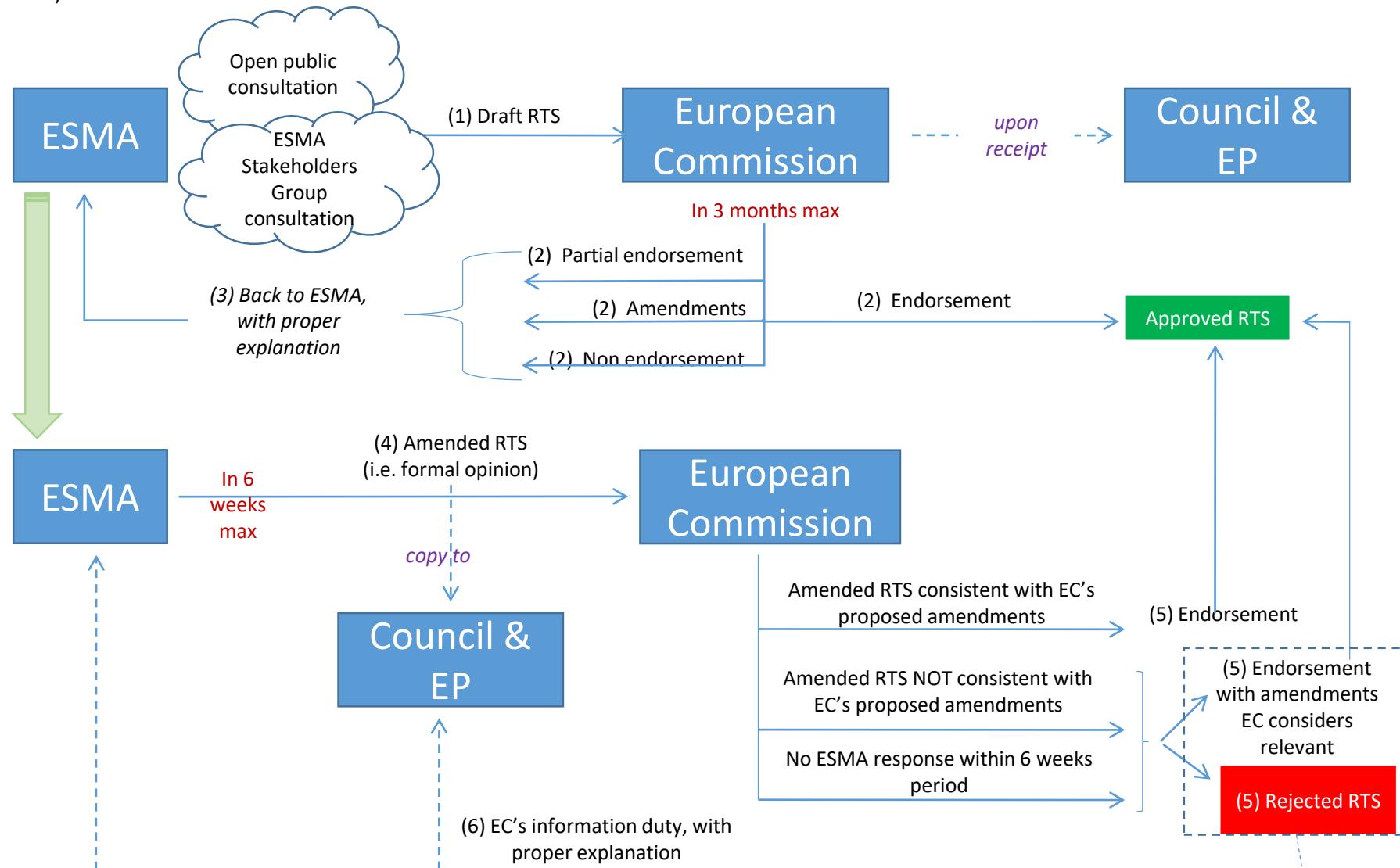
Delegated acts

(article 290 of the TFEU)

- RTS: Technical Regulations or Decisions not implying strategic decisions or policy choices and delimited by the acts on which they are based
- 4 year delegation (with automatic, identical extension) to develop **single rulebook**
- Omnibus I Directive defines areas where ESMA is empowered to develop RTS (by QMV)
- As long as delegation is effective, Commission's regulatory initiative is suspended

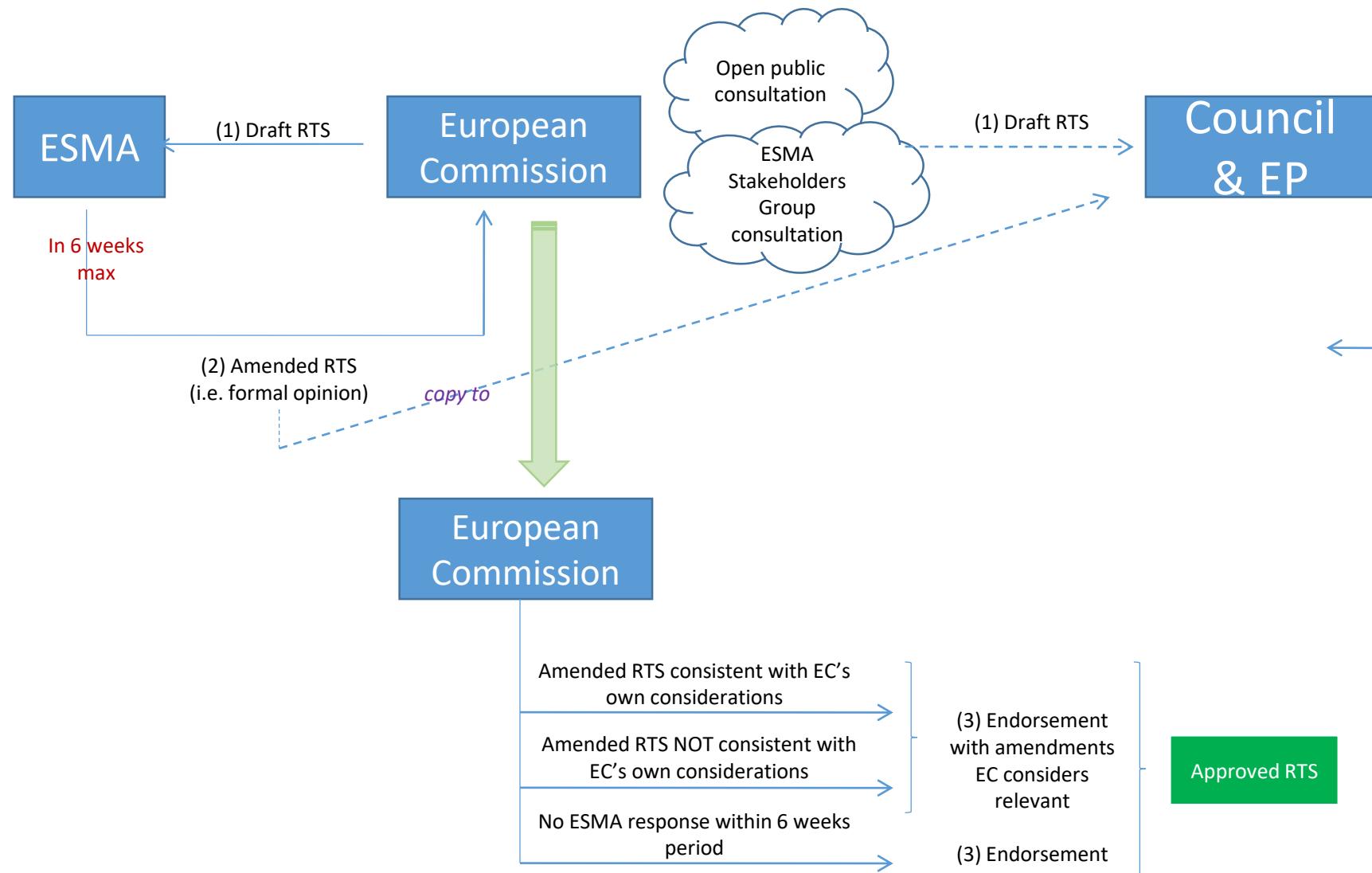
Drafting of Regulatory Technical Standards

(article 7 ESMA)



Drafting of RTS

(article 7 ESMA beyond normal delay)





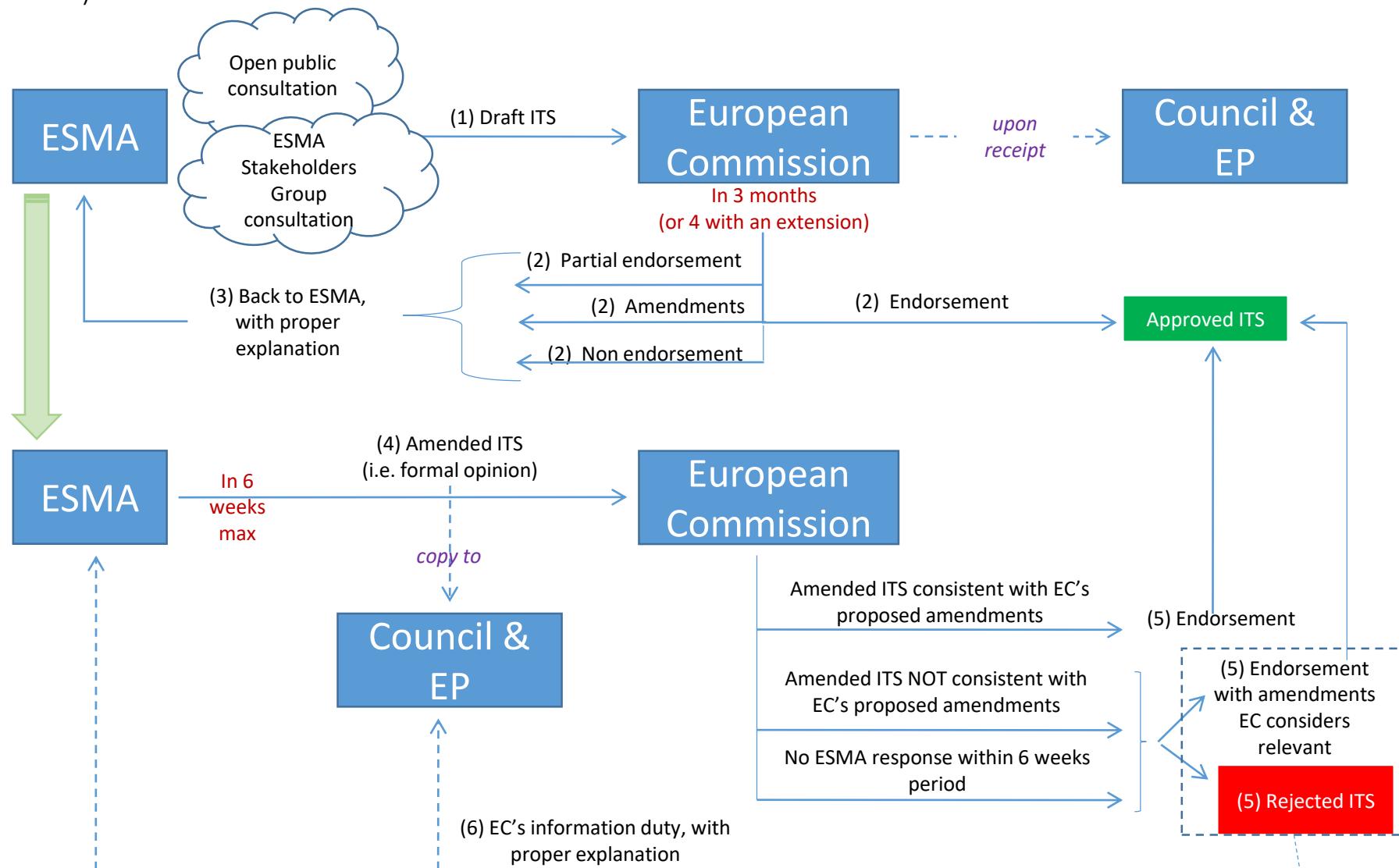
Implementing acts

(article 291 of the TFEU)

- Implementation of “basic legislative acts” is the responsibility of MS
BUT Commission must exercise implementing powers to ensure uniform implementing conditions
- Control of Commission’s implementing powers corresponds to MS (# Council), according to general framework to be established via Regulation

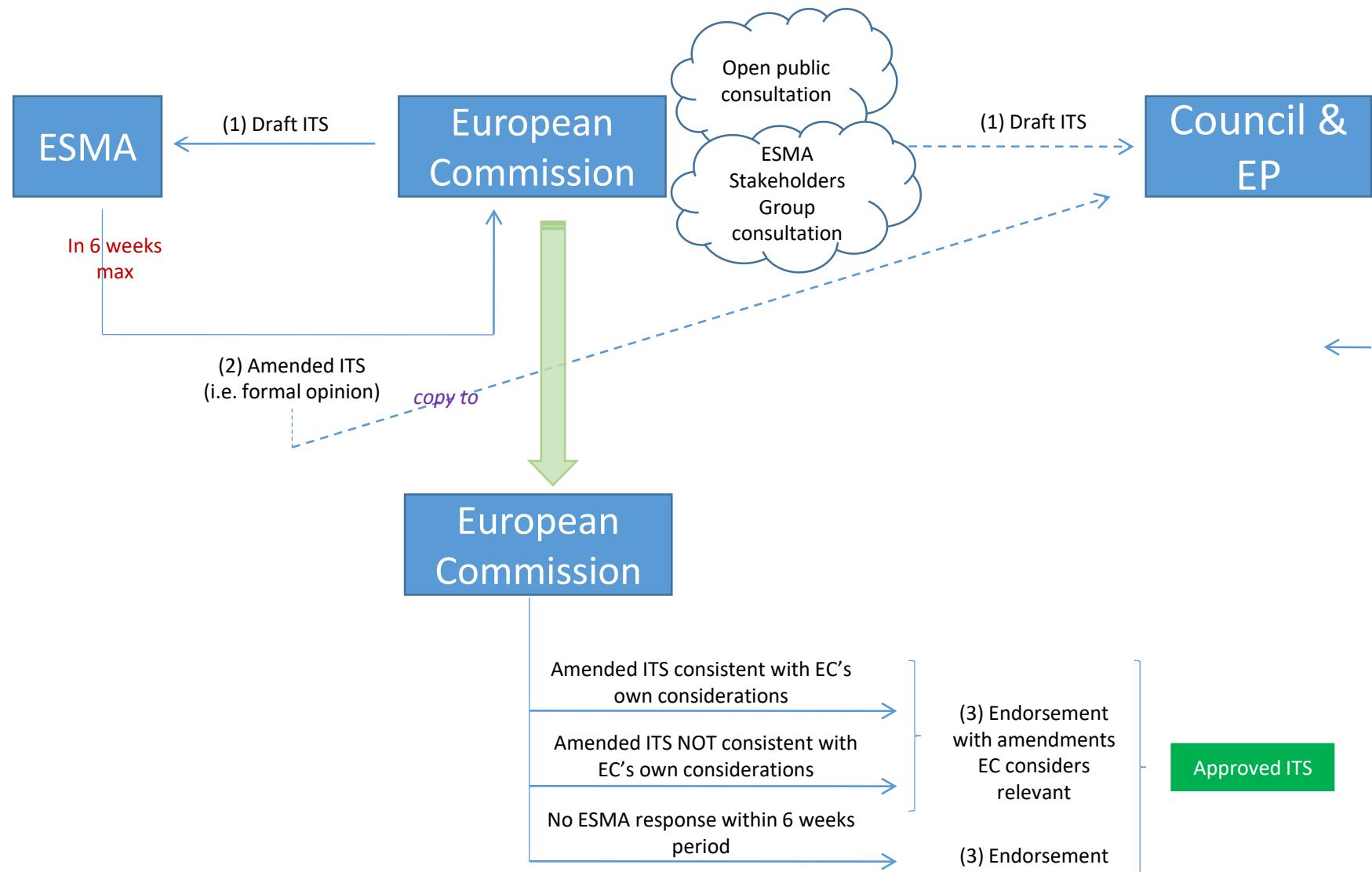
Drafting of ITS

(article 7e ESMA)



Drafting of ITS

(article 7e ESMA beyond normal time limit)





Then comes supervision

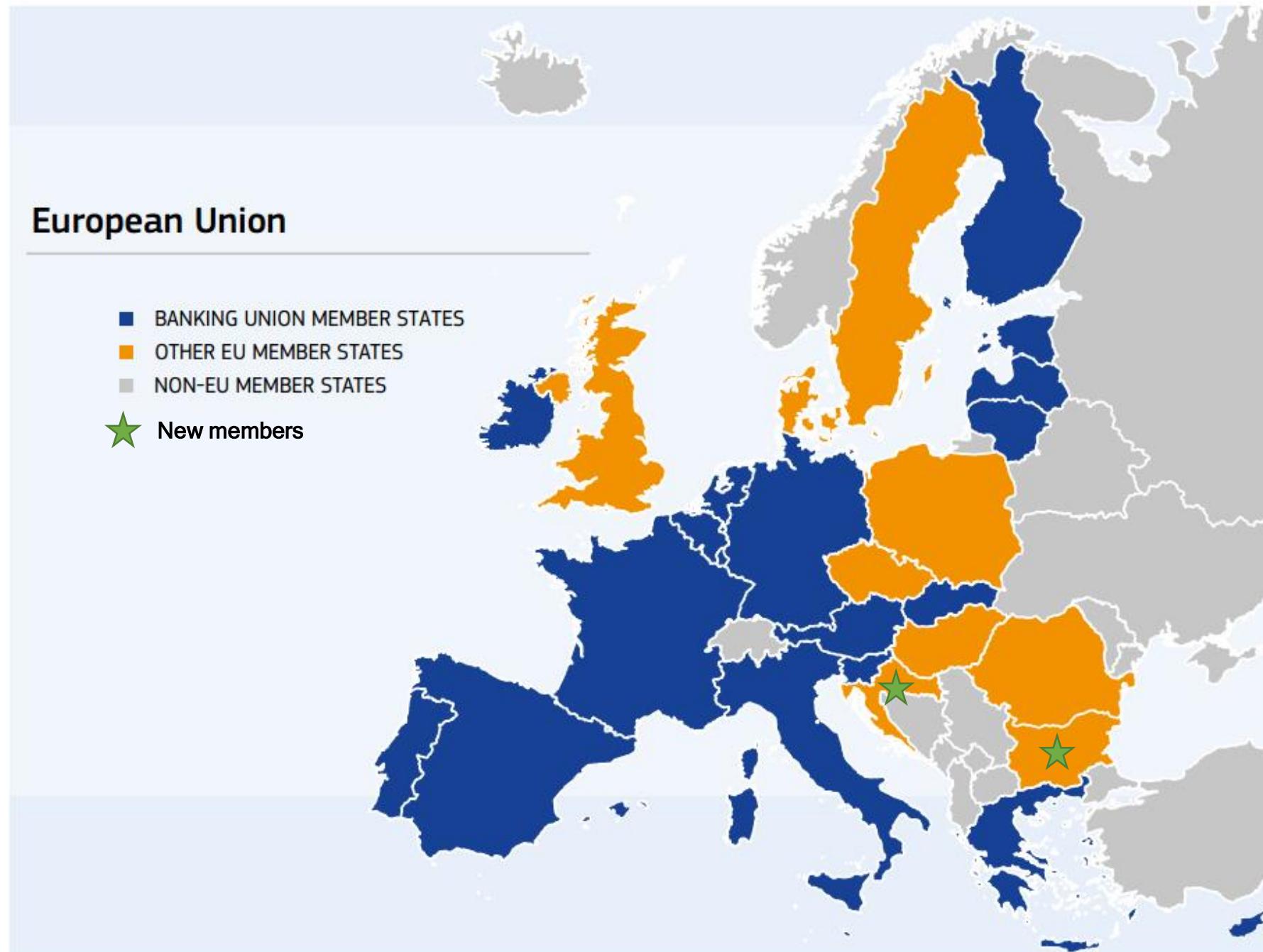


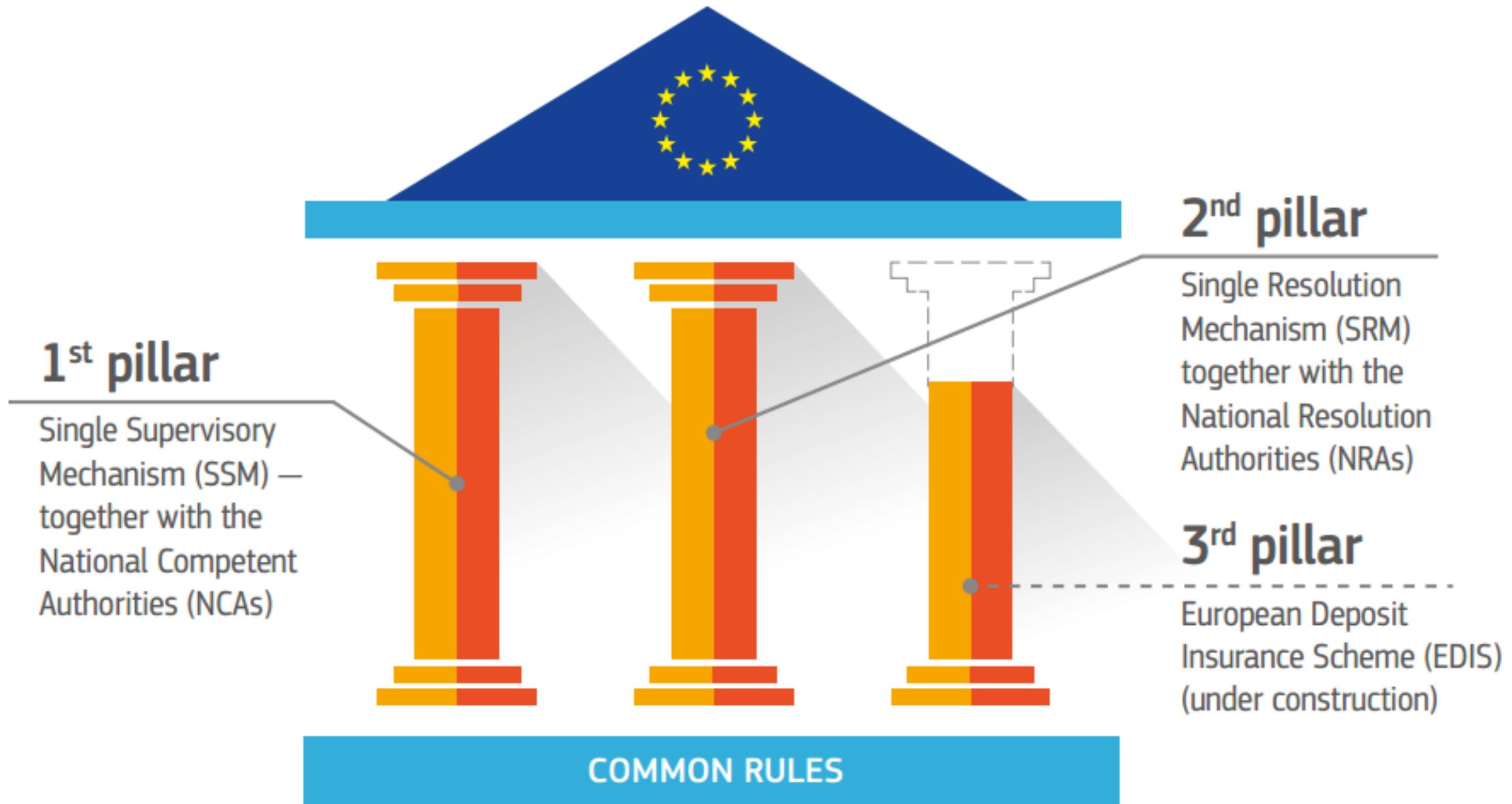
Banking Union

- The banking union in the European Union is the transfer of responsibility for banking policy from the national to the EU level
- Initiated in 2012 as a response to the Eurozone crisis.
- Motivation for banking union was the fragility of numerous banks in the Eurozone, and the identification of vicious circle between credit conditions for these banks and the sovereign credit of their respective home countries.
- As of 2014, the banking union mainly consists of two main initiatives, the **Single Supervisory Mechanism** and Single Resolution Mechanism, which are based upon the EU's "single rulebook" or common financial regulatory framework.
- As of January 2016, all Eurozone member states participate in the SRM.

Figure 1: Participating Member States of the Banking Union

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Structure of regulation and supervision

- The Supervision is now European – Single Supervisory Mechanism
- The Supervision is taken over by the European Central Bank either:
 - Directly for big financial institutions
 - Indirectly for others – jointly with the national(s) supervisors.
 - In that case, the National Supervisor is responsible for the day-to-day supervision but the ECB exercises oversight.
- The ECB is ultimately supervising European Banks
 - Direct/Indirect supervision
 - Oversight
 - Issue guidelines, recommendations for NCAs.
- De facto eliminating cross-border issues – Joint Supervisory Teams (NCAs, ECB) & College of Supervisors

Structure of regulation and supervision

- The European Commission has proposed on 20th of Dec 2017 that the European Central Bank assume full supervision of major investment banks in the Eurozone, replacing a system in which oversight is spread across national regulators.
- The move is seen as part of an effort to ensure orderly relocation of financial institutions away from London after Brexit, by curbing inducement and by enforcing requirements on staffing and capitalization at newly established hubs.

What is a college of supervisors?

- National supervisors remain competent for supervision, BUT...
- Many financial groups are crossborder
- Need to address the home – host issue (who supervises and regulate what)
- Supervisors of each MS + relevant authority will meet and assess the group

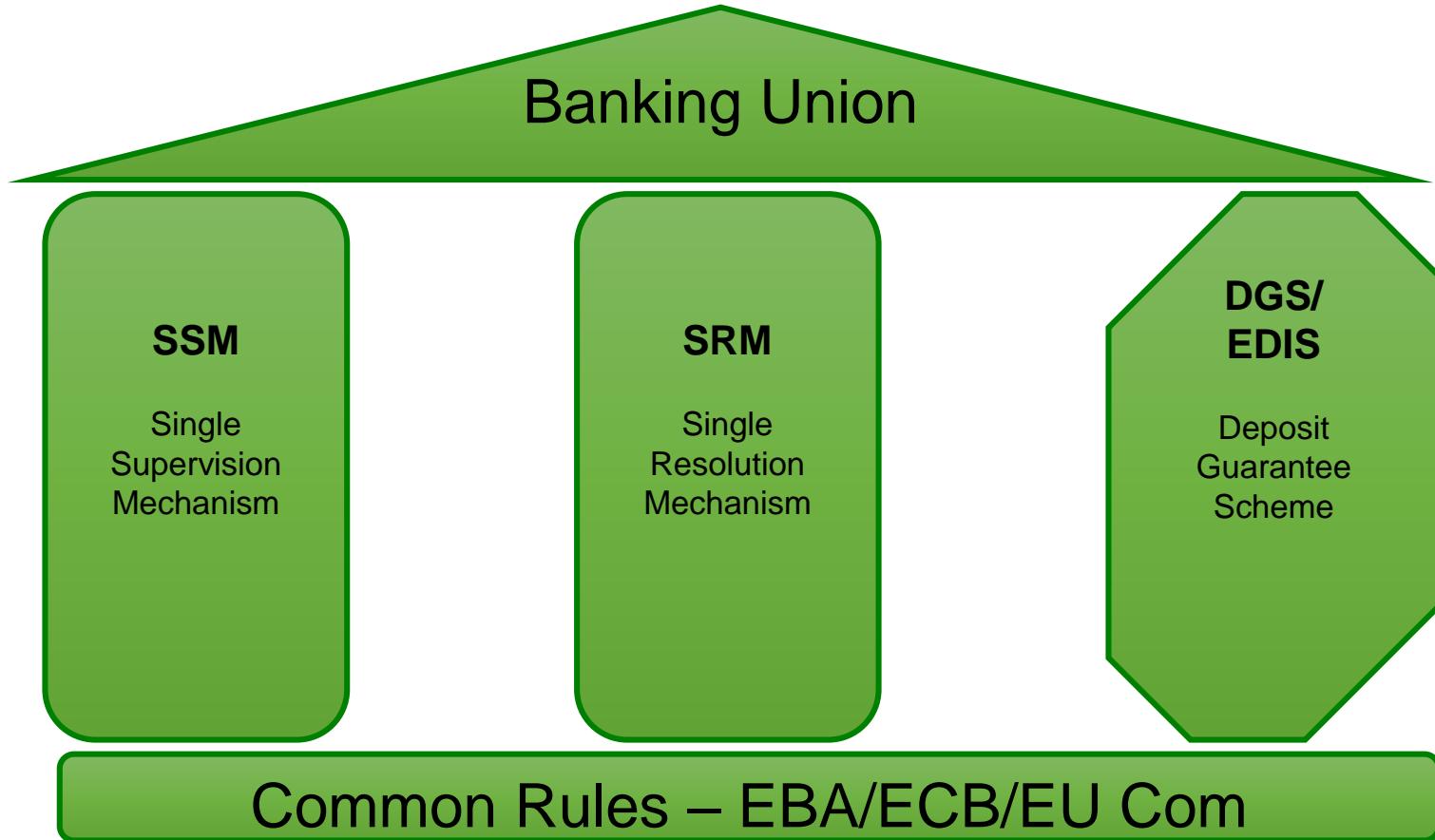


Key EU rules

Prudential and capital regulation

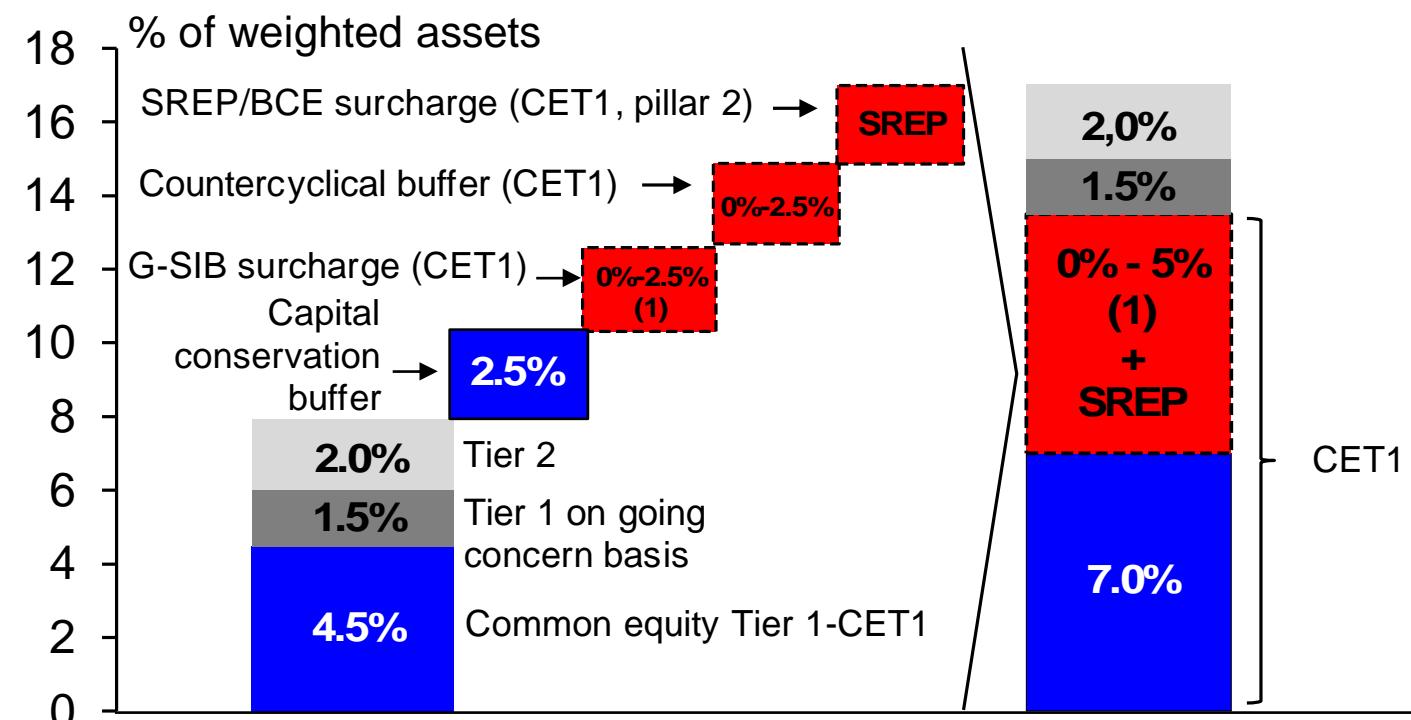
Prudential regulations

Banking Union, Banking Supervision, Bank resolution



Overall cost of new regulatory measures - Systemically important financial institution

Regulatory capital requirements in the European Union



(1) Since the G-SIB segment at 3.5 % is currently empty, we assume that 2.5% is the maximum

Chart 1

Source: BNP Paribas

SSM – Single Supervision Mechanism

- Goal is to ensure high quality and neutral supervision of all banks across the EU based on similar rules, practices...
- It is a 2 tiered system based on a risk proportionality:
 - The largest and most international banks are directly under the ECB supervision (SSM, a dedicated entity different from monetary policy)
 - The other institutions remains under national supervision for day-to-day but responsibility lies with the SSM/ECB
 - Same for licence applications relayed from NCA to the ECB



SRM / BRRD – Single Resolution Mechanism

- The BRRD and the SRMR set the following resolution objectives:
 - to ensure the continuity of critical functions;
 - to avoid significant adverse effects on financial stability, in particular by preventing contagion, including to market infrastructures, and by maintaining market discipline;
 - to protect public funds by minimising reliance on extraordinary public financial support;
 - to protect depositors covered by the Deposit Guarantee Scheme Directive (DGS D) and investors covered by the Investor Compensation Scheme Directive (ICSD);
 - to protect client funds and client assets. When pursuing the resolution objectives, the SRB and, where relevant, NRAs will seek to minimise the cost of resolution and avoid destruction of value unless necessary to achieve the resolution objectives.



SRM / BRRD – Single Resolution Mechanism

- The objective is to ensure that should a bank fail there exists an EU “procedure” to follow so as to minimize the impact on the economy and citizen
- The procedure implies notably a priority ranking of instruments to be used to finance a failing entity and try to stabilise it before it goes under
- Concretely the resolution will focus on:
 - Use of internal safety buffers/closing positions
 - Use of subordinated debt
 - Recourse to shareholders
 - Intervention of guarantee schemes
 - Intervention of (very) large clients (above 100.000 EUR)
 - And in the meantime the setting up of a governance structure to ensure the maximum protection of the economic actors
 - Bridge bank

PRUDENTIAL - CRD / CRR – Capital requirement Directive and Regulation

- The update # 4 of the Basel Capital requirement basically they define 2 set of rules to limit risk on:
 - Solvency of financial institutions
 - Liquidity management of financial institutions
- Prudential regulation imposes to protect the bank for risks stemming from
 - Loans & other financial assimilated risks (credit, derivatives exposures)
 - Trading book
 - Operational risks
- It builds on 3 models from “basic” to “advanced” in the techniques to apprehend risk management or operational risk – *to risk weight the assets of the banks*

PRUDENTIAL - CRD / CRR – Capital requirement Directive and Regulation

- On top of formerly existing solvency protection rules the latest requirements imposes liquidity management tools
- Short term:
 - LCR: liquidity Coverage Ratio, basically be able to plan liquidity entries and exits one month in advance
- Long Term:
 - NSFR : Net Stable Funding Ratio, basically ensuring that over a period of 1 year liquidity can be managed/planned

Prudential regulation

- DGS & EDIS – guarantee schemes – under development
 - The DGS (deposit Guarantee Scheme) imposes within each MS to ensure that retail clients personal deposits are protected at least up to 100.000 EUR in case of a bank failure
 - The scheme shall be pre-funded (contrary to some MS) by contributors
 - Each participant will fund the system according to its risks (exposure)
- European deposit insurance scheme is an extension of the scheme to ensure an EU protection
 - It creates a network of DGS interconnected so that it can supplement DGS that would be unable to support a failing institution
 - The discussions have started at EU level but appears to be complex, one issue is: shall that system be a complementary system to DGS, suppletive or a sort of reinsurance?
 - Then a practical question will inevitably arise how to fund the scheme and will it resist a major market event?
 - Currently dead in the water

Payments – PSD and SEPA

- Since end of 2010 SEPA (Single Euro Payment Area) ensure that one can wire money via bank accounts from any place in the EU to any place as if these were national payments (notably ensure T+1). SEPA is mainly for EUR use
- PSD the Payment Service Directive aimed to extend the SEPA rules to all EU MS, it also aimed to ensure that new competitors could enter the payment arena (beyond banks, think Paypal) in force since 2009



Market and investments regulations

EMIR – European Market Infrastructure Regulation

- Imposed by G20 commitments
- 3 objectives:
 - Identify trades in OTC derivatives
 - Ensure risk management of derivatives through central clearing
 - Create a pan-EU status for Clearing House
- Probably one of the major failure in the production of EU regulation
 - In force since 2012
 - Only in June 2016 that derivatives will be centrally cleared
 - Other parts of EMIR have been gradually introduced from 2013 (intra bank requirements like portfolio compression to reporting under the Trade repository in 2014)
- EMIR is applicable to all entities with some caveats
- Delayed numerous times



CCP R&R

To ensure the continuity of CCPs' critical functions

To ensure the continuity of the links with other FMs which, if disrupted, would have a material negative impact on financial stability as well as on the timely completion of payment, clearing, settlement and record-keeping functions

To avoid significant adverse effects on the financial system by preventing or mitigating contagion of financial distress to the CCP's clearing members, their clients or to the wider financial system including other FMs, and by maintaining market discipline and public confidence

To protect public funds by minimising reliance on extraordinary public financial support and the potential risk of losses for taxpayers



MIFID/MIFIR

- This regulation deals with:
 - Investing clients (large and small) in their relation with their financial counterparty
 - It defines rules on services to clients (inducements, profile, types of services, transparency of costs, advisory status...)
 - The governance structure of investments firms (banks) for investment services
 - The organisation of markets (stock exchange, High Frequency trading, dealing with derivatives, shares, bonds or others)
- MIFID is the cornerstone of financial regulation regarding investments
 - Market abuse, PRIIPS, EMIR... are linked to MIFID



CSD-R and T2S and SFTR

- CSD-R or Central Securities Depositories Regulation is the regulation that addresses the likes of Clearstream or Euroclear
- These are quasi notaries
 - Agent from the issuers (place where securities are issued)
 - Ensure that property transfer are materialised (settle buy/sale)
 - Ensure the integrity of issues
- T2S – Target 2 Securities
 - Is a project going live from the ECB
 - Settle all eligible financial instruments within the EURO area according to the same principles, platforms and procedures
- SFTR – Securities Financing Transaction Regulation
 - impose the obligation to report transaction in:
 - Securities lending, reuse of assets and/or REPO
 - To Trade Repositories (as inspired from EMIR)



Beyond regulation



Current EU major plans

- Climate law / Green New Deal
- Green Taxonomy
- Green Basel ?
- Securitisation, NPLs, EU bad bank(s) ?
- Market digitalisation, blockchain, FinTech ...



DORA - Digital Operational Resilience Act

- This Act consists in an EU Regulation (and an EU amendment directive) proposed by the European Commission in September 2020.
- DORA's main objective is to provide for a single set of reinforced and overarching rules for financial entities concerning the use of ICT, particularly ICT risk management, security and business continuity, digital operation resilience testing, and contracts with ICT service providers, as well as an oversight framework for critical ICT service providers.
- A provisional agreement on DORA was reached in May 2022. On 10 November 2022, the European Parliament voted in favour of DORA. The final adoption of the regulation is expected by the end of this year or early next year at the latest. A two-year phase-in period applies. DORA is therefore expected to take effect by the end of 2024/early 2025.

MICA - Markets in crypto-assets regulation

- The EU brings crypto-assets, crypto-assets issuers and crypto-asset service providers under a regulatory framework for the first time.
- Agreement covers issuers of unbacked crypto-assets, and so-called “stablecoins”, as well as the trading venues and the wallets where crypto-assets are held.
- This regulatory framework aims at protecting investors and preserving financial stability, while allowing innovation and fostering the attractiveness of the crypto-asset sector.
- The regulation would establish harmonised rules for crypto-assets at EU level, thereby providing legal certainty for crypto-assets not covered by existing EU legislation.
- The development of **asset-referenced tokens (ARTs)** based on a non-European currency, as a widely used means of payment, will be constrained to preserve our monetary sovereignty.
- The legislation would regulate issuance and trading of crypto-assets as well as the management of the underlying assets, where applicable, with additional regulatory rules aimed at 'significant' tokens.

One final topic for the road – Shadow banking

- Could be defined as maturity transformation performed outside the banking entities (or bank regulated entities)
- It is either an entity approach or a functional approach
 - Should regulate the entity i.e. life insurer or the activity i.e. securities lending?
- This is a nice political debate:
 - Should all financial activities be regulated under banking prudential regulation?
 - Does these activities present potential systemic risks?
 - Are these activities really in need of a regulation
 - Often used when there are no more rational arguments
 - It is also a fight between 2 approaches to regulations in the authority sphere



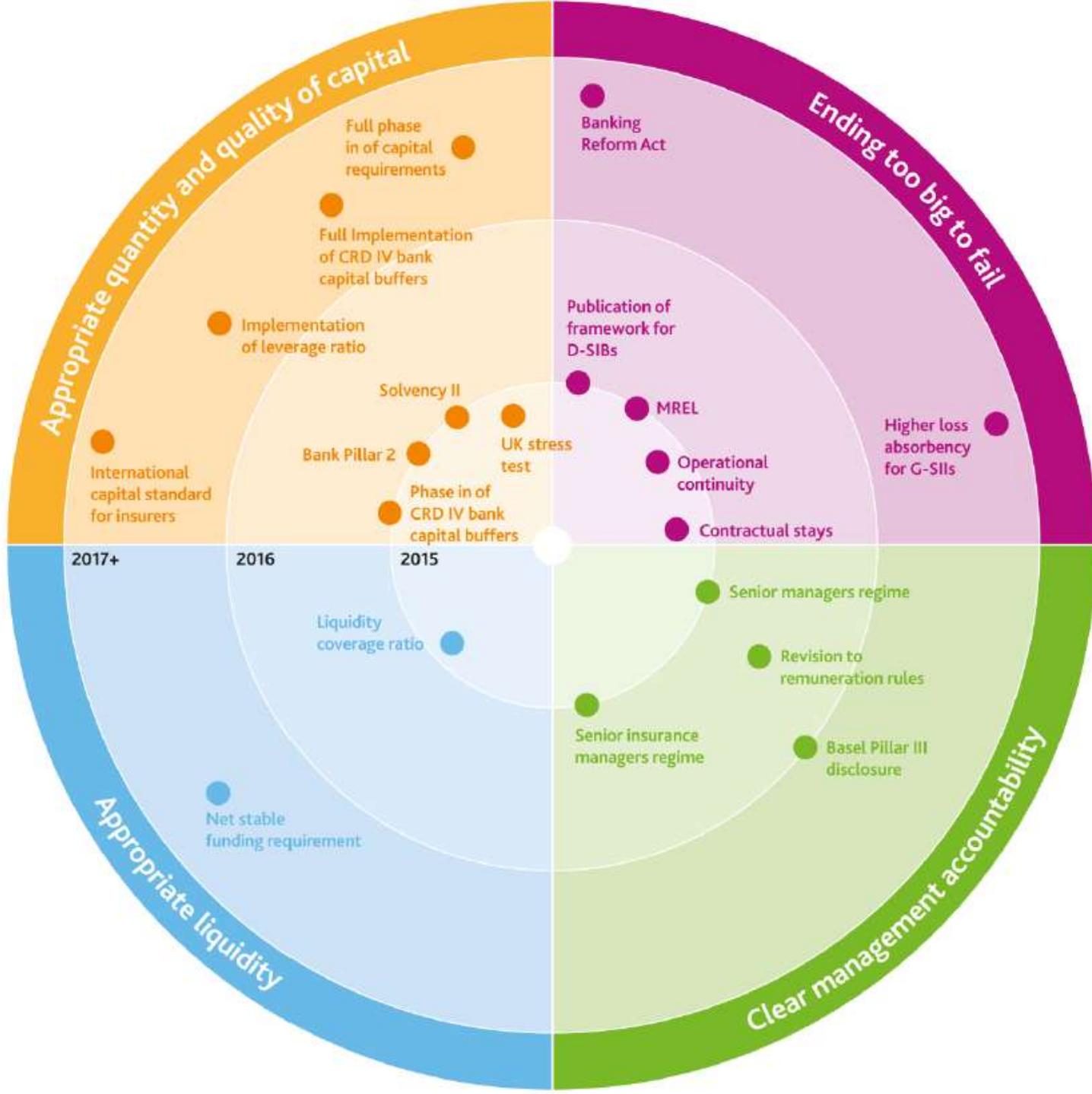
Conclusion

- Regulation is complex and the process to create it is also extremely complex – for the worse
- Regulations are often a trade-off between different expectations and economic perspectives
- Regulations follows a pendulum when it goes too far it gets back in the opposite direction
- There is a need to approach regulations from a holistic perspective not in silo or project per project



Prudential and capital requirements



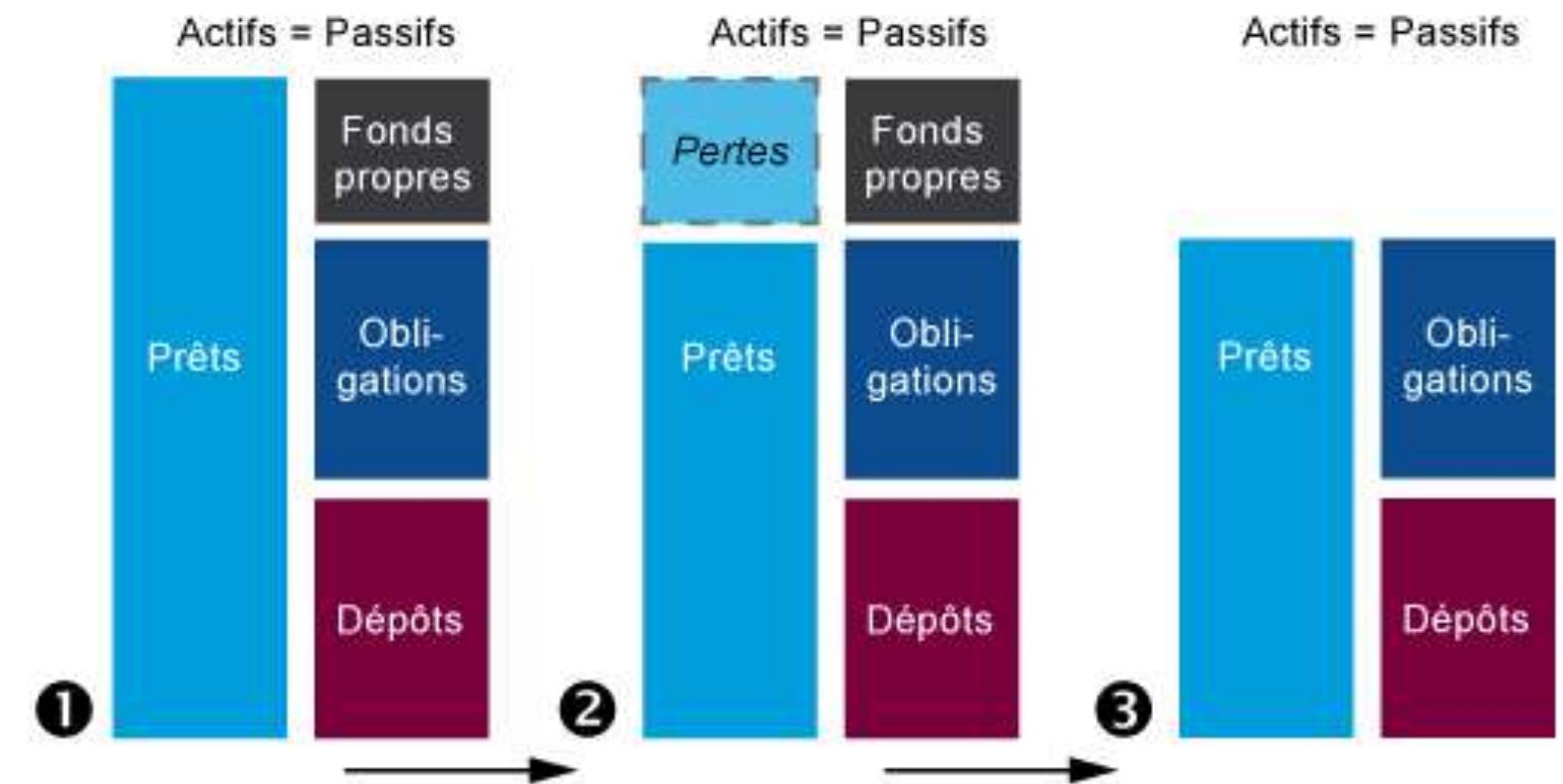


A bank's balance sheet



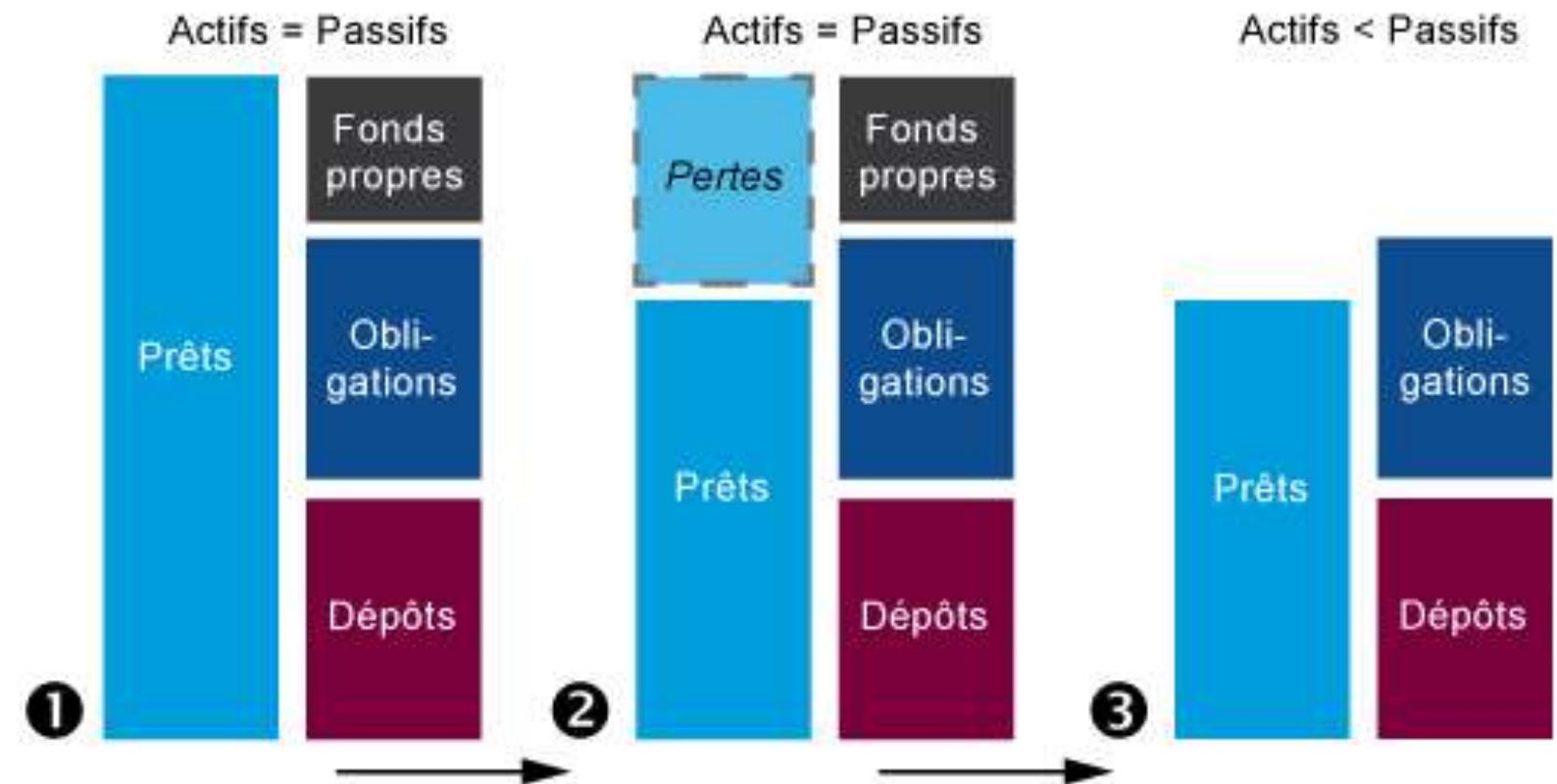
Actifs	Passifs
	Capital (= fonds propres + bénéfices non-distribués)
Prêts	Obligations
Dépôts	

In case of losses



Actifs	Passifs
	Capital (= fonds propres + bénéfices non-distribués)
Prêts	Obli- gations
Dépôts	

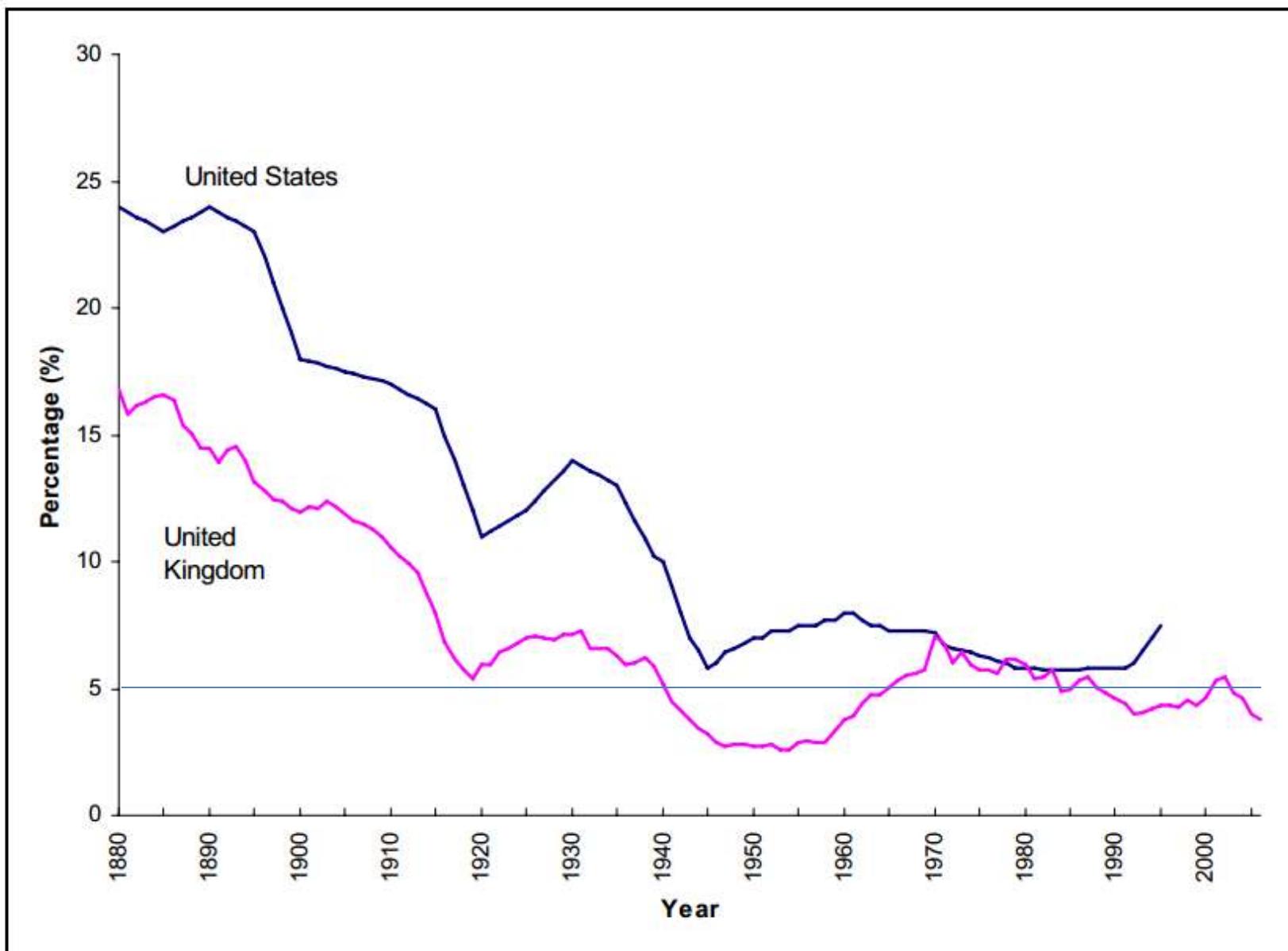
In case of losses



Capital is here to absorb losses – a bank will fail when it has exhausted its capital, explaining with this is a paramount parameter of regulation and supervision

Capital ratios for UK and US banks

© Théo Jalabert



Source: US: Berger, A, Herring, R and Szegö, G (1995). UK: Sheppard, D.K (1971), BBA, published account: England calculations.

Avant la période de dérégulation et de libéralisation financière, la plupart des banques étaient des sociétés en commandite par actions et la responsabilité de leurs gérants commandités étaient solidaires et illimités sur leurs biens propres, il était donc logique que les banques favorisent un plus important coussin en capitaux propres pour faire face aux aléas économiques.

Aujourd'hui, la plupart des banques sont des sociétés anonymes. La responsabilité des actionnaires bancaires est limitée à leurs apports en fonds propres (contrairement à la commandite par actions, tel qu'expliqué auparavant). En ce sens, en tant que société anonyme, les banques ne jouent plus directement avec leur propre argent.

Dans les dernières décennies, les ratios de fonds propres n'ont cessé de se détériorer jusqu'à passer en dessous de la barre des 5 %, allant même jusqu'à 1,5% à l'aube de la crise.

Depuis, les banques ont augmenté leurs capitaux propres, d'une part pour se conformer à la nouvelle réglementation, et d'autre part pour répondre aux attentes plus élevées de leurs investisseurs, actionnaires et créanciers.

Elles fonctionnent encore aujourd'hui avec beaucoup moins de capitaux propres qu'elles n'avaient l'habitude d'avoir et particulièrement moins que les entreprises non bancaires. En 2013, les banques se finançaient avec 3 ou 4 % de fonds propres. Les entreprises européennes cotées en bourse appartenant au secteur non bancaire se financent à hauteur d'environ 50 % en capitaux propres.

Basel III



Calcul du capital minimum exigé, afin de mieux prendre en compte la totalité des risques bancaires



Renforcement des contrôles par les organismes nationaux de surveillance /introduction du « Capital Économique »



Discipline de marché à travers une communication financière améliorée

Basel Regulatory capital requirements

Two major regulatory capital “levers”

Risk Weighted Assets (RWA)

- Introduced in ‘Basel I’ (1992), but revised in ‘Basel II’ (2008) and ‘Basel III’ (2013-2018)
- Default RWA (risk-weighted exposure), CVA charge, Market, Credit, Operational and Risk
- Trading book / Banking book
- Minimum ratio for ‘Tier 1 capital’

Leverage Balance Sheet (LBS)

- Introduced in ‘Basel III’
- Not risk weighted
- Essentially a look-up table. (No internal modelling needed.)
- It is a “*simple, transparent, non-risk-based leverage ratio to act as a credible supplementary measure to the risk-based capital requirements*” - bcbs270 regulatory document
- Originally thought of as a “back-stop” on capital
- Minimum ratio on ‘Tier 1 capital’ of 3%

$$\frac{\text{capital}}{\text{risk measure}} > \text{ratio}$$

Basel Regulatory capital requirements

Two major regulatory capital

Based on CVA

Risk Weighted Assets (RWA)

- Introduced in ‘Basel I’ (1992), but revised in ‘Basel II’ (2008) and ‘Basel III’ (2013-2018)
- Default RWA (risk-weighted exposure), CVA charge, Market, Credit, Operational and Risk
- Trading book / Banking book
- Minimum ratio for ‘Tier 1 capital’

Leverage Capital

Based on VaR on
Market Risk Factor

- Introduced in 1993
- Not risk weighted
- Essentially a look-up table. (No internal modelling needed.)
- It is a “*simple, transparent, no surprises*” measure, *comparable* to the risk-based capital
- Originally thought of as a “bad bank”
- Minimum ratio on ‘Tier 1 capital’

$$\frac{\text{capital}}{\text{risk measure}} > \text{ratio}$$

Based on $\text{EL} = \text{EAD} \times \text{PD} \times \text{LGD}$

credible supplementary measure to the risk-based capital

How much capital is enough?

Regulation is a supervisory floor on capital

- Falling below this floor has implications.
- Supervisors can demand reduced executive bonus payments and share-holder distributions

Need a “management buffer” on top of regulatory minimum

- Buffer set by senior management (Preparation for higher levels being phased in.)
- Capital requirements has a market sensitivity. (Not easy to control in the short term.)
- New capital can be raised, but is a slow process
- This “self imposed” capital level is the real level banks should target and work against

Capital needed to do business

- If banks reach their capital limit, banks cannot do more business!
- No business means no P&L (...still need to pay for used capital.)
- Unwind business or wait for trades to roll off? Raise capital?



Get your house in order

Address the issues before new rules take effect

- ✓ Raise more capital
 - Banks raising new equity and “CoCo” bonds
- ✓ Separating out “Bad Banks”
 - Wind down and exit business that are not capital efficient
- ✓ Fixing/updating models
 - Enhance regulatory engine, modelling, fixing bugs etc
- ✓ Renegotiating CSA agreements
 - Increased margin call frequency, removed thresholds
- ✓ Clearing more assets
- ✓ ...many many more large and small things. Trade compaction, etc.

Forward capital - The big model question

- ✓ KVA, XVA, ‘PV of RWA’ and ‘PV of LBS’ require forward capital values
 - Nested Monte-Carlo with full capital calculations is prohibitively expensive
 - Need to include our view on future regulations
- ✓ Example of approximations
 - Use today’s exposure simulations to estimate expected future exposures

Get your house in order – Basel III consequences

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Address the issues before new rules take effect

- ✓ Raise more capital
 - Banks raising new equity and “**CoCo” bonds**
- ✓ Separating out “Bad Banks”

- Contingent convertibles (CoCos) are convertible bonds that turn into equity when certain capital conditions are met. Issuing contingent bonds is more advantageous to companies than issuing regular convertibles.
- Became popular in 2014 to help banks meet Basel III capital requirements.
- Great product for undercapitalized banks in markets across the globe, since they come with an embedded option that allows banks to meet capital requirements and limit capital distributions at the same time.
- The popularity in contingent convertibles has also grown with the stability of the banks issuing them. (and vice-versa...)

▼ Example of approximations

- Use today's exposure simulations to estimate expected future exposures

Get your house in order – Basel III consequences

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Address the issues before new rules take effect

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▪ CoCos vs. Vanilla Convertibles

- Convertible bonds have bond characteristics,
 - Pay a regular rate of interest
 - Have seniority in case of default
- But also give the holder the ability to participate in share price appreciation by allowing conversion to common shares at a certain strike price : the bond holder receives stock in exchange for the bond when the stock price is going up.
- CoCos offer investors a different scenario. The logic behind contingency convertibles is somewhat inverted.
 - Instead of converting bonds to common shares based solely on stock price appreciation, investors in contingent convertibles agree to take equity in exchange for debt when the bank's capital ratio falls below a certain point.
 - For example, a bank may issue contingent convertibles with a trigger set to core tier one capital instead of a strike price. If core tier one capital falls below 5 percent, the convertibles automatically convert to equity and the bank has higher capital ratios. Usually when this is not a good time to purchase the stock...

Get your house in order

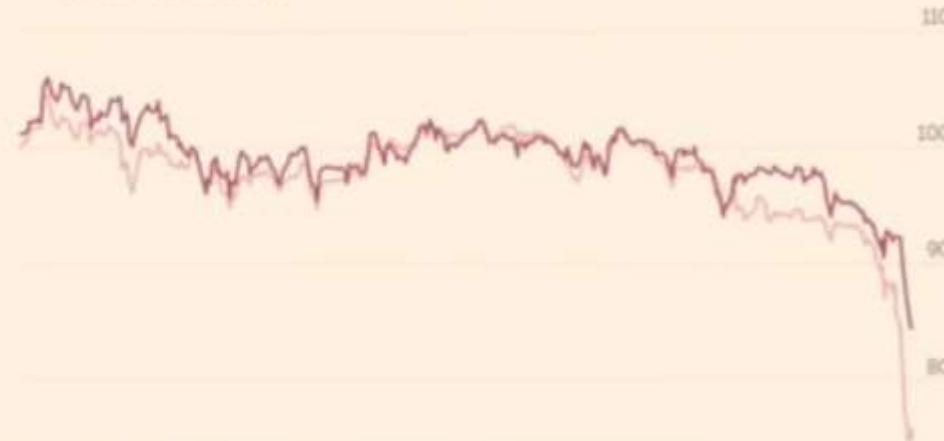
Contingent Convertible (CoCo) Bonds

- designed for **bail-in**
(AT1 or Tier 2 capital)
- ca. **EUR 100 bn** issued by European banks since 2013
- Non-standardised and **intransparent**
- Inherently **pro-cyclical**, destabilising markets
- Alleged **cost advantage** dubious

Contingent convertible bond prices

100 is at par

- Banco Santander Coco bond
- Deutsche bank Coco bond



MARKETS Deutsche co-CEO says CoCos are "bad product"

Yesterday



It's been another bad day for coco bonds.

Deutsche Bank co-chief executive John Cryan has said he dislikes the instruments, calling them a "bad product" at a conference in London, writes Thomas Hale in London.

"I just don't like them and I don't think they are sold very well," Mr Cryan said on Wednesday, according to Reuters.

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✓ Ex

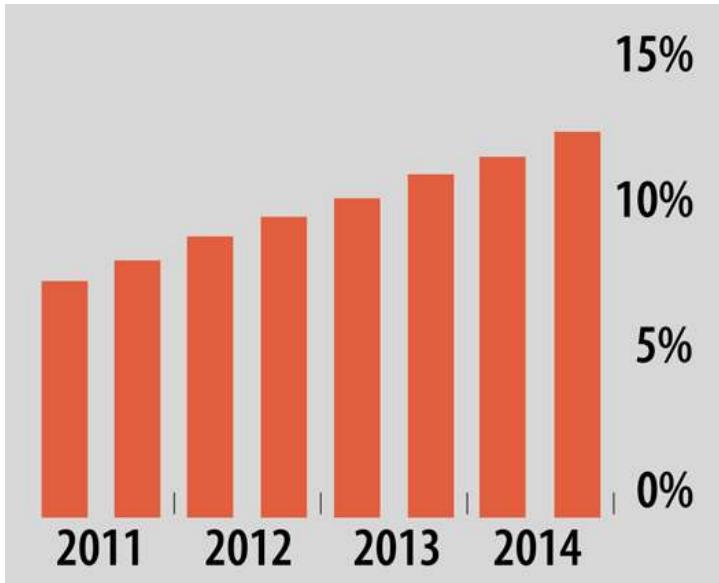
Get your house in order

Address the issues before new rules take effect

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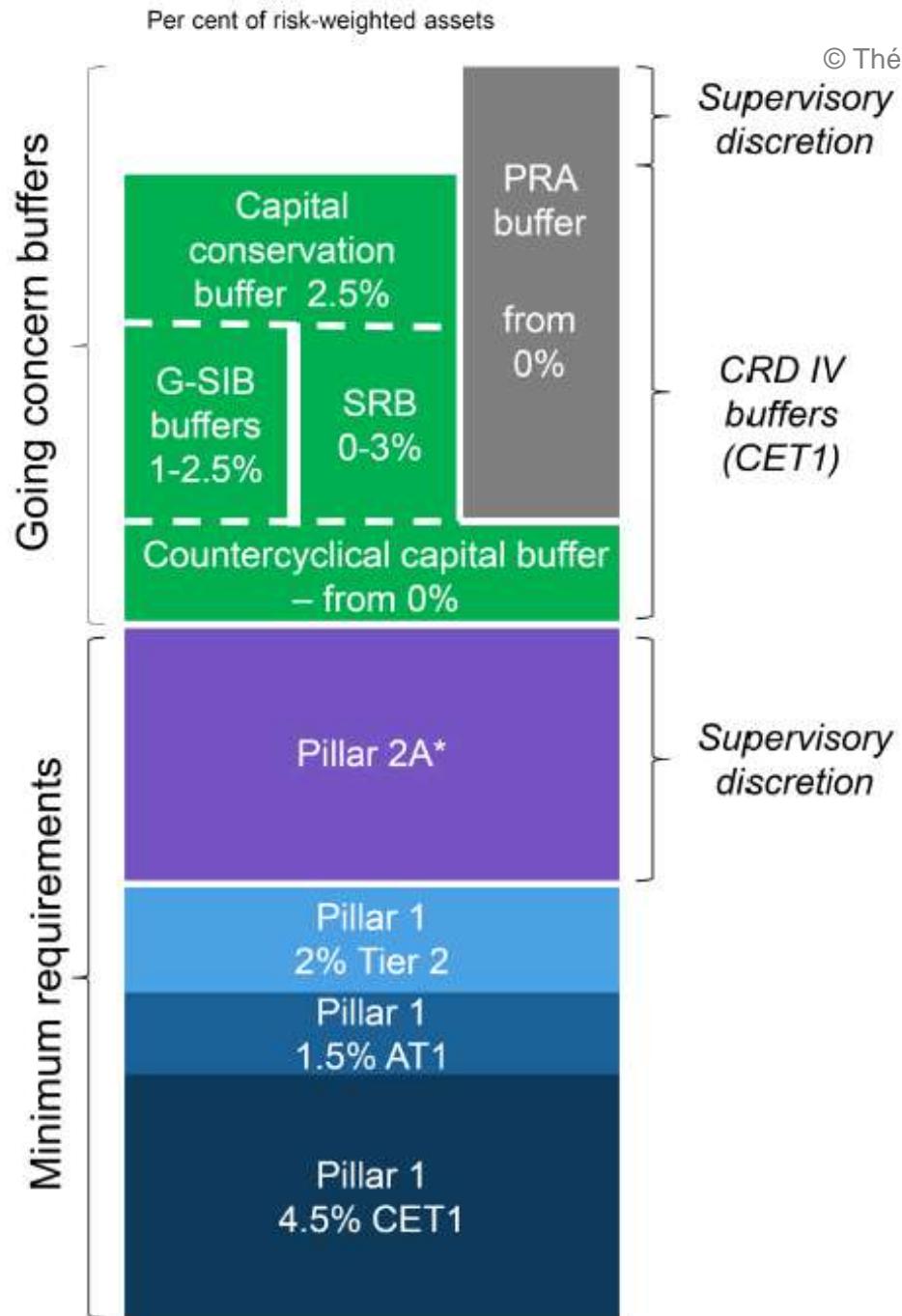
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- ✓ Example of approximations
 - Use today’s exposure simulations to estimate expected future exposures



$$\text{CET1 Ratio} = \frac{\text{Core Equity Tier 1 Capital}}{\text{Risk Weighted Assets}}$$

Leverage ratio on
Risk Weighted Asset
and not on the balance sheet



* 56% of Pillar 2A must be funded in CET1

RWA (actif pondéré en fonction du risque)

- Définition
 - Market Risk : VaR
 - Credit Risk : $EL = PD \times EAD \times LGD$
 - Counterparty Risk : CVA

$$CVA(T) = (1 - R) \int_0^T \text{Max}(EE^*(t), 0) dPD(0, t)$$

avec

$$EE^*(t) = \mathbb{E} \left[\frac{B_0}{B_t} E(t) \right]$$

Où

- $E(t)$ représente l'exposition dans le temps
- T représente l'horizon considéré (en général 1an)
- \mathbb{E} représente l'espérance mathématique
- R le recovery rate
- $PD(t)$ la fonction de probabilité de défaut
- B_t est la valeur à t d'1 euro investi aujourd'hui.



RWA (actif pondéré en fonction du risque)

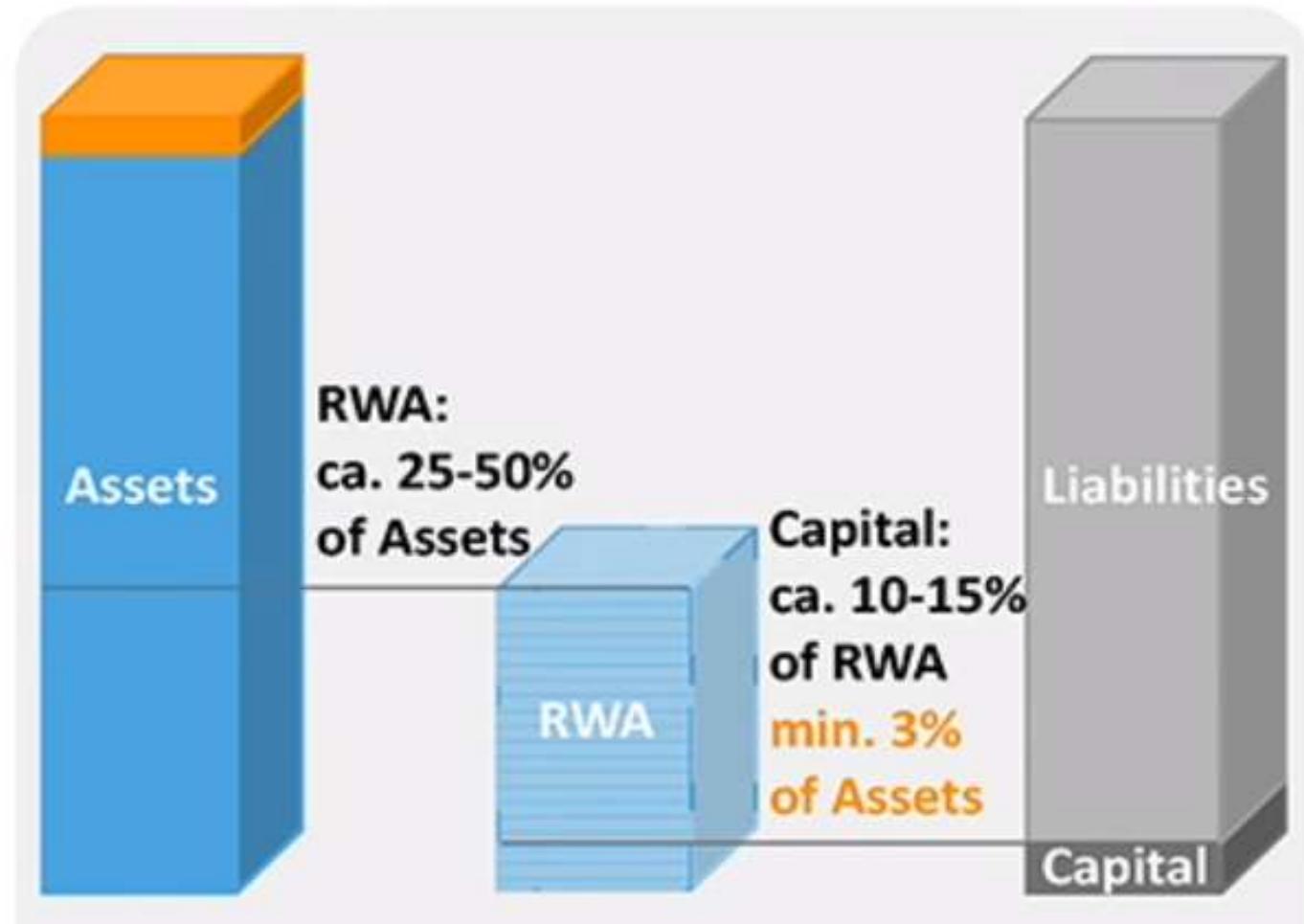
- Quels avantages et inconvénients?

RWA (actif pondéré en fonction du risque)

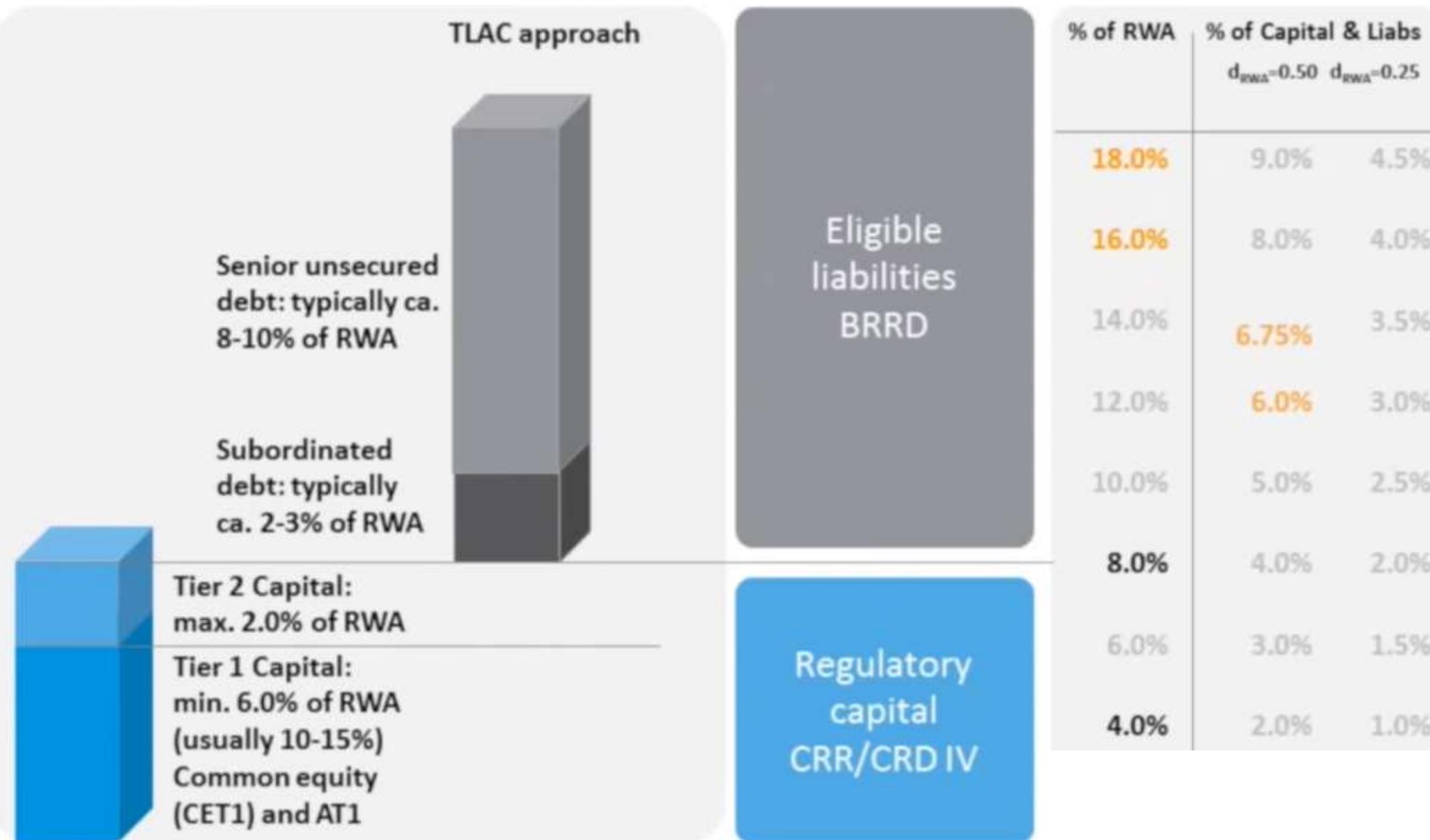
- Quels avantages et inconvénients?

- Prise en compte de la diversité des *business models* des banques
- Pénalise les actifs les plus risqués
- Démultiplie l'effet de levier de l'endettement
- Ce qui est « sûr » aujourd’hui ne l'est pas forcément demain (subprimes en 2006)
- Interfère dans le business model des banques : **mauvaise allocation du capital** (*ex: inciter les banques à accorder des prêts hypothécaires plutôt que des prêts aux entreprises*)
- Avantage les grandes banques (*advanced internal rating methods*)
- Risque de modèle

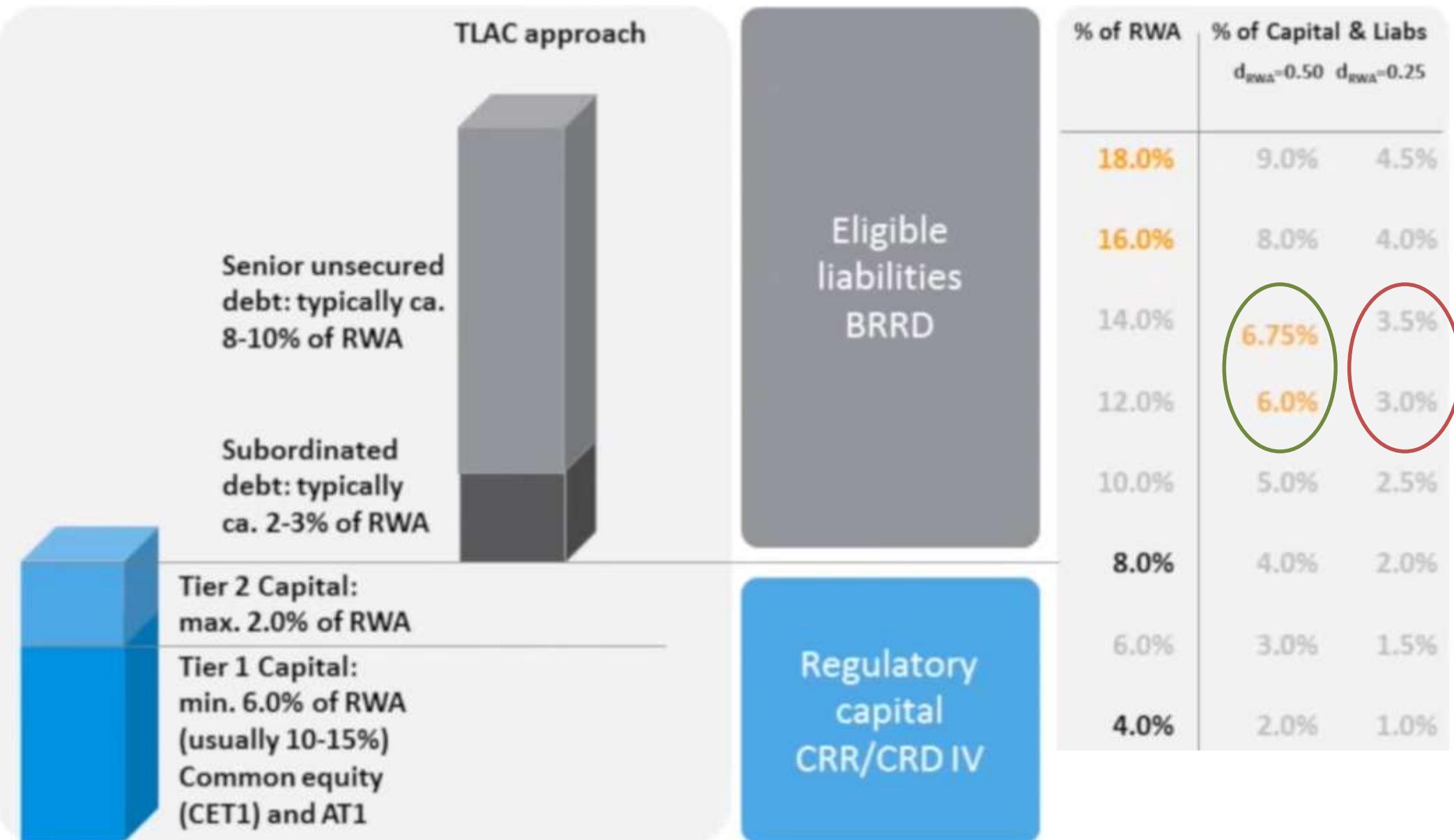
RWA (actif pondéré en fonction du risque)



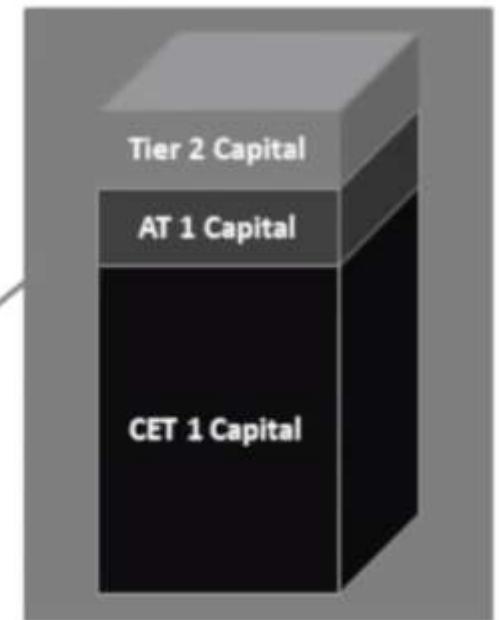
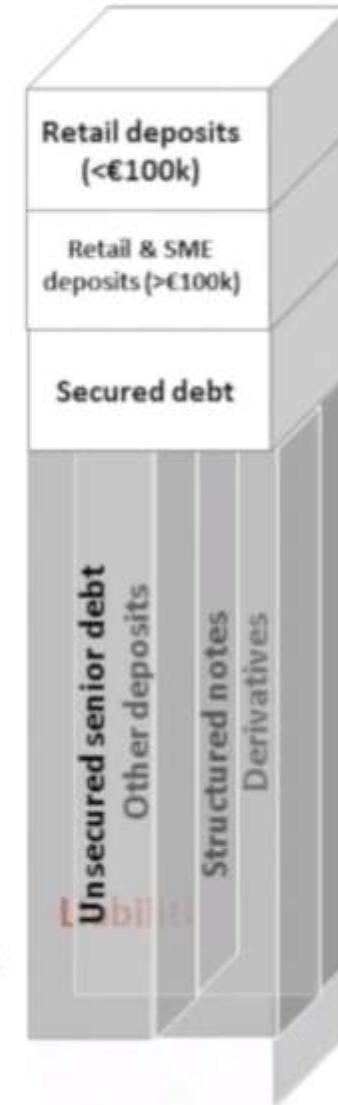
RWA (actif pondéré en fonction du risque)



RWA (actif pondéré en fonction du risque)



RWA (actif pondéré en fonction du risque)



In practice ...

	Actifs		Passifs
Banking book	80	Depots	55
Trading book	20	Obligations	35
		Capital	10
TOTAL	100	TOTAL	100

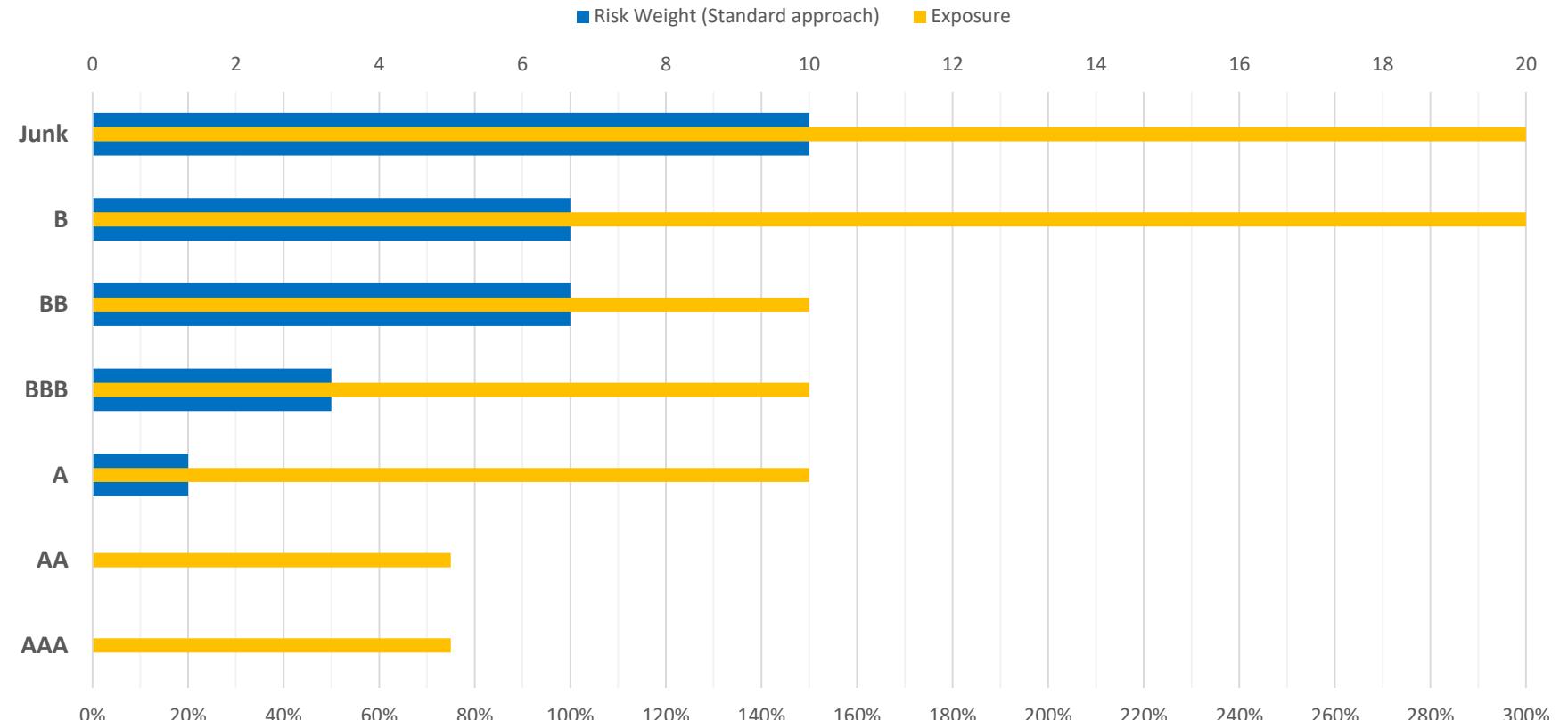
CRR = 10% of RWA



In practice ... Banking book RWA

	Banking book	
	Risk Weight (Standard approach)	Exposure
Sovereign		
AAA	0%	5
AA	0%	5
A	20%	10
BBB	50%	10
BB	100%	10
B	100%	20
Junk	150%	20

RWA Banking book = 67



In practice ... Trading Book RWA

Assuming RWA = Var 95%

		Let's take a simple example			
Quantile	Market move (bps)	Bank A		Bank B	
		Sensitivity	PnL	Sensitivity	PnL
0%	5	0.25	1.25	-2	-10
10%	4		1		-8
20%	3		0.75		-6
30%	2.5		0.625		-5
40%	2		0.5		-4
50%	2		0.5		-4
60%	1		0.25		-2
70%	-1		-0.25		2
80%	-2		-0.5		4
90%	-4		-1		8
100%	-4		-1		8

Expected Losses (95%)
= VaR = 9

Expected Losses (95%)
= VaR = 1

$$\text{PnL}(x) = V(x_1) - V(x_0) = (x_1 - x_0) * \Delta V(x_0)$$

$$\text{VaR} = \text{quantile Losses} = V(x_{\text{quantile}}) - V(x_0) = (\text{MM}_{\text{quantile}}) * \Delta V(x_0)$$

In practice ...

	Actifs		Passifs
Banking book	80	Depots	55
Trading book	20	Obligations	35
		Capital	10
TOTAL	100	TOTAL	100

CRR = 10% of RWA

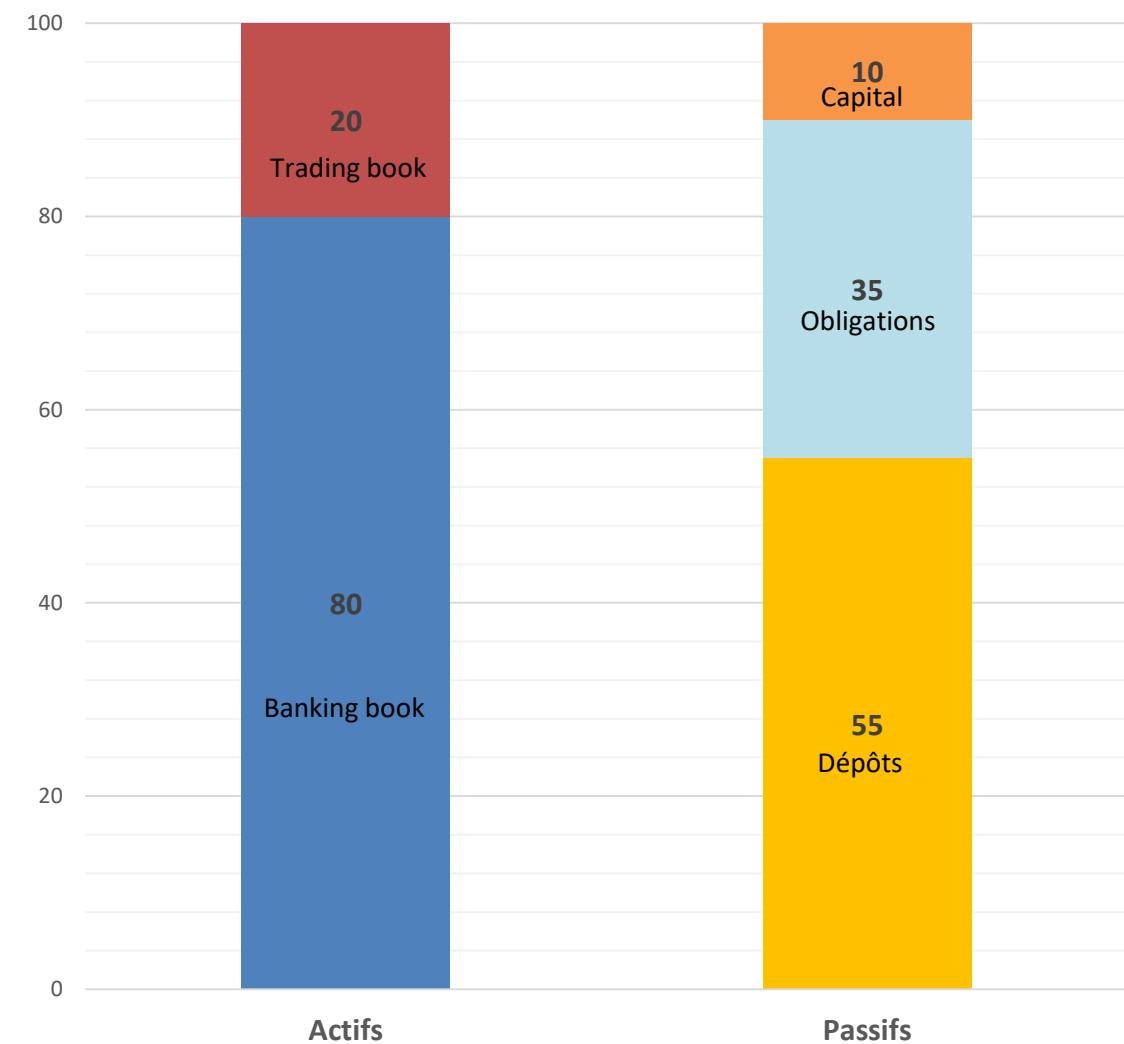
Assuming Trading book RWA = 10
 (considered a given for the sake of the exercise)

RWA Banking book	67
RWA Trading book	10
Total RWA	77

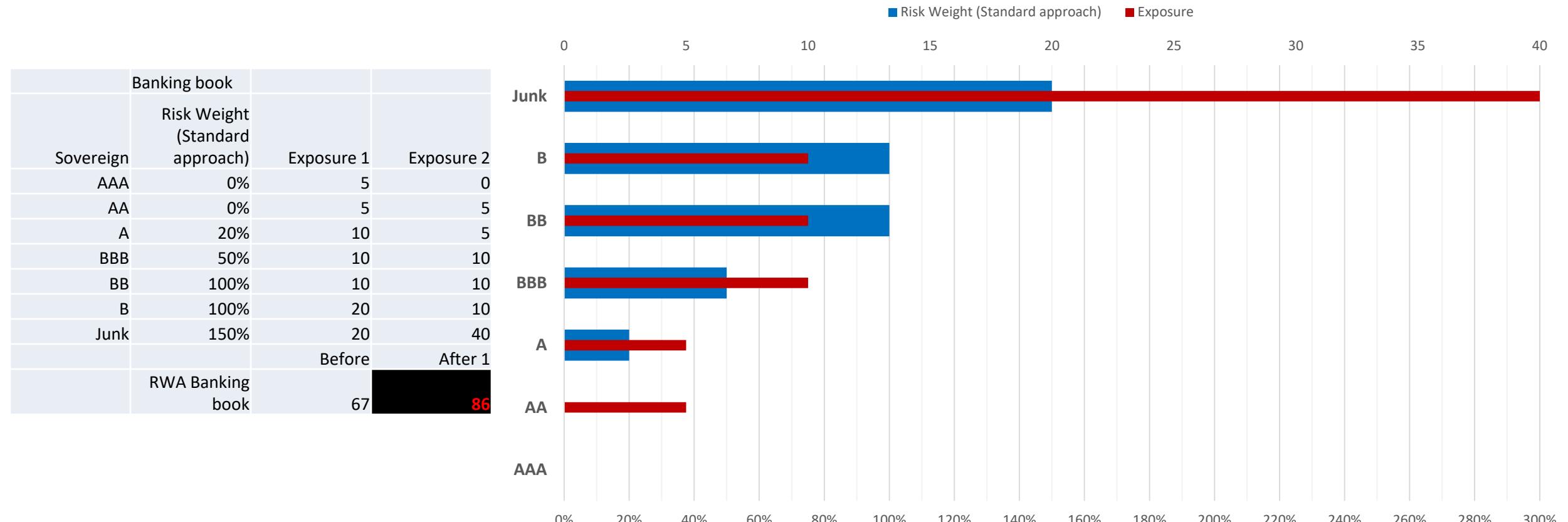
Hence capital requirements = $10\% \times 77 = 7.7 < 10$

CRR compliant

Bank Y Balance Sheet



In practice ... Credit downgrade



In practice ... Adverse market move

Assuming RWA = Var 95%

		Trading book			
		Equity derivatives portfolio			
		CAC 40			
		(sensi per bp)		CAC 40 move	
Delta	0.01			moving down (in bp)	
Gamma	-0.000005			-10.0%	-1000
Var = Expected Losses = Delta x quantile				New Delta	0.015
Hence Quantile = Expected Losses/Delta		-1000 = 95% worst quantile		New RWA	15
		= -10/0.01			

$$\text{PnL}(x) = V(x_1) - V(x_0) = (x_1 - x_0) * \Delta V(x_0)$$

$$\text{VaR} = \text{quantile Losses} = V(x_{\text{quantile}}) - V(x_0) = (\text{MM}_{\text{quantile}}) * \Delta V(x_0)$$

In practice ...

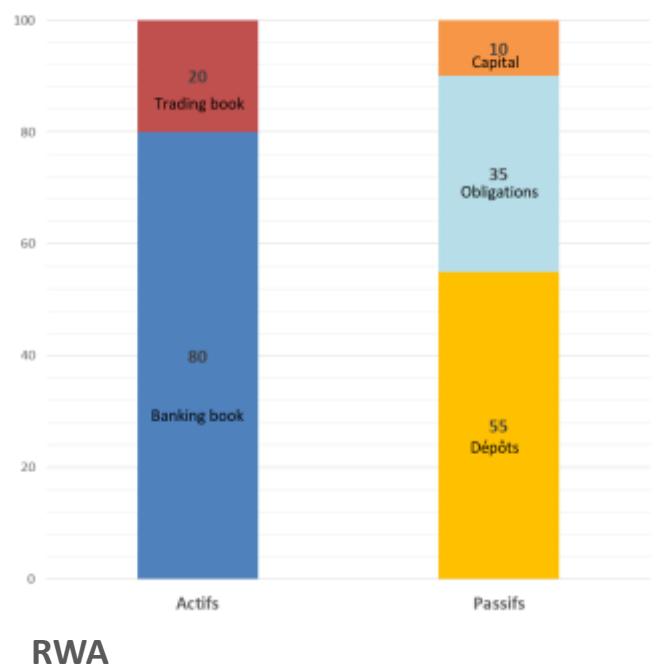
	Actifs		Passifs
Banking book	80	Depots	55
Trading book	20	Obligations	35
		Capital	10
TOTAL	100	TOTAL	100

CRR = 10% of RWA

	Before	After 1	After 2
RWA Banking book	67	86	86
RWA Trading book	10	10	15
Total RWA	77	96	101

Hence capital requirements = $10\% \times 101 = 10.1 > 10$

No longer CRR compliant



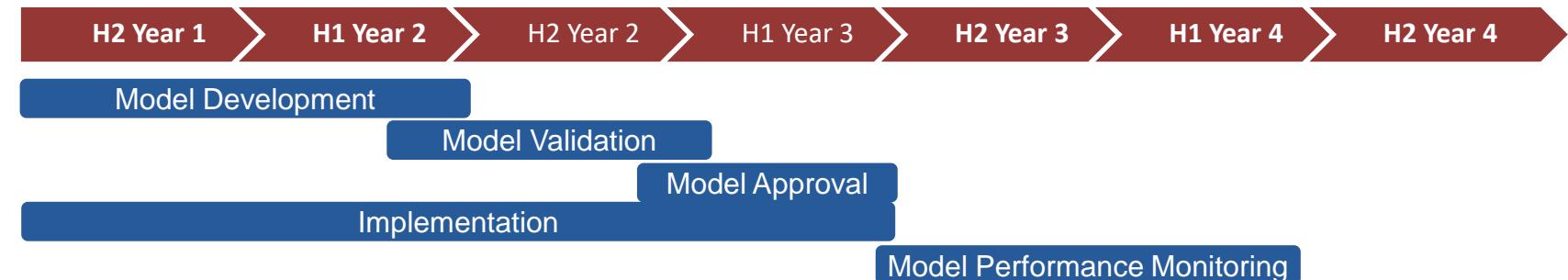
FRTB - Fundamental Review of the Trading Book

- La réforme de la FRTB s'attache à :
- Définir de manière stricte la frontière entre *Banking Book* et *Trading Book*, qui reposait jusqu'alors sur des critères considérés comme subjectifs par le Comité de Bâle :
 - Le *Banking Book* d'une banque rassemble tous les actifs qu'elle détient et qui ont vocation à être utilisés tels quels (par exemple, les bâtiments dont la banque est propriétaire, les actions de ses filiales ou des joint-ventures dont elle est copropriétaire, etc.), ou à être détenus jusqu'à leur échéance (par exemple, les titres destinés à être conservés dès l'émission jusqu'à maturité, comme par exemple les titres émis par la banque centrale et échangés contre du cash).
 - Le *Trading Book* d'une banque rassemble tous les actifs qu'elle détient et qui ont vocation à faire l'objet de négociations à court/moyen terme.
- Standardiser la calibration des « stress tests » utilisés pour calculer les risques en situation de crise financière ou économique.
- Remplacer la Value at risk (99%) par l'Expected Shortfall (97.5%) à divers horizons de liquidité, pour l'estimation au quotidien du risque de pertes.
- Prendre en compte le **risque de non-liquidité du marché**, au lieu de supposer que les positions présentes dans le *Trading Book* sont toujours liquides (c'est-à-dire que les banques peuvent toujours couvrir ces positions ou s'en débarrasser en 10 jours maximum).
- Limiter les bénéfices apportés par la couverture et la diversification, et standardiser le calcul de leur estimation (pour limiter le risque de dépendance entre actifs).
- **Limiter les écarts** d'exigences en capital entre modèles internes et approche standard, par une révision de l'approche standard, des calibrations plus proches entre approche standard et interne, l'utilisation d'un pourcentage de la valeur en approche standard comme valeur plancher des exigences en capital, l'interdiction de combiner modèle standard et modèle interne sur un même *trading desk*).
- Assurer une meilleure prise en compte du risque de crédit, et de ses composantes continues (*spread de crédit*) et discrètes (défaut, migration), avec une extension du calcul du risque au périmètre Equity. (Le risque de migration est le risque de pertes directes ou indirectes dues au changement de rating interne ou externe, à la hausse ou à la baisse, d'un émetteur).

FRTB: timeline and methodology

Timelines

Most of the RTS already in place, compliance required by 2025



- In determining the Market Risk Capital Charge, a bank may choose between the **standardised approach** and the **internal model approach** (IMA).
- The main component of the standardised approach is the risk charge under the sensitivity-based approach (SBA):
 - SBA replaces current standard rules.
 - SBA is more conservative so incentive to be on IMA.
 - SBA RWA to be disclosed in parallel to IMA RWA.
 - IMA
 - Requires model and desk-level approval.
 - Expected Shortfall on **10D** horizon will replace **1D** VAR measures.
 - VaR (based on a percentile) and expected shortfall are different ways of getting a tail risk measure from a sorted P&L vector.

All details here : <https://www.eba.europa.eu/regulation-and-policy/market-risk/draft-technical-standards-on-the-ima-under-the-frtb>

In practice : VaR vs. ES

If $X \in L^p(\mathcal{F})$ (an L^p space) is the payoff of a portfolio at some future time and $0 < \alpha < 1$ then we define the expected shortfall as

$$ES_\alpha = \frac{1}{\alpha} \int_0^\alpha \text{VaR}_\gamma(X) d\gamma$$

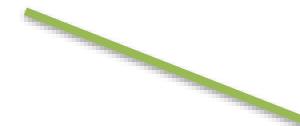
where VaR_γ is the Value at risk. This can be equivalently written as

$$ES_\alpha = -\frac{1}{\alpha} (E[X \mathbf{1}_{\{X \leq x_\alpha\}}] + x_\alpha (\alpha - P[X \leq x_\alpha]))$$

where $x_\alpha = \inf\{x \in \mathbb{R} : P(X \leq x) \geq \alpha\}$ is the lower α -quantile and $\mathbf{1}_A(x) = \begin{cases} 1 & \text{if } x \in A \\ 0 & \text{else} \end{cases}$ is the

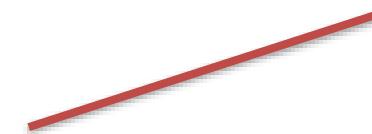
In practice : VaR vs. ES

6th worst observation =
97.5% VaR = -16.5



VaR	ES
(250 obs.)	
15.66	15.66
14.83	14.83
13.77	13.77
...	...
-14.4	-14.4
-16.5	-16.5
-18.9	-18.9
-20.2	-20.2
-21.5	-21.5
-23.6	-23.6
-27.1	-27.1

Averaging 6 worst observations =
97.5% EF = - 21.3



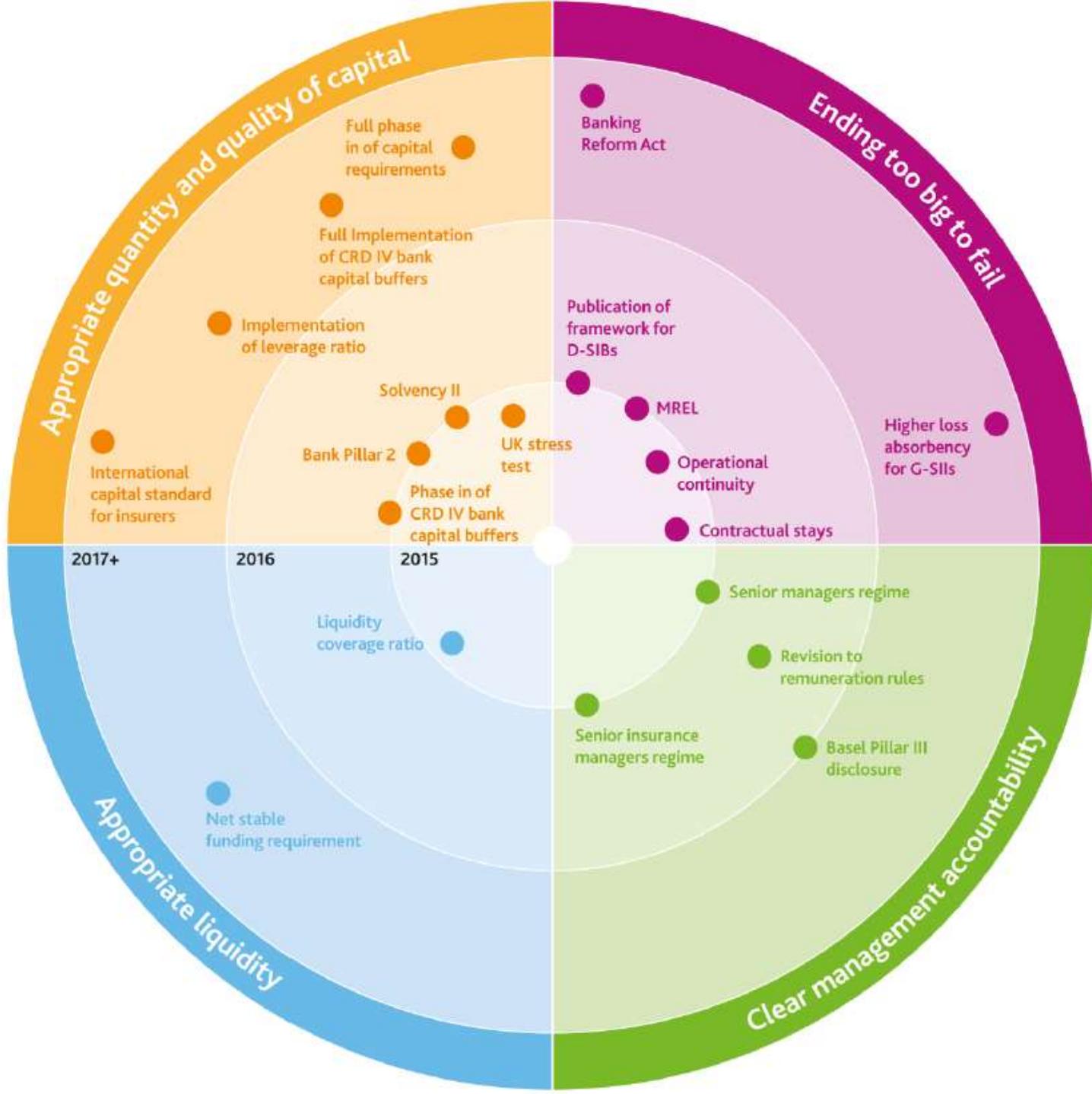
IMA: Model Validation

- There is a desk level validation of the IMA.
- Desk reverts to SBA if IMA fails one of these tests:
 - ❑ PnL attribution – called PLAT
 - Risk theoretical PnL: PnL based on the VAR methodology.
 - Front office (FO) PnL: official PnL.
 - A failure is defined as 4 bad months in a 12-month rolling window.
 - Spearman correlation and Kolmogorov-Smirnov test
 - See https://www.eba.europa.eu/sites/default/documents/files/document_library//EBA-RTS-2020-02%20Final%20draft%20RTS%20on%20Backtesting%20and%20PLA%20requirements.pdf p.14 and forward
 - ❑ Backtesting: more than 12 days where the PnL is below the ES(99%) or more than 30 days below the ES(97.5%) in a rolling 12-month period.



Non-modellable risk factors

- A risk factor is modellable if either of these is satisfied:
 - There are at least 24 real prices (actual trades or transactable broker quotes) in the past 12 months, with no more than a 1-month gap between real prices.
 - There are at least 100 real prices (actual trades or transactable broker quotes) in the past 12 months.
 - It is derived from other modellable risk factors (e.g. Zero rates derived from liquid LIBOR futures).
- Creates a data challenge that banks are likely to tackle through data pooling.



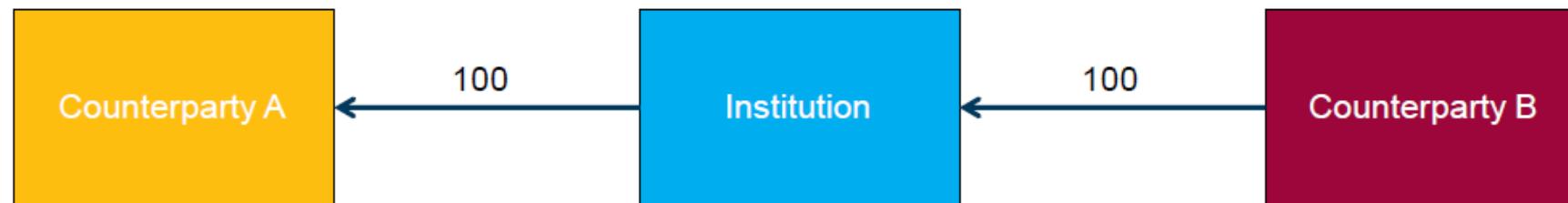


Clearing OTC derivatives: The European Market Infrastructure Regulation (EMIR)

A simplified view of a bank business model – the end of Market Risk?

- Banks act on behalf of clients. They take exposure for them, creating Market Risk
- Unless the bank has a view of market direction, it will want to hedge its Market Risk
- By doing so, the bank is transforming its Market Risk into (Counterparty) Credit Risk

In a bilateral (OTC) market, an institution being long a contract with counterparty A and short the same contract with counterparty B has counterparty credit risk.



Does the institution have market risk? What would happen if counterparty B defaulted?

- Counterparty credit risk (CCR) is the risk that the counterparty to a transaction could default before the final settlement of the transaction's cash flows. An economic loss would occur if the transaction with the counterparty has positive economic value at the time of default.



In the aftermath of the global financial crisis, policy makers embarked on regulatory changes aimed at removing risks away from the global banks and the large bilateral OTC derivatives markets

- In September 2009, the G20 set an objective of introducing mandatory clearing for standardized derivatives.

*All standardized OTC derivative contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through **central counterparties** by end-2012 at the latest. OTC derivative contracts should be reported to trade repositories. Non-centrally cleared contracts should be subject to higher capital requirements. We ask the FSB and its relevant members to assess regularly implementation and whether it is sufficient to improve transparency in the derivatives markets, mitigate systemic risk, and protect against market abuse*

- The European Union (through EMIR), the U.S. (through Dodd-Frank) and other jurisdictions in the G20 are currently developing and implementing regulations to achieve this objective.
- In addition, International regulators developed more demanding international standards for CCPs (through CPMI*-IOSCO ** Principles for Financial Markets Infrastructures (FMI)) and are working to provide guidance on recovery and resolution plans that CCPs should have in place to ensure that they can continue to provide critical services during period of financial stress.
- Global banking supervisors are supporting the G20 effort (through Basel III) by developing rules for bank capital applicable to cleared and uncleared derivatives.



Title VII of the Dodd-Frank Act implements the G20 commitment to require mandatory clearing of swaps and, where appropriate, trading of swaps on exchanges or electronic trading platforms.

US

CFTC has jurisdiction over swaps (i.e., interest rate swaps, CDS on broad-based indices, currency swaps, options and NDFs, energy and metals swaps, commodity swaps)

SEC has jurisdiction over security-based swaps (i.e., single-name CDS, swaps on a single security, swaps on a narrow-based index).

MAT (Made Available to Trade) swaps* became subject to the trade execution requirement in February 15, 2014. To be executed through a designated contract market (DCM) or **swap execution facility (SEF)**

EMIR implements the G20 commitment to require mandatory clearing and reporting to trade repositories of OTC derivatives contracts.

Europe

EMIR also introduces new requirements for CCPs, such as capital requirements, prescriptive risk management and organizational requirements.

The trading obligation in Europe will be introduced in the **Markets in Financial Instruments Regulation (MiFIR II > January 2017)**, which will require the execution of standardized and liquid derivatives on Regulated Markets, Multilateral Trading Facilities (MTFs) or Organized Trading Facilities (OTFs).

Figure 1 A complex 'web' of bilateral exposures is reduced to a more simple network via a CCP

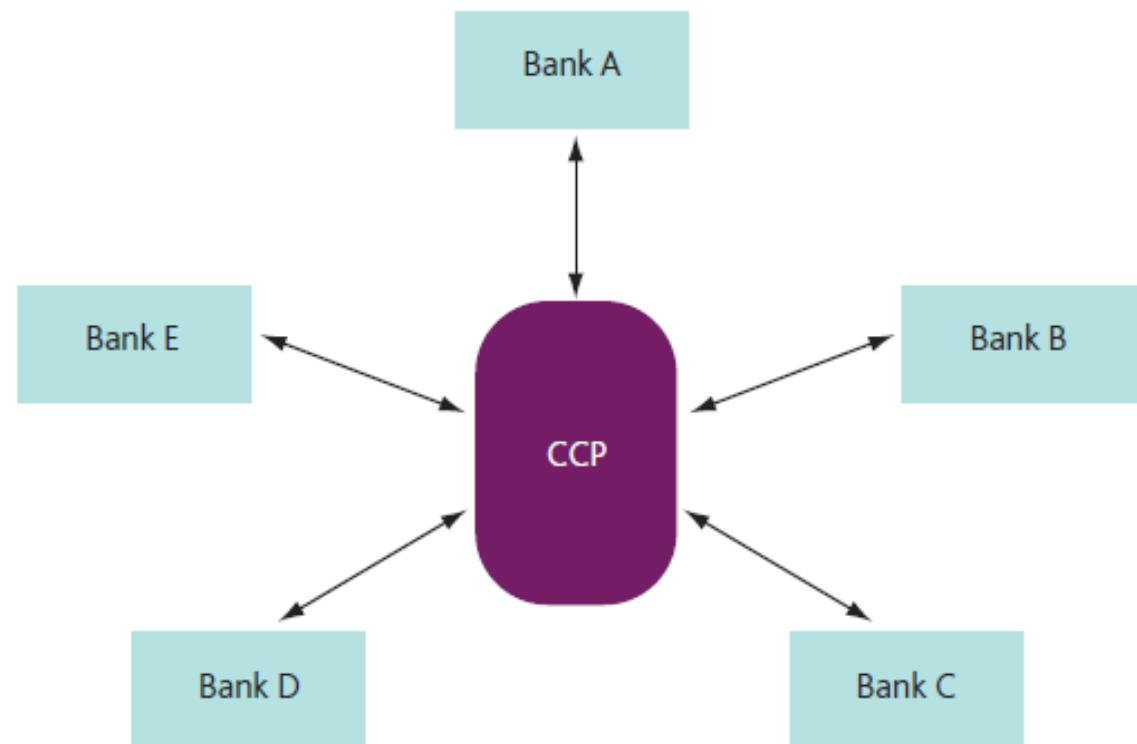
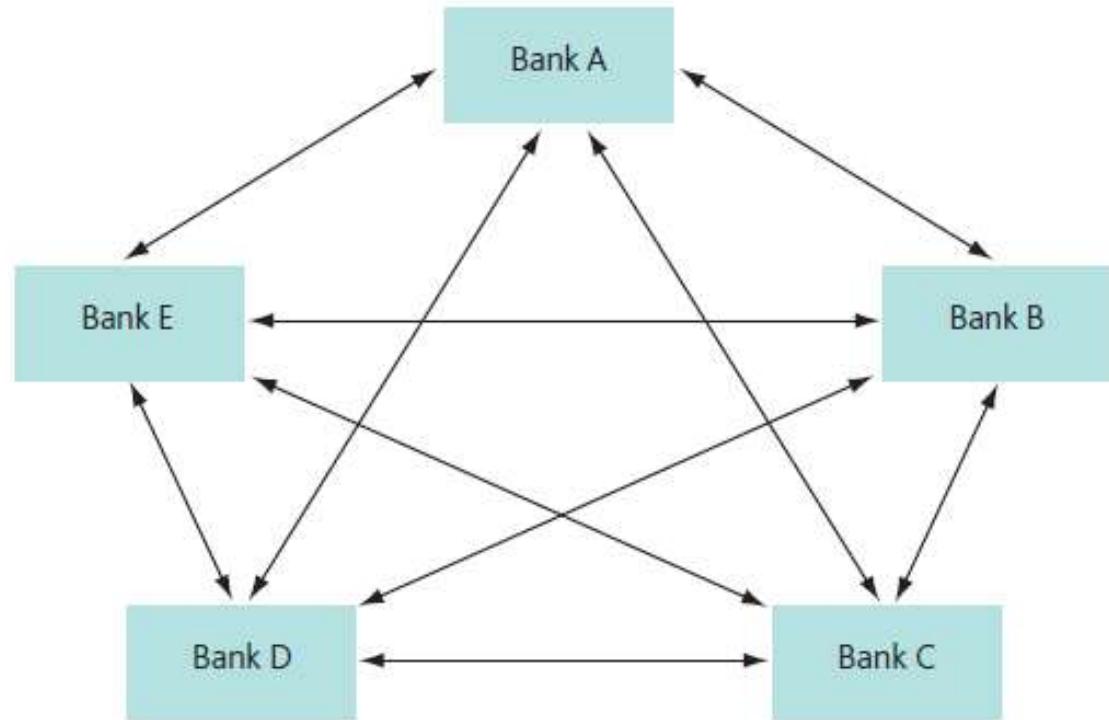
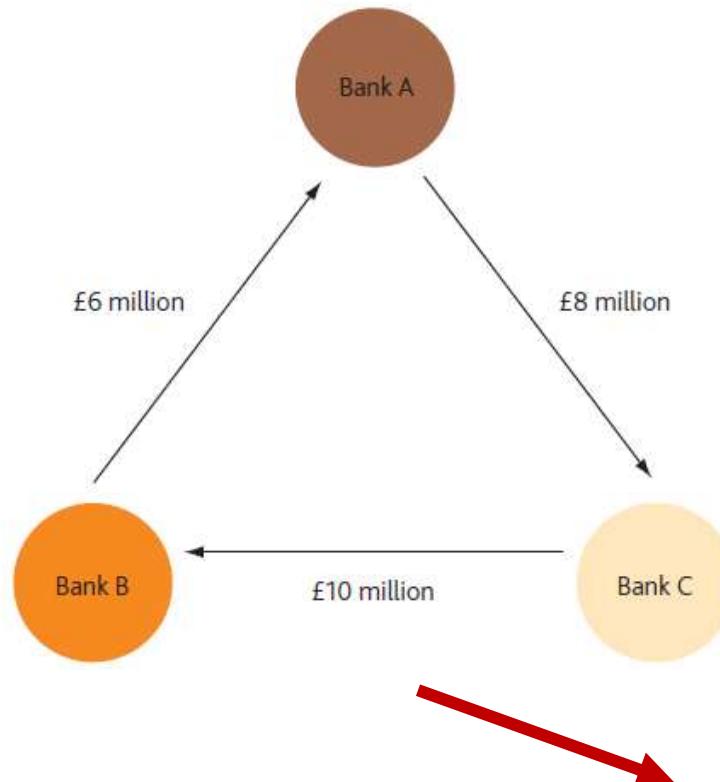


Figure 2 Netting efficiencies of central clearing

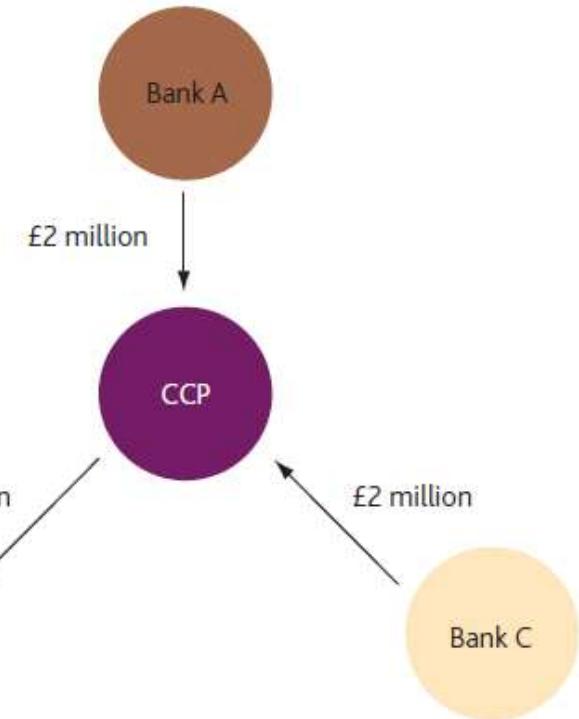
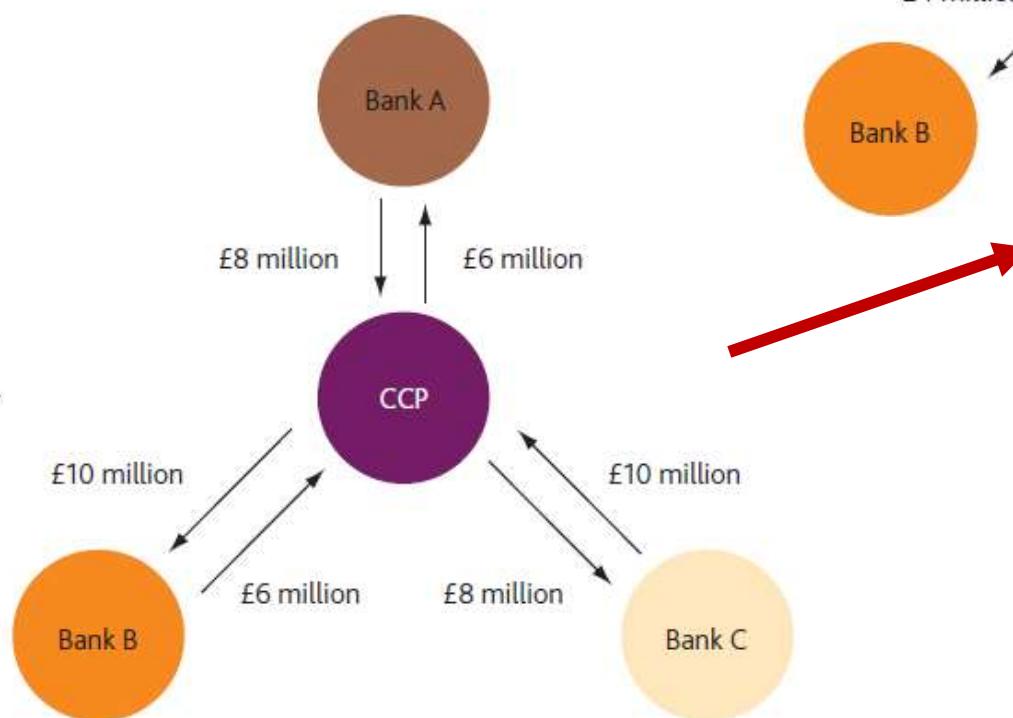
...allowing gross exposures to be netted.

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Non-cleared, bilateral trades...



...are centrally cleared using a CCP...



Note: Arrows and figures represent the direction and size of financial obligations from one bank to another.

Figure 3 A stylised CCP default waterfall

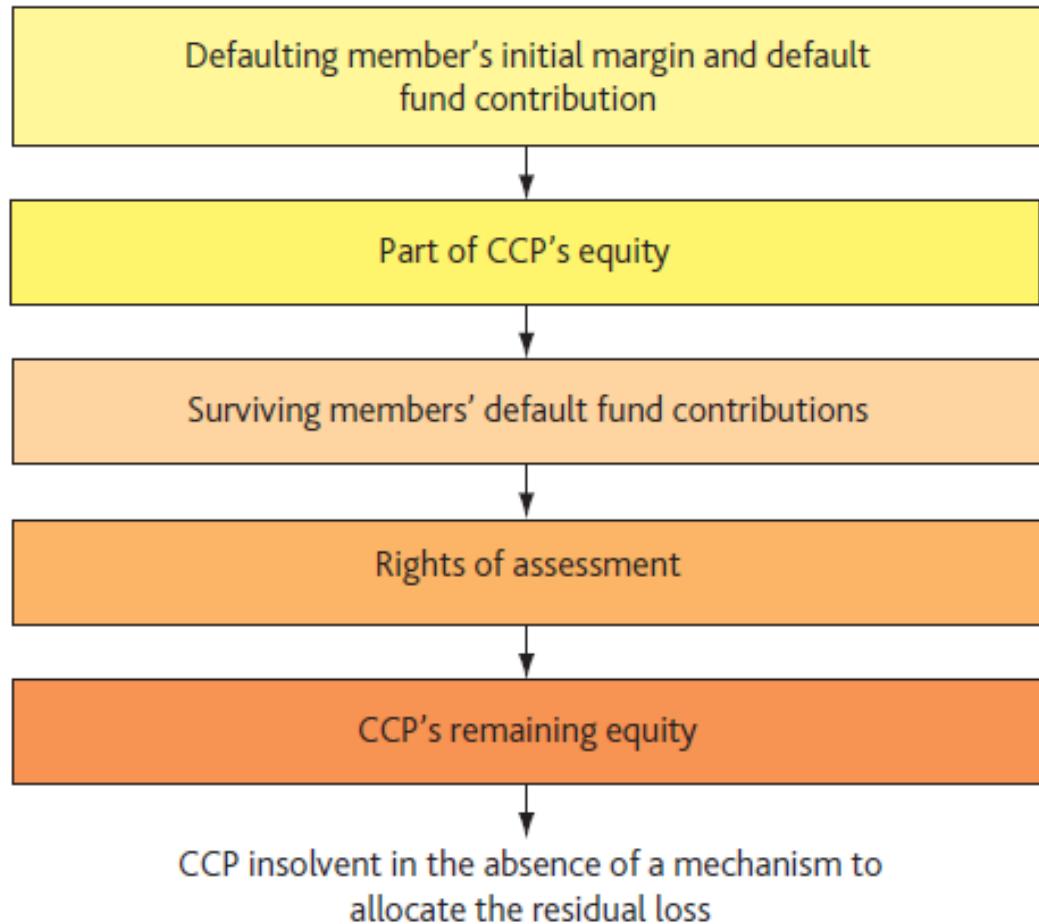


Table A Total IM and DF held at several major CCPs at end-2011

CCP	Total initial margin	Total DF size
Eurex	€50.5 billion	€1.1 billion
ICE Clear Europe	US\$13.7 billion	US\$2.9 billion
ICE Clear US	US\$976 million	US\$48 million
ICE Clear Credit	US\$8.6 billion	US\$5.3 billion
CME Group	US\$92.5 billion	US\$4.5 billion

Sources: CME Group Annual Report 2011, Eurex Clearing Annual Report 2011 and ICE Annual Report 2011.



CCP DEFAULT WATERFALL

PREFUNDED WATERFALL

Individual CM level

INITIAL MARGIN (IM) collateral of defaulting clearing member

VARIATION MARGIN (VM) collateral of defaulting clearing member

Contribution to **DEFAULT FUND** by defaulting clearing member

CCP level

CCP's SKIN IN THE GAME (SITG)

Solidarity level

MUTUALISED DEFAULT FUND of non defaulting clearing members

RECOVERY PHASE

No “MREL” or resolution pre-funded resources!

RESOLUTION

- ✓ EU CCPs are subject to “Cover 2”: they should withstand the failure of the two largest clearing member groups.

- ✓ IM: Margins collected from clearing members to protect the CCP and its members against the potential future exposure to a defaulting clearing member from the last margin collection until the liquidation of positions.

- ✓ VM: Margins collected from or paid out to clearing members to reflect current exposures resulting from actual changes in market price.

- ✓ DF: A mutualized pool of resources contributed by clearing members proportional to the risk of their positions

- ✓ SITG: 25% of the regulatory capital of the CCP capital set in EMIR and contributed by the CCP. In most other jurisdictions there is no min SITG requirement.

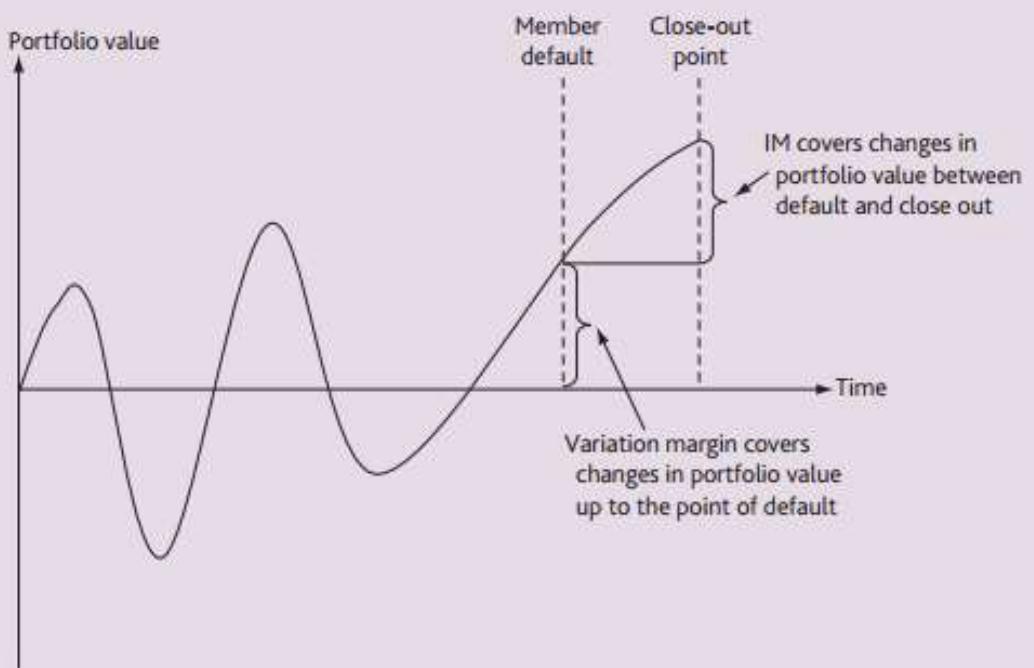
- ✓ Defined in the CCP's rulebook, which prescribes what the CCP is supposed to do in this situation. This is led by the CCP in close cooperation with the supervisor

- ✓ If the CCP is failing or likely to fail, i.e. recovery measures not performing or in the case of financial stability concerns. This is led by the Resolution Authority.



- a CCP should hold capital, including retained earnings and reserves, that is at all times at least equal to the sum of:
 - the CCP's gross operational expenses during an appropriate time span for winding down or restructuring its activities;
 - the capital necessary to cover the overall operational and legal risks;
 - the capital necessary to cover credit, counterparty credit and market risks not covered by specific financial resources;
 - the capital necessary to cover business risk. Since the level of business risk is highly dependent on the individual situation of each CCP, the capital requirement should be based on a CCP's own estimate subject to the approval of the competent authority.

Figure A Illustration of how variation margin and initial margin are used to protect the CCP against replacement costs

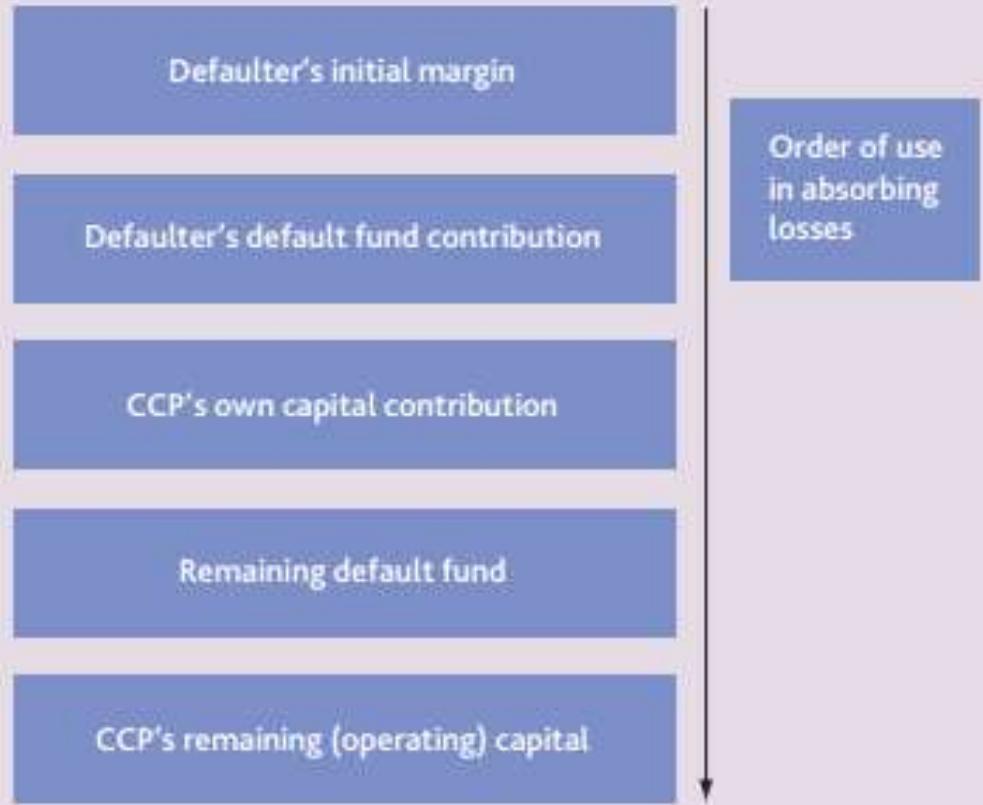


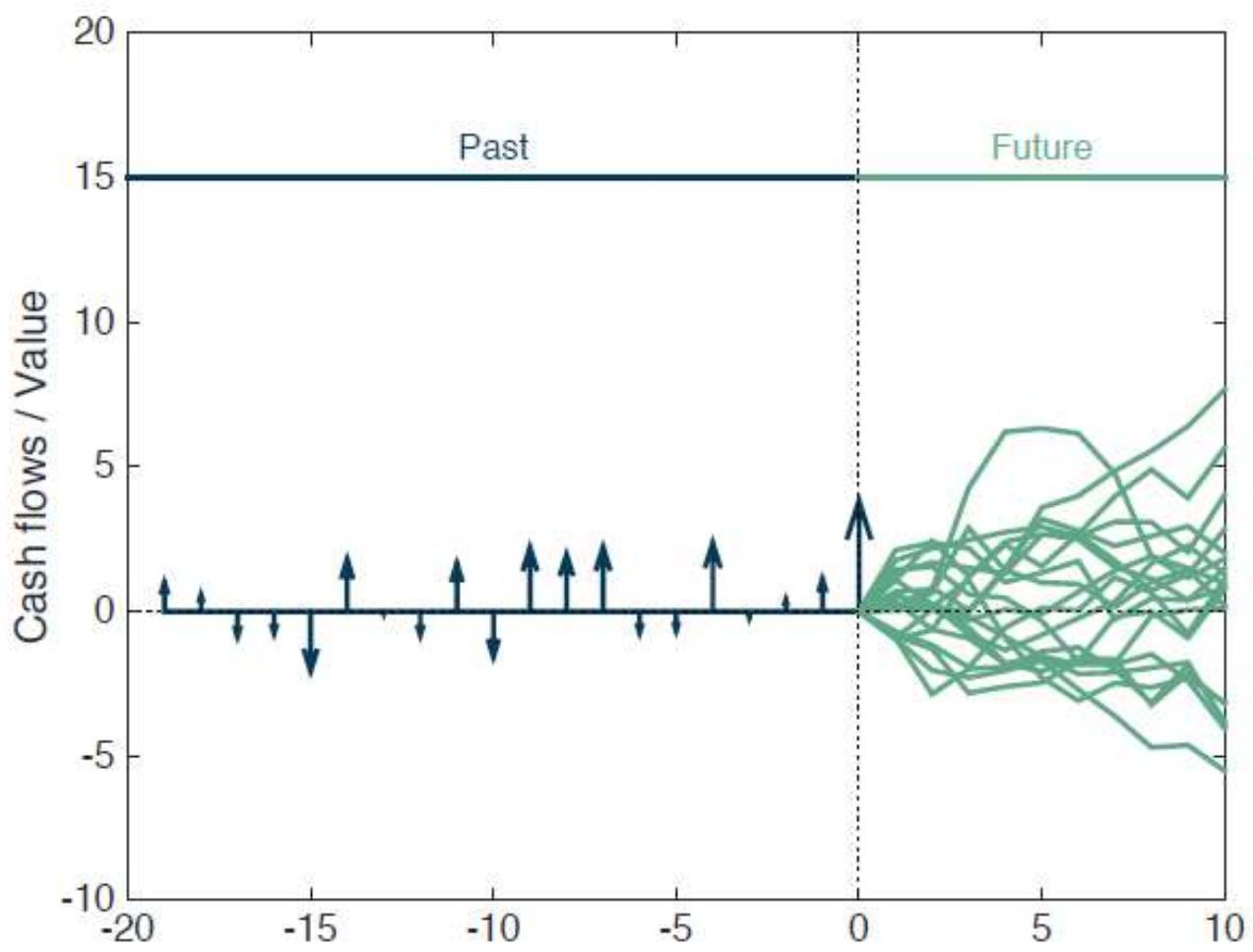
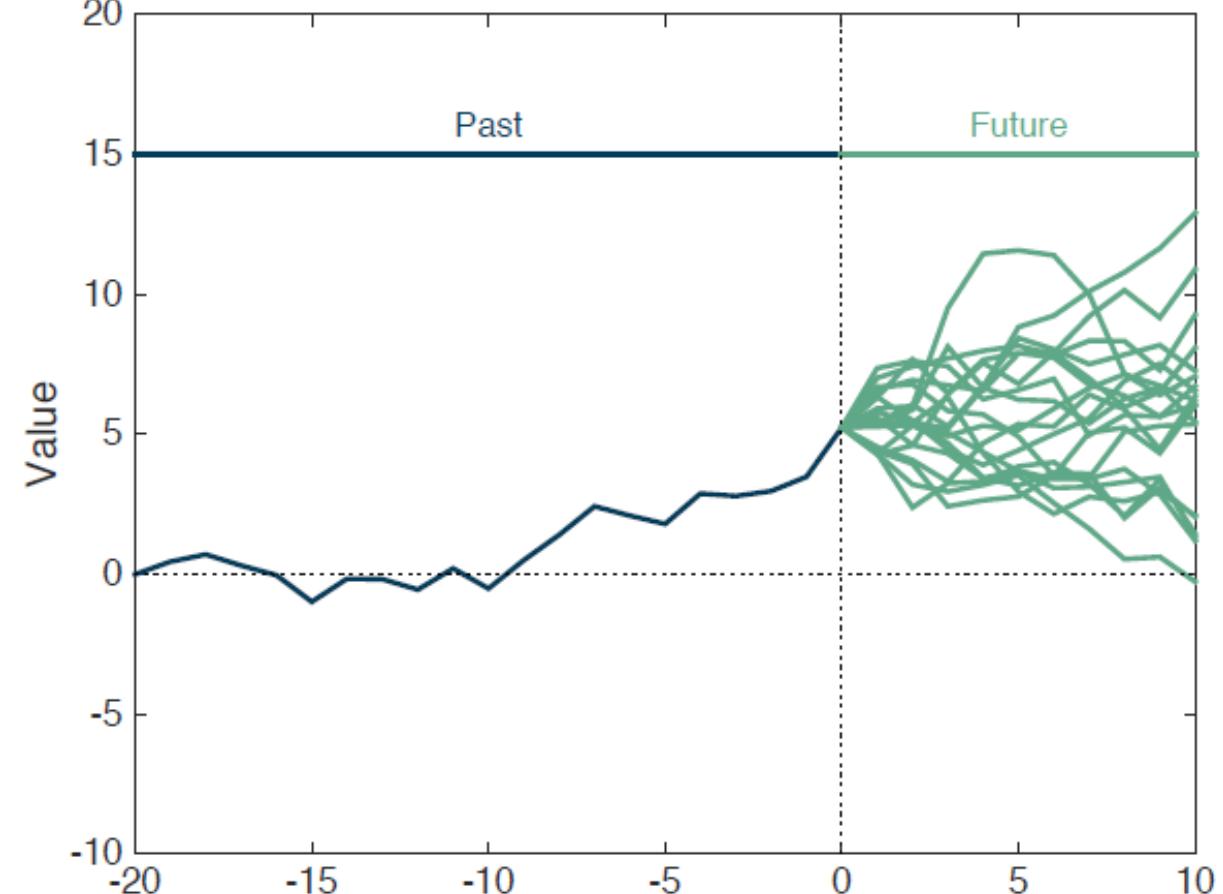
Margin Period of Risk

The *Margin Period of Risk* (MPR) is the time between a counterparty last posting of margin and when, in case of default, the surviving party has fully closed or replaced all the portfolio trades.

The MPR is set by regulation at 2 (business) days for futures, 5 days for OTC centrally cleared and 10 days for bilateral OTC derivatives.

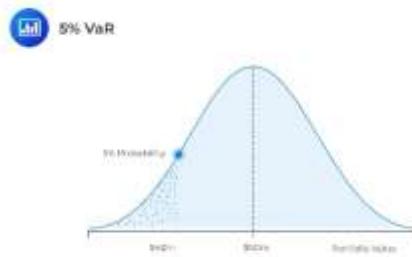
Figure B Schematic of a CCP's default waterfall © Theo Jalabert 





CCPs levy two types of margin to protect themselves against member default .

Initial margin



- Initial margin (IM) is required by CCPs to cover the largest projected loss on a given transaction or portfolio.
- Determination of CCP IM levels by risk based simulation e.g VaR and expected shortfall.
- IM can be posted in either securities (e.g. major sovereigns and MBS backed by GNMA), which might be subject to a haircut or posted in cash.

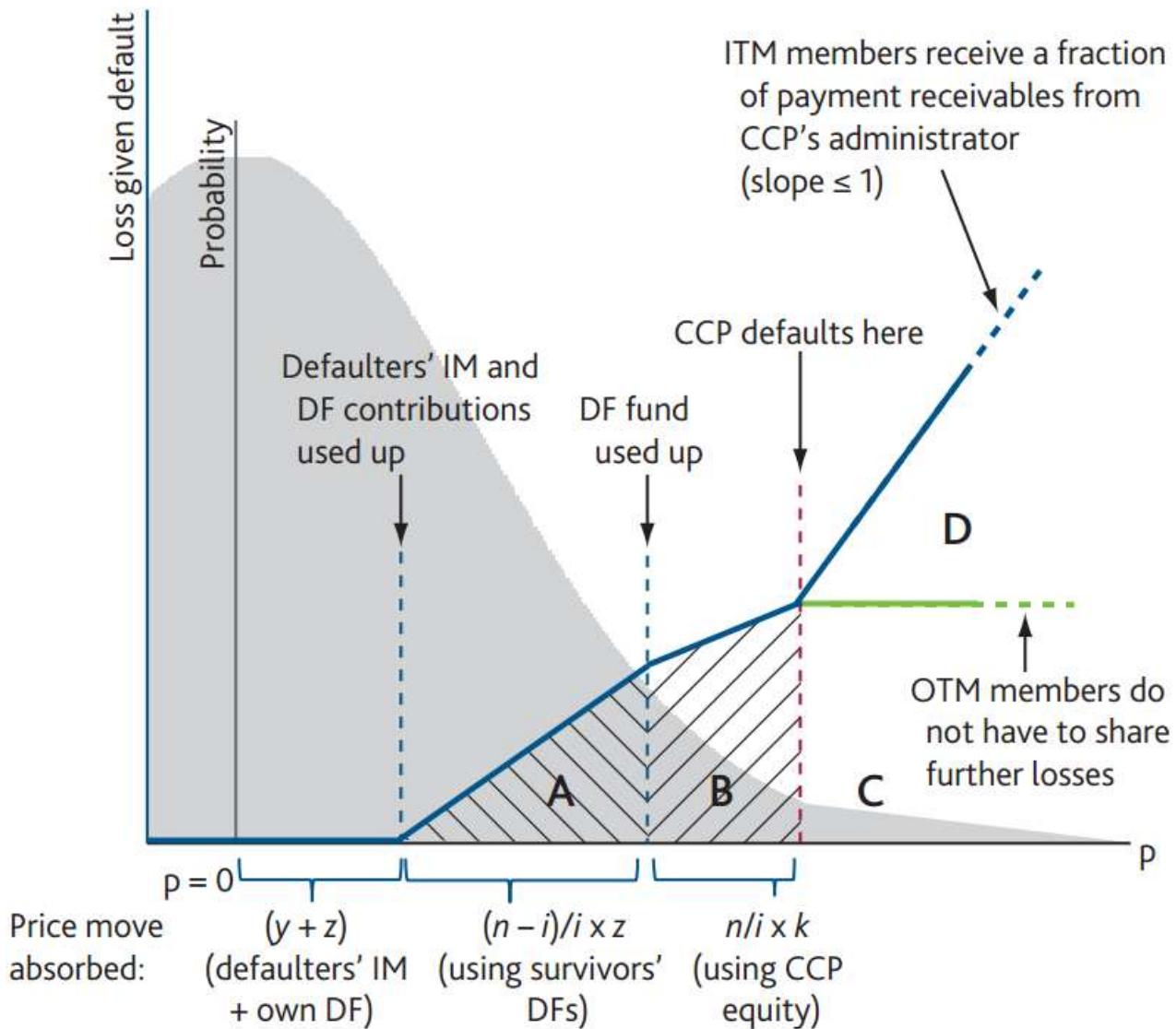
- A haircut is a discount applied to the value of margin to account for the fact that its value might deteriorate over time.
- Given rise to financial engineering (e.g. collateral swaps) to generate higher quality collateral

- Initial margin cannot be rehypothecated
- Standard Initial Margin Models (SIMM) to be introduced for non-cleared OTC derivatives. Netting of IM not permitted.

Variation margin

- Variation margin (VM) is the adjustment for the change in mark to market (MtM) values of relevant positions at frequent periodic intervals (daily for CCPs)
- VM generally posted in cash.
- Marking to CCP model (e.g. SwapClear switched to OIS discounted for swaps in 2010).

Figure 1 Potential loss of OTM and ITM members for different price moves (p) and number of defaulters (i), showing how IM and DF absorb losses



n : CCP direct members
 k : equity contribution from CCP members

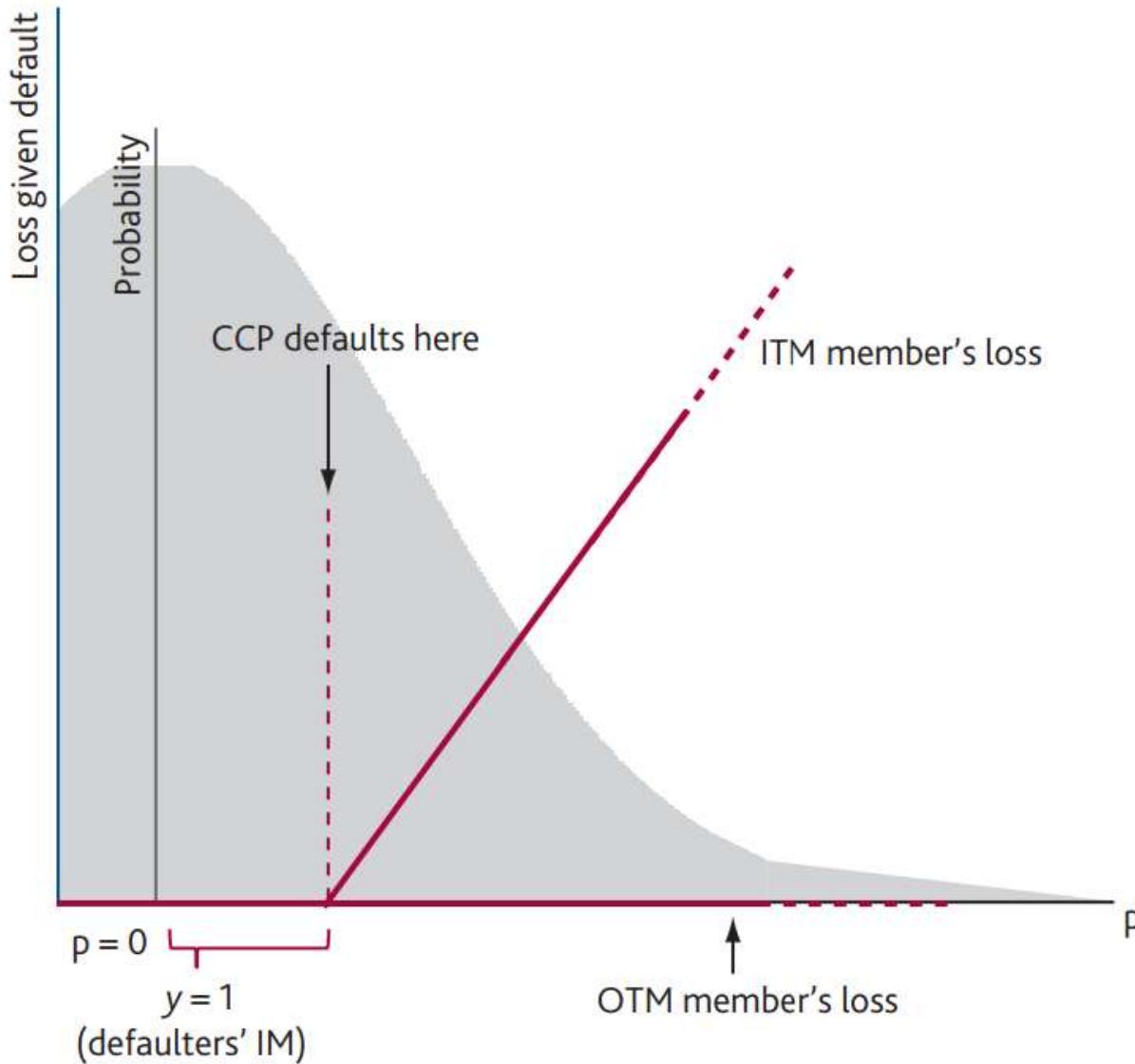
K : CCP's total capital
 $K = n \times k$

i : number of defaulters
 p : price moves

y : IM contribution from one CCP member

z : DF contribution from one CCP member

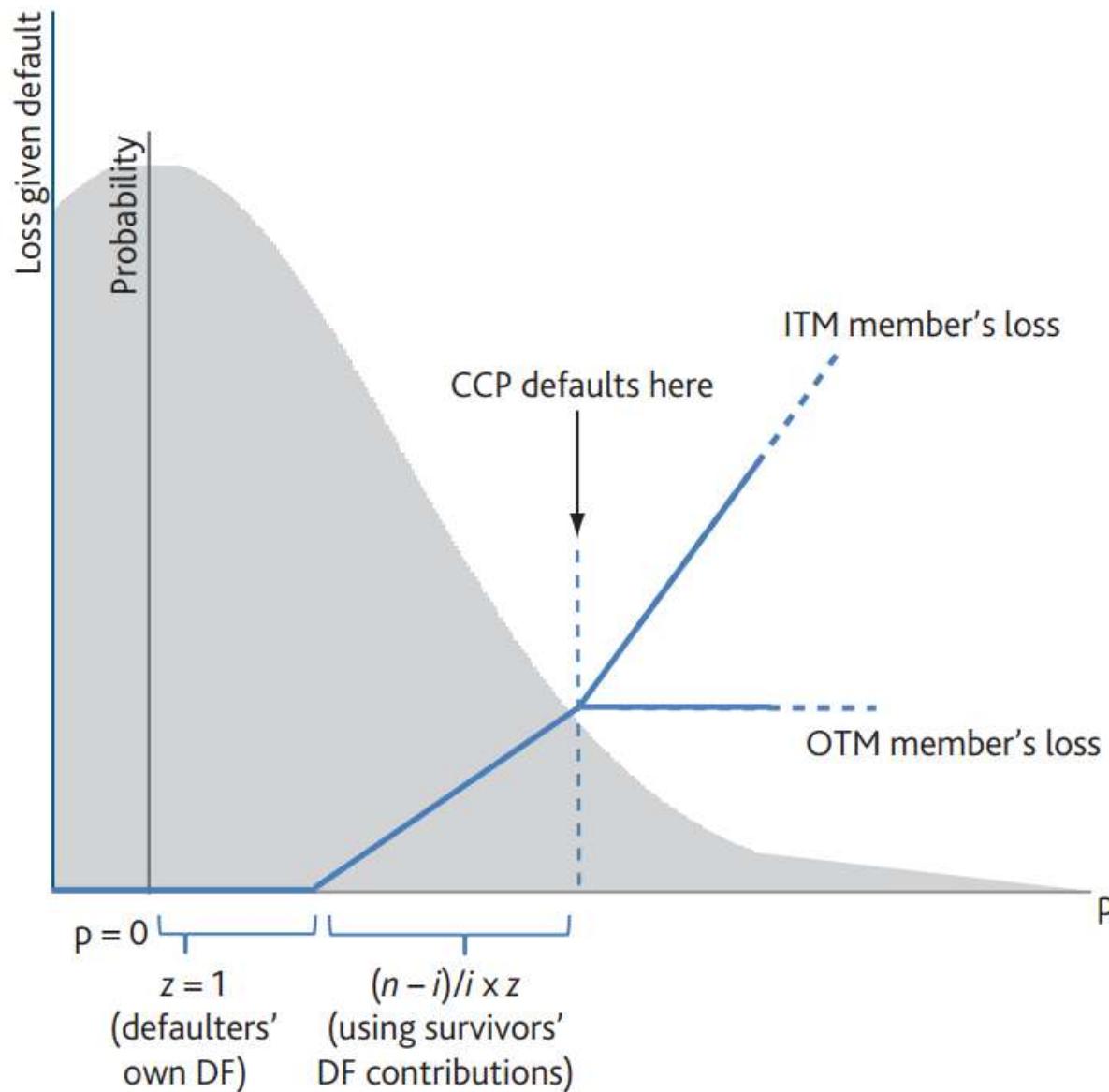
Figure 2 Loss given default where the CCP collects only IM



IM only :

- CCP defaults as soon as the defaulters' IM is exhausted
- ITM members bear the losses

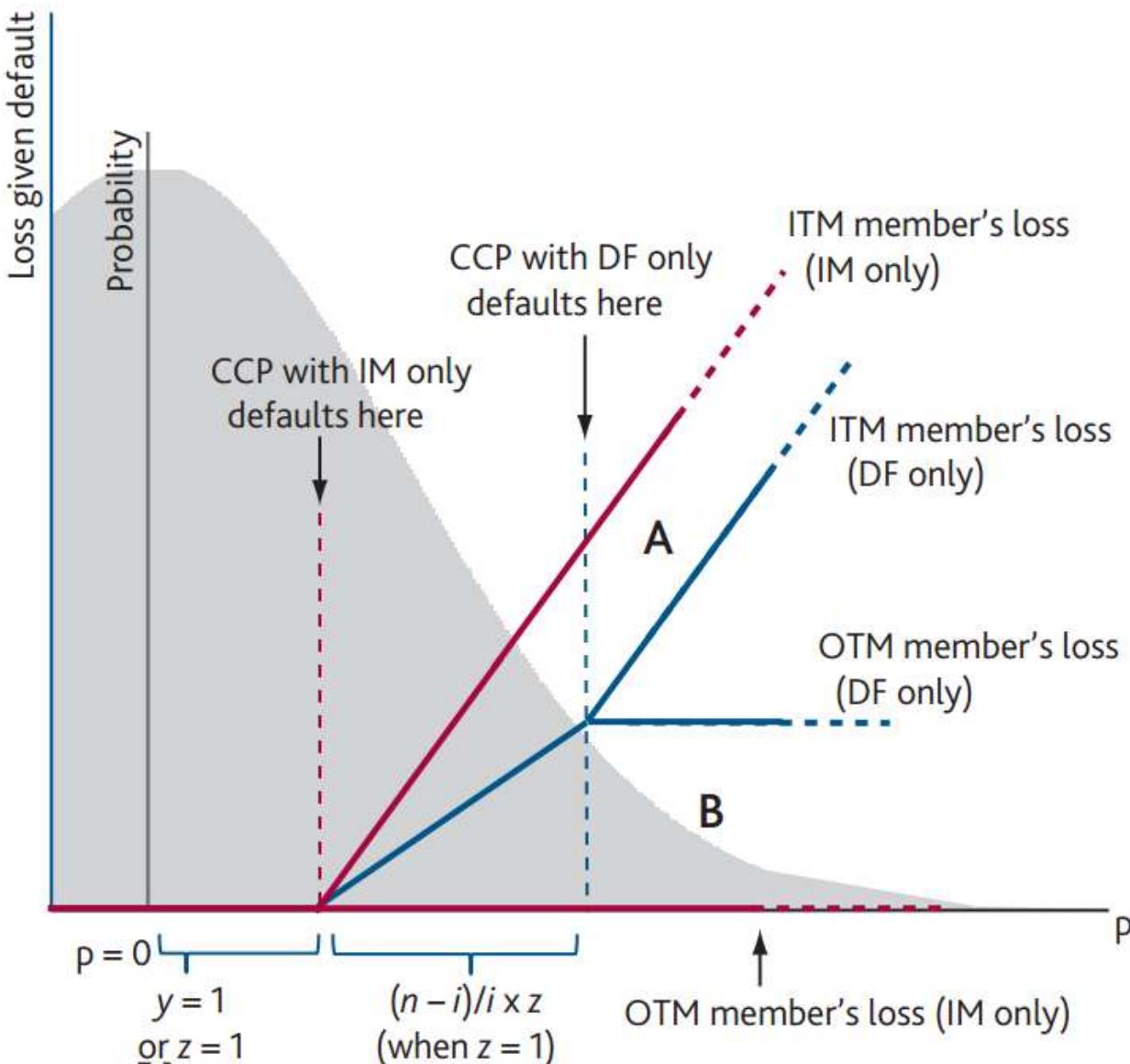
Figure 3 Loss given default where the CCP collects only DF



DF only :

- CCP defaults as soon as the defaulters' and survivors' DFs are exhausted
- OTM and ITM members bear the losses, with bigger losses for ITM members

Figure 4 Comparison of the loss given defaults for the collection of only DF or IM



DF :

- Better at protecting the CCP and players
- Mutualises losses

→ Financial Stability

IM :

- Better at protecting OTM members

→ Market discipline

Both are used to balance market discipline and financial stability

“Skin in the game” (SIG) is supposed to align the interests of the CCP and its clearing members

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- Under European regulation (EMIR), CCPs are required to have 25% of its own capital at risk in the default fund.
- However, this can amount to as little as 2.6%* when viewed as a capital-to-default fund ratio.
- SGX requires CCPs to contribute capital equal to 25% of their guarantee fund
- The US does not prescribe any standards on CCP SIG

CCP	Guarantee fund (million)	SIG (million)	SIG%
LCH Swapclear	£2,487	€45.2	1.27
Ice Clear Credit	\$1,834	\$50	2.73
CME (rates)	\$2,473	\$150	6.07
EUREX OTC Clearing	€3,310	€50	1.51

SIG to guarantee fund ratios of designated CCPs

Guarantee fund and SIG data based on public disclosure from each CCP.

LCH data as of May 29 2015; ICE, CME and Eurex data as of March 31, 2015

*Risk 3rd August 2015 CCPs Need Thicker Skins

In 2014, HanMag Securities, a futures broker on KRX defaulted as a result of an algorithmic trading error (lasting 143 seconds). KRX mutualised a loss of USD 4.3m to other members without incurring any loss themselves



Challenges and Considerations

Historically CCPs have centrally cleared exchange traded derivatives



OTC derivatives are typically less liquid, longer dated and more complex

CCPs transfer risk but don't remove it.



CCPs will become systemically important (too big to fail)

Increased margin requirements will add to market participants costs and might create markets instabilities



Increased demand for (scarcer) liquid collateral
Forced liquidation of trading inventory to meet CCP margin calls
Initial margins increase in volatile markets

Loss mutualisation



Loss mutualisation homogenises credit risk so that all CCP members are more or less equal. The most creditworthy members might see less advantage in their stronger credit quality.

Adverse selection (insured know more about risk than the insurer)



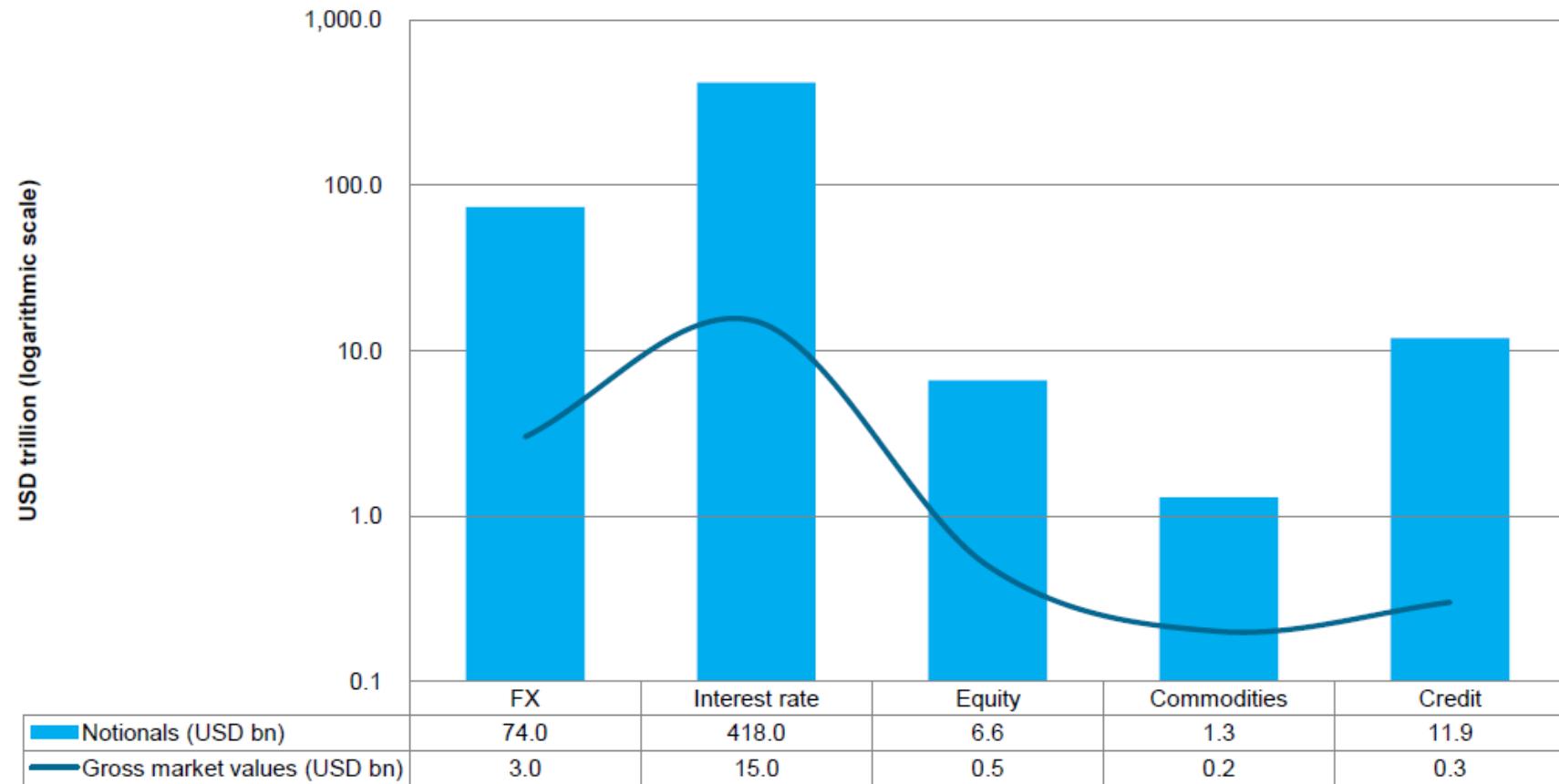
Members might over trade products for which the CCP underestimates risk and vice versa
Many derivatives firms specialise in understanding and trading risk and are likely to have better information and resources than CCPs.

Reinventing the wheel?



The advantages of CCPs (netting, margining, transparency, loss mutualisation and default management) are largely available in the bilateral markets (trade compression, collateralisation and transparency via reporting to repositories)

Notional amounts outstanding ≈ \$544tn (H1 2016)



Source: BIS: Derivatives statistics at H1 2016

► OTC derivatives:

- ▶ are derivatives which are **privately negotiated and not traded on an exchange or through other intermediaries**, so there is minimal intermediation or regulation. This means that they do not have standardised terms and are not listed on exchanges. Products such as swaps and forward rate agreements are generally traded in this way.
- ▶ their value is determined by the value of its underlying asset, which can include bonds, stocks, commodities or currencies.
- ▶ **account for almost 95% of the derivatives markets.**

Global OTC derivatives market – In bn of US dollars*	
Interest rate contracts	448,965
Foreign exchange contracts	92,177
Credit default swaps	7,578
Equity-linked contracts	6,874
Commodity contracts	2,124
Total	558,505

- ▶ **CCPs are a focal point for derivative transactions** (becoming the buyer to every seller and the seller to every buyer). Therefore, they provide transparency and reduce risks in the derivatives markets.
- ▶ Before the financial crisis, derivatives traded outside regulated markets were usually not cleared through CCPs. In 2012 the EU adopted the European market infrastructure regulation (**EMIR**) which aimed to increase transparency in the OTC derivatives markets.



Quelques leçons pratiques ...

Procyclicalité,
Concentration du risque,
G-SIBs / TBTF encore plus systémique
Problèmes de liquidité (GameStop ...)
Model risk
Covid & Central banks

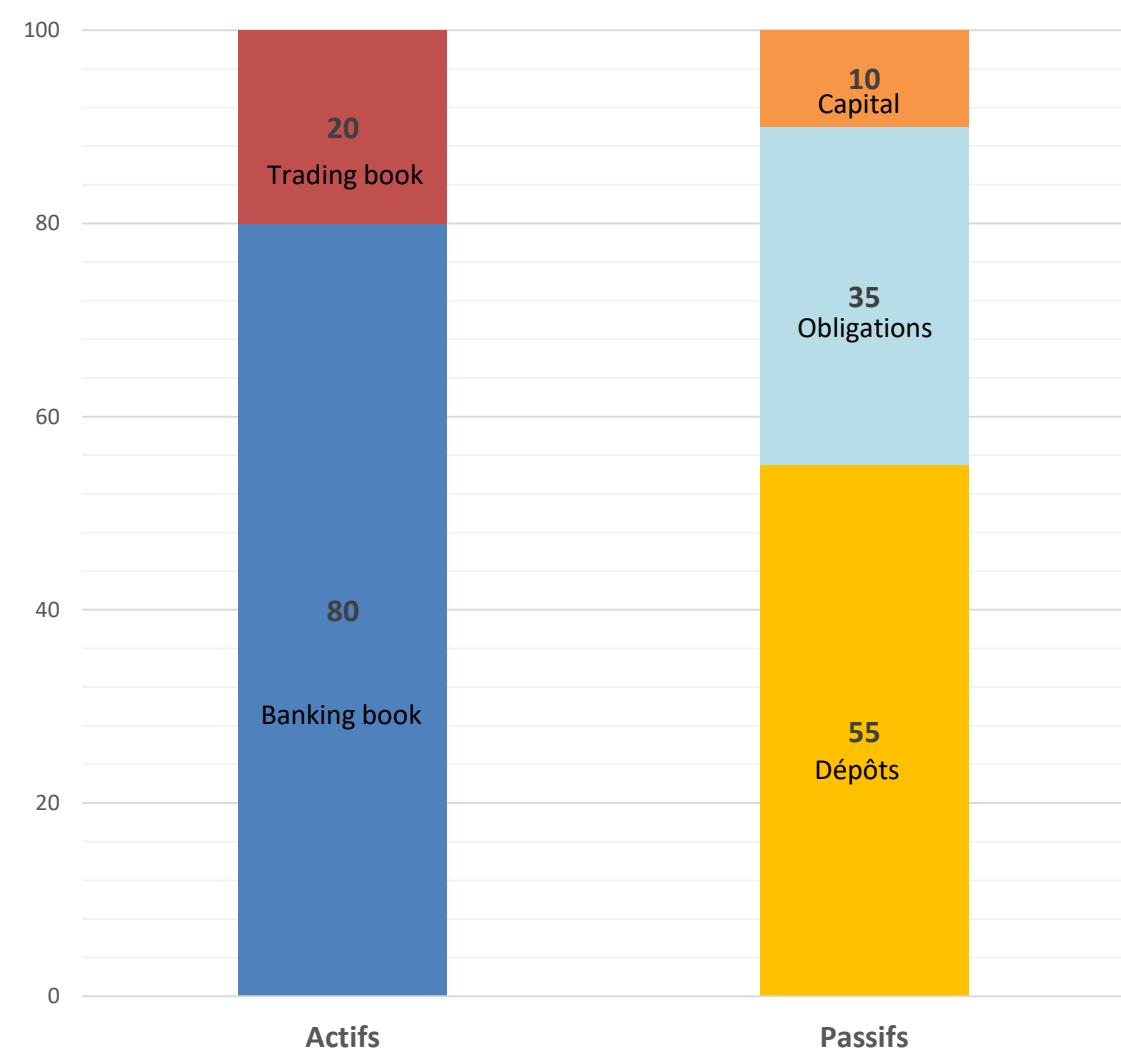
In practice ...

	Actifs		Passifs
Banking book	80	Depots	55
Trading book	20	Obligations	35
		Capital	10
TOTAL	100	TOTAL	100

CRR = 10% of RWA

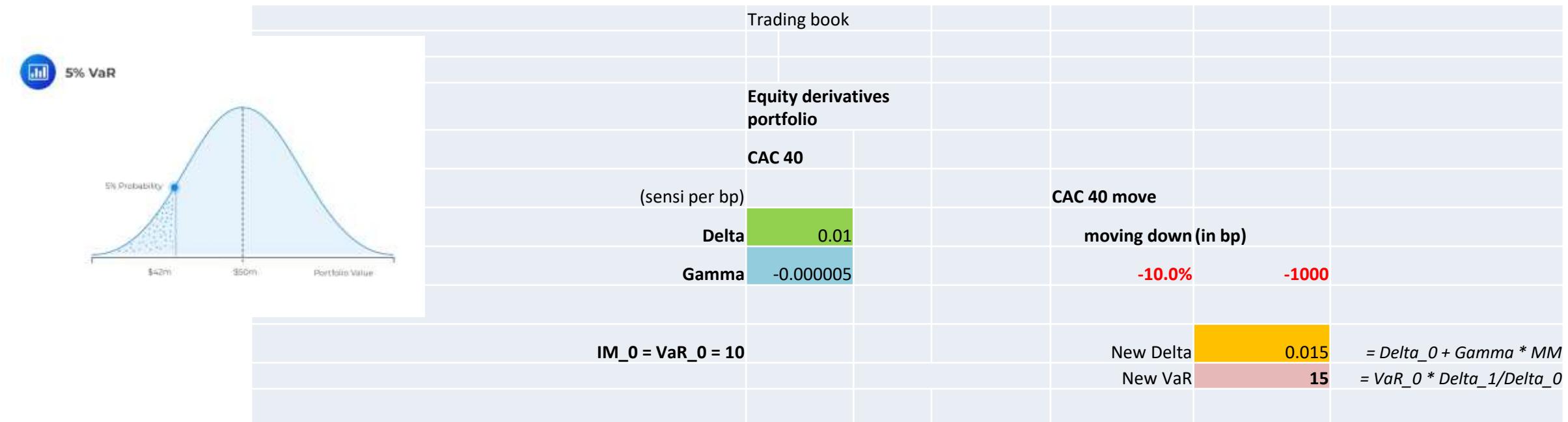
RWA Banking book	67
RWA Trading book	10
Total RWA	77

Bank Y Balance Sheet



In practice ... Change of IM

Assuming IM = Var 95%



$$\text{PnL}(x) = V(x_1) - V(x_0) = (x_1 - x_0) * \Delta V(x_0)$$

$$\text{VaR} = \text{quantile Losses} = V(x_{\text{quantile}}) - V(x_0) = (\text{MM}_{\text{quantile}}) * \Delta V(x_0)$$

Let's assume the trading book is cleared. What does the bank will have to post as extra IM and VM after the shock?

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Let's assume the trading book is cleared. What does the bank will have to post as extra IM and VM after the shock?

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Assuming VaR = IM = 10

Trading book						
		Equity derivatives portfolio				
		CAC 40				
		(sensi per bp)				
Delta		0.01				
Gamma		-0.000005				
			CAC 40 move			
			moving down (in bp)			
				-10.0%	-1000	
Var = Expected Losses = Delta x quantile				New Delta	0.015	
Hence Quantile = Expected Losses/Delta			-1000 = 95% worst quantile	New RWA	15	
		=-10/0.01				

	Delta	Gamma	Total
Losses	-10	-2.5	-12.5
	=0.01*-1000	=(-1000)^2*(-0.000005)/2	

Extra IM	5	= Change in VaR
VM	12.5	= PnL
TOTAL	17.5	

Let's assume the trading book is cleared. What does the bank will have to post as extra IM and VM after the shock?

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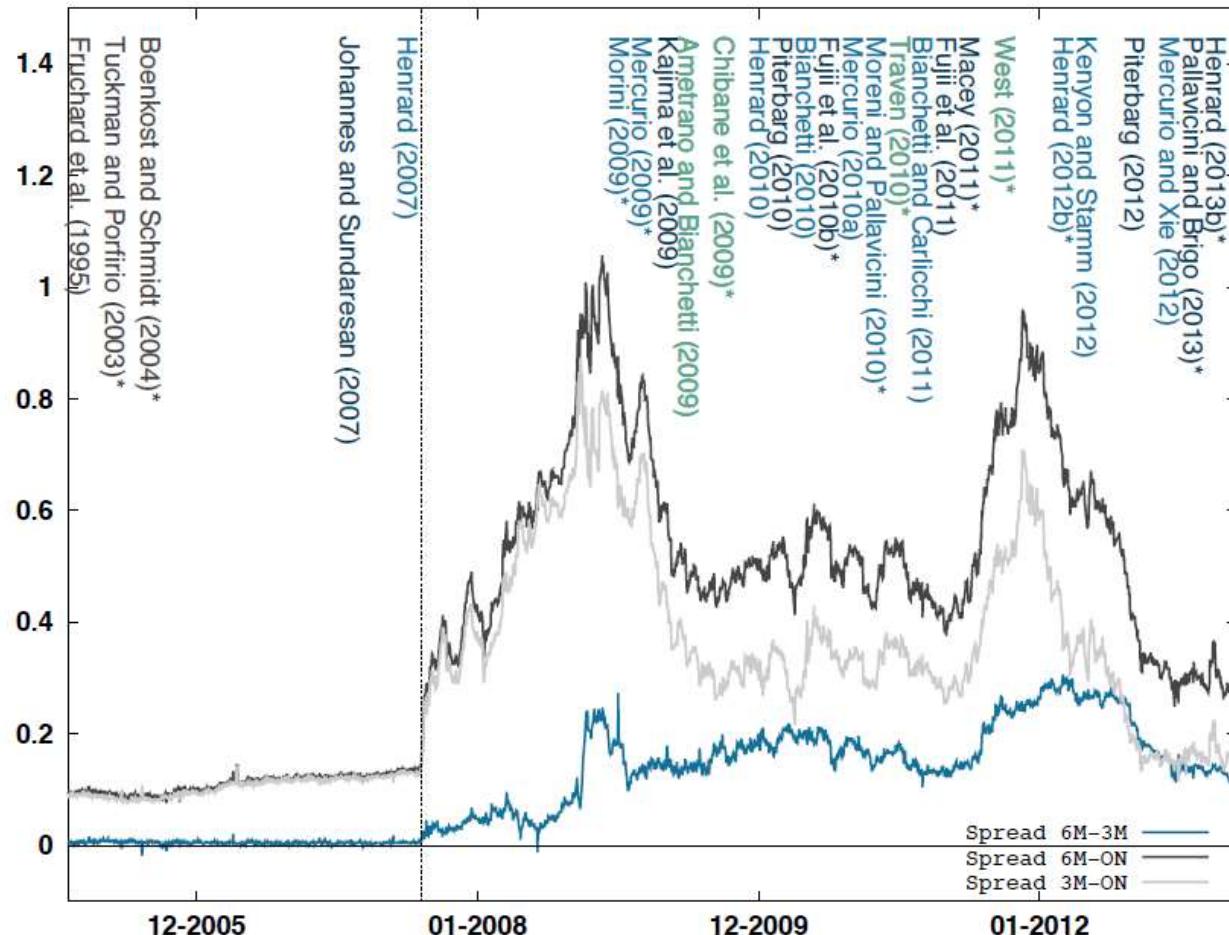
Which downside of the clearing process does this emphasize ?

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After August 2007: multi-curve framework

Multi-curve framework



Curve calibration

Collateral

Assume A buys some collateralized asset from B (“buying” and “selling” in this context are somewhat meaningless but we keep the terminology for simplicity).

1. Purchase of the asset. The amount of $V(t)$ is paid by A to B
2. Collateral at t . Since A’s mark-to-market is $V(t)$, the amount $V(t)$ of collateral is posted by B to A
3. Return of collateral. At time $t + dt$ A returns collateral $V(t)$ to B
4. Interest. At time $t + dt$, A also pays $V(t)c(t)dt$ interest to B
5. New collateral. The new mark-to-market is $V(t + dt)$. Party B pays $V(t + dt)$ in collateral to A.

Note that there is no actual cash exchange at time t . At time $t + dt$, net cash flow to A is given by

$$V(t + dt) - V(t)(1 + c(t))dt = dV(t) - c(t)V(t)dt.$$

As already noted, at time $t + dt$, the MTM+collateral for each party is 0, meaning they can terminate the contract (and keep the collateral) at no cost.

- Start by assuming two assets both collateralized with rate $c(t)$
- In real world measure the asset prices follow

$$dV_i(t) = \mu_i(t)V_i(t) dt + \sigma_i(t)V_i(t) dW(t), \quad i = 1, 2. \quad (1)$$

- Note the same Brownian motion. Case of a stock (i.e. a repo transaction with stock) and an option on that stock.
- At time t form a portfolio to hedge the effect of randomness of $dW(t)$ on the cash exchanged at time $t + dt$ (no cash exchange at t)
- Go long asset 1 notional $\sigma_2(t)V_2(t)$ and go short asset 2 notional $\sigma_1(t)V_1(t)$
- The cash exchange at time $t + dt$ is then equal to

$$\begin{aligned} & \sigma_2(t)V_2(t) (dV_1(t) - c(t)V_1(t) dt) - \sigma_1(t)V_1(t) (dV_2(t) - c(t)V_2(t) dt) \\ &= \sigma_2(t)V_1(t)V_2(t) (\mu_1(t) - c(t)) dt - \sigma_1(t)V_1(t)V_2(t) (\mu_2(t) - c(t)) dt \end{aligned}$$

- This amount is known at time t and the contract can be terminated at $t + dt$ at zero cost. Hence, the only way both parties agree to transact on this portfolio (no arbitrage), this cash flow must actually be zero

- Hence

$$\sigma_2(t) (\mu_1(t) - c(t)) = \sigma_1(t) (\mu_2(t) - c(t)).$$

- Using this we can rewrite (1) as

$$dV_i(t) = c(t)V_i(t) dt + \sigma_i(t)V_i(t) d\tilde{W}(t), \quad i = 1, 2, \quad (2)$$

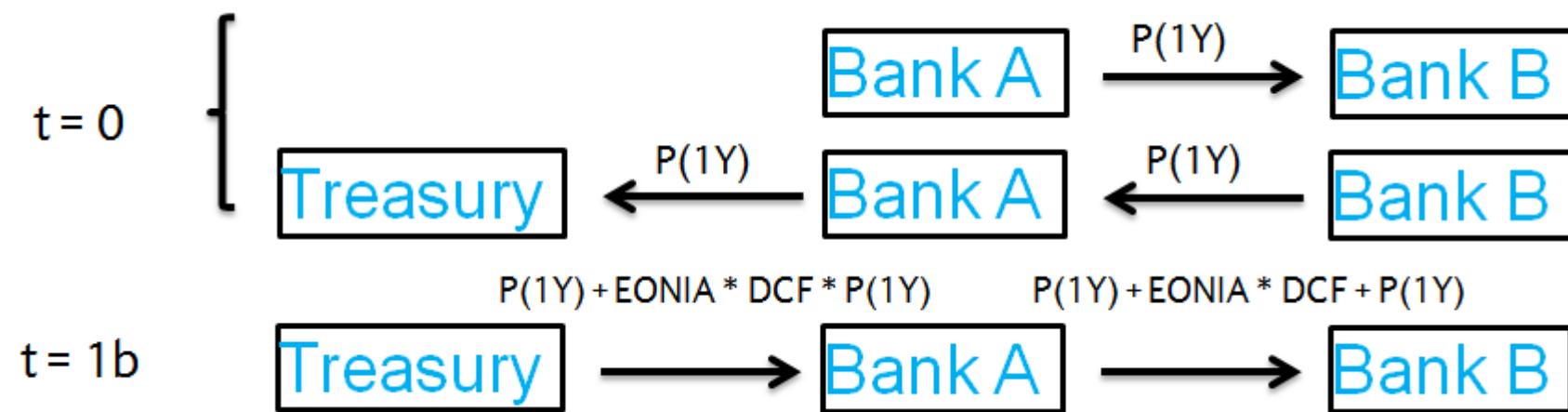
where

$$d\tilde{W}(t) = dW(t) + \frac{\mu_1(t) - c(t)}{\sigma_1(t)} = dW(t) + \frac{\mu_2(t) - c(t)}{\sigma_2(t)}.$$

- Now, looking at (2) we see that there exists a measure Q , equivalent to the real world one, in which both assets grow at rate $c(t)$. This is the analog to the traditional risk-neutral measure.
- In Q , the price process for each asset is given by

$$V_i(t) = E_t^Q \left(e^{-\int_t^T c(s) ds} V_i(T) \right), \quad i = 1, 2. \quad (3)$$

- Collateral account is what replaces money-market account of the traditional theory
- Collateral rate replaces r
- Collateralized assets should be priced using collateral, usually OIS (Fed-Funds, Eonia) discounting curve
 - Not government curve





Initial Margin

The *initial margin (IM)* targets the *margin period of risk (MPR)* potential exposure. “Initial margin” is computed and exchanged on a regular basis, like the variation margin. It is an “initial” margin only in the sense that it is an estimation of the potential changes in the value of the contract, which is computed in advance before these changes actually occur, it is computed at the initial date of the MPR. The IM is adapted to the actual market level at the same time as the variation margin. Like Market Risk Capital Requirement calculation, usually based on Value-At-Risk or Expected Shortfall.

LCH - SwapClear - Initial Margin

The methodology used by SwapClear is called *Portfolio Approach to Interest Rate Scenarios* (PAIRS).

The computation is based on an expected short fall at 99.75% based on 10Y of historical data (6 worst out of 2,500 scenarios). The base data is in a *single curve framework*.

If $X \in L^p(\mathcal{F})$ (an Lp space) is the payoff of a portfolio at some future time and $0 < \alpha < 1$ then we define the expected shortfall as

$$ES_\alpha = \frac{1}{\alpha} \int_0^\alpha \text{VaR}_\gamma(X) d\gamma$$

where VaR_γ is the Value at risk. This can be equivalently written as

$$ES_\alpha = -\frac{1}{\alpha} (E[X 1_{\{X \leq x_\alpha\}}] + x_\alpha (\alpha - P[X \leq x_\alpha]))$$

where $x_\alpha = \inf\{x \in \mathbb{R} : P(X \leq x) \geq \alpha\}$ is the lower α -quantile and $1_A(x) = \begin{cases} 1 & \text{if } x \in A \\ 0 & \text{else} \end{cases}$

In practice : VaR vs. ES

6th worst observation =
97.5% VaR = -16.5

VaR	ES
(250 obs.)	
15.66	15.66
14.83	14.83
13.77	13.77
...	...
-14.4	-14.4
-16.5	-16.5
-18.9	-18.9
-20.2	-20.2
-21.5	-21.5
-23.6	-23.6
-27.1	-27.1

Averaging 3 worst observations =
99% ES = - 24.1

LCH - SwapClear - scenarios

For each currency j and each scenario i ($-2504 \leq i \leq -5$)

$$r_{i,j} = p_{i+5,j} - p_{i,j}. \quad (1)$$

Use Exponentially Weighted Moving Average to calculate a volatility $\sigma_{i,j}^2$ for each date i and risk factor j . Volatility is:

$$\sigma_{i,j}^2 = \lambda \sigma_{i-1,j}^2 + (1 - \lambda) r_{i,j}^2.$$

The EWMA factor λ is equal to 0.992.

The scaled return $\tilde{r}_{i,j}$ is given by

$$\tilde{r}_{i,j} = r_{i,j} \left(\frac{\sigma_{i+5,j} + \sigma_{0,j}}{2\sigma_{i+5,j}} \right) = r_{i,j} \left(\frac{1}{2} + \frac{1}{2} \frac{\sigma_{0,j}}{\sigma_{i+5,j}} \right).$$

The interest rate parameters are computed as

$$\bar{p}_{i,j} = p_{0,j} + \tilde{r}_{i,j}.$$

LCH - SwapClear - Scenarios

The IM itself is computed in the following way:

- Compute portfolio value for each currency and each scaled and non-scaled scenario in local currency.
- Convert scenario P/L to GBP at scenario FX rates.

$$(PV^C(i) - PV^C(0)) \times \bar{FX}_{i,C}$$

- Sum P/L for the portfolio per scenario for scaled and non-scaled scenarios.
- Compute the expected shortfall of the scaled scenarios P/L at 99.75%, i.e. the average of the worst 6 scenarios.
- (Since May 2014) Compute the VaR of the non-scaled scenarios P/L at 99.5%, i.e the 13-th worst loss.
- The IM is the worst of the above scaled ES and non-scaled VaR.



LCH - SwapClear - Add-on OIS

The goal of this add-on is to add OIS discounting risk into IM calculation. The current scope of this add-on is set up for major currencies, EUR, GBP, USD and JPY.

The zero-coupon deltas using the multi-curves are computed. The delta ladders are used to calculate the new OIS IM (IM_{OIS}) applying the delta approximation method to calculate P/L. The OIS IM approach add-on margin is the difference between the IM_{OIS} calculation and the production version IM values that are calculated also using the delta P/L approximation method.

The Final OIS IM approach add-on is calculated as

$$\text{OIS IM approach add-on} = IM_{OIS} - IM_{\text{Production}}.$$

CME - Initial Margin

The IM computation is based on Historical VaR. A volatility rescaling is used to generate the scenarios from the historical time series. The rescaling of historical time series is based on EWMA. The VaR model uses a 99.7% level.

The wording for the methodology is 1260 scenarios plus stress scenarios. Not clear yet what the split between the “1260” and the “stress” will be when the number of scenarios becomes too large, i.e. in 2018.

For interest IR factors, a shifted log return approach is used since 25 August 2014. The current shift is Shift = 0.04, i.e. 4%. The raw returns $r_{i,j}$ for each IR risk factor j and each scenario i ($-(N - 1) \leq i \leq 0$) is computed as

$$r_{i,j} = \log \left(\frac{p_{i,j} + \text{Shift}}{p_{i-5,j} + \text{Shift}} \right)$$

CME

The zero-coupon rates for each scenario is computed as

$$\bar{p}_{i,j} = (p_{0,j} + \text{Shift}) \times \exp(\tilde{r}_{i,j}) - \text{Shift}.$$

The first step, and the most computation intensive, is to compute the present value for each scenarios in each currency. The present value for scenario i and currency C_j is denoted PV_{i,C_j} . The gains in the base currency (USD) are computed as:

$$\text{Gain}_{i,C_j}^{\text{USD}} = \text{PV}_{i,C_j} \times \text{FX}_{i,C_j} - \text{PV}_{0,C_j} \times \text{FX}_{0,C_j}$$

Let $x.y$ be the decimal representation of $(N + 1) \times 0.3\%$ (i.e. 1-0.997). The Initial Margin is computed as the VaR:

$$\text{IM} = 0.y \times \overline{\text{Loss}}_{x+1,\text{Total}}^{\text{USD}} + (1 - 0.y) \times \overline{\text{Loss}}_{x,\text{Total}}^{\text{USD}}.$$



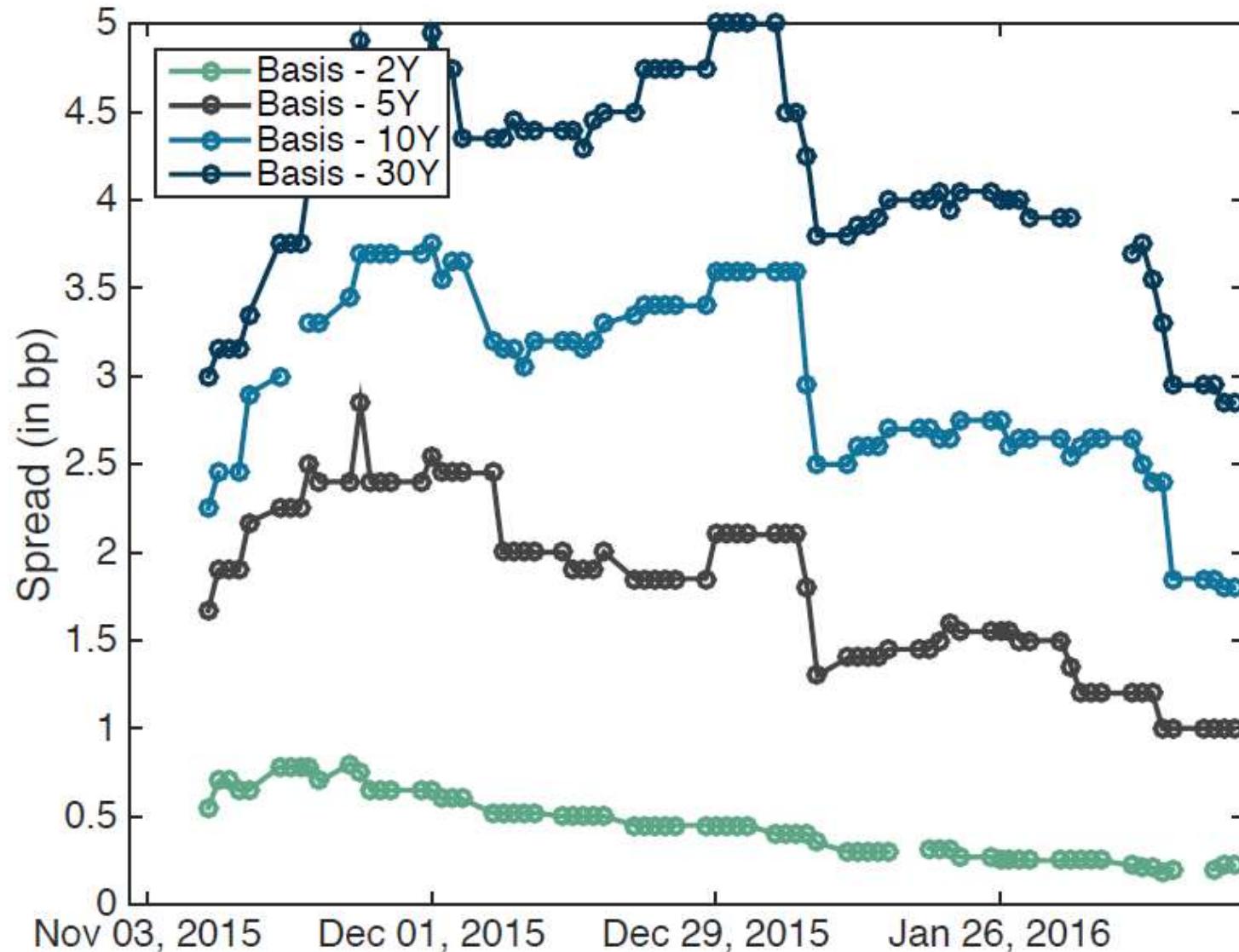
CME-LCH basis

Since 2015, a non-trivial basis has appeared between the interest rate swaps (fixed vs Libor) cleared at CME and swaps cleared at LCH. The fixed rate is higher at CME. Broker are now quoting the basis. There is a Bloomberg code for the basis since November 2015: USCMLCx Curncy.

Basis: not difference of margin methodology. Main driver is type of trades that are cleared at both houses, supply and demand. CME attracts mainly client business, in particular asset managers. The asset manager have a favorite side, which is the one to hedge fixed coupon bonds; they are mainly paying on the swaps. The basis is, on the fixed leg, $CME = LCH + (\text{positive}) \text{ spread}$.

CME-LCH basis

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Comparison between clearinghouses

		EUR			GBP			USD			
		EUREX	LCH	CME	EUREX	LCH	CME	EUREX	LCH	CME	
IRS	2	RECEIVE	0.65%	0.54%	0.24%	0.77%	0.55%	0.49%	0.90%	0.68%	0.50%
		PAY	0.64%	0.50%	0.47%	0.78%	0.63%	0.55%	0.91%	0.79%	0.73%
	3	RECEIVE	1.03%	0.86%	0.69%	1.20%	0.88%	0.78%	1.37%	1.07%	0.77%
		PAY	0.98%	0.81%	0.87%	1.22%	1.00%	0.92%	1.44%	1.23%	1.19%
	5	RECEIVE	1.59%	1.29%	1.35%	1.86%	1.41%	1.43%	2.44%	1.89%	1.37%
		PAY	1.49%	1.23%	2.00%	1.84%	1.68%	1.55%	2.38%	2.02%	1.88%
	7	RECEIVE	2.24%	1.72%	2.13%	2.44%	2.00%	2.36%	3.35%	2.70%	1.97%
		PAY	1.95%	1.74%	2.65%	2.56%	2.21%	2.37%	3.35%	2.81%	2.65%
	10	RECEIVE	3.16%	2.77%	3.90%	3.39%	2.83%	3.25%	4.55%	3.95%	2.81%
		PAY	2.96%	2.88%	4.48%	3.58%	2.88%	3.50%	4.15%	3.53%	3.50%
	15	RECEIVE	4.50%	4.76%	7.29%	5.25%	3.92%	4.94%	5.43%	5.45%	4.44%
		PAY	5.33%	4.62%	6.88%	5.16%	3.33%	4.67%	4.84%	4.19%	4.46%
	20	RECEIVE	6.21%	6.58%	10.33%	7.05%	4.73%	6.73%	6.31%	6.48%	5.56%
		PAY	6.78%	6.04%	8.82%	6.64%	3.57%	5.34%	5.43%	4.45%	4.86%
	30	RECEIVE	10.76%	10.46%	16.08%	8.72%	6.82%	8.28%	7.36%	7.47%	6.54%
		PAY	8.72%	7.86%	11.45%	7.96%	3.85%	5.79%	6.77%	4.86%	5.04%
	50	RECEIVE	18.09%	15.90%	20.38%	10.54%	6.91%	9.78%	7.38%	7.53%	7.67%
		PAY	10.30%	9.78%	14.46%	9.43%	4.56%	6.25%	7.93%	4.34%	4.64%

Comparison of initial margin for one trade: LCH v Eurex v CME. Based on a 300 millions notional.

Understanding Initial Margin

Initial Margin : amount of collateral to post at CCP so that they be able to liquidate the position in an event of default

Initial Margin	
Base component	Add-Ons
Value-at-Risk on historical market returns scaled by volatility. Each CCP uses different: <ul style="list-style-type: none"> ✓ Historical periods ✓ Number of scenarios <p>→ Linear component regarding DV01</p>	Liquidity / Concentration add-ons = penalty on : <ul style="list-style-type: none"> ✓ Large position (aggregated risks) ✓ Concentrated risks (at a certain point) ✓ Long-term risks <p>→ Non-linear component</p>

Different methodologies to compute these components across CCPs :

LCH	CME	EUREX
Single curve approach <p>→ Remedy = Basis risk add-on (include Tenor basis risk and OIS discounting risk)</p>	Multi-curve approach	Multi-curve approach
Base IM is floored by a VaR on un-scaled market returns	-	Base IM is floored by a VaR on Stressed Period scenarios



References

- BoE: Central counterparties: what are they, why do they matter and how does the Bank supervise them? By Amandeep Rehlon of the Bank's Market Infrastructure Division and Dan Nixon of the Bank's Media and Publications Division.
- Central counterparties and their financial resources — a numerical approach. By Paul Nahai-Williamson, Tomohiro Ota, Mathieu Vital and Anne Wetherilt (fs_paper19.pdf)



- An investigation into the procyclicality of risk-based initial margin models
- http://www.bankofengland.co.uk/financialstability/Documents/fpc/fspapers/fs_paper29.pdf



Rappel: Banking Union

Banking Union

- The banking union in the European Union is the transfer of responsibility for banking policy from the national to the EU level
- Initiated in 2012 as a response to the Eurozone crisis.
- Motivation for banking union was the fragility of numerous banks in the Eurozone, and the identification of vicious circle between credit conditions for these banks and the sovereign credit of their respective home countries.
- As of 2014, the banking union mainly consists of two main initiatives, the **Single Supervisory Mechanism** and Single Resolution Mechanism, which are based upon the EU's "single rulebook" or common financial regulatory framework.
- As of January 2016, all Eurozone member states participate in the SRM.
- Croatia and Bulgaria joined in 2020



- Eurozone members (20)
- Monetary agreement (4)
- Unilaterally adopted (2)

Structure of regulation and supervision

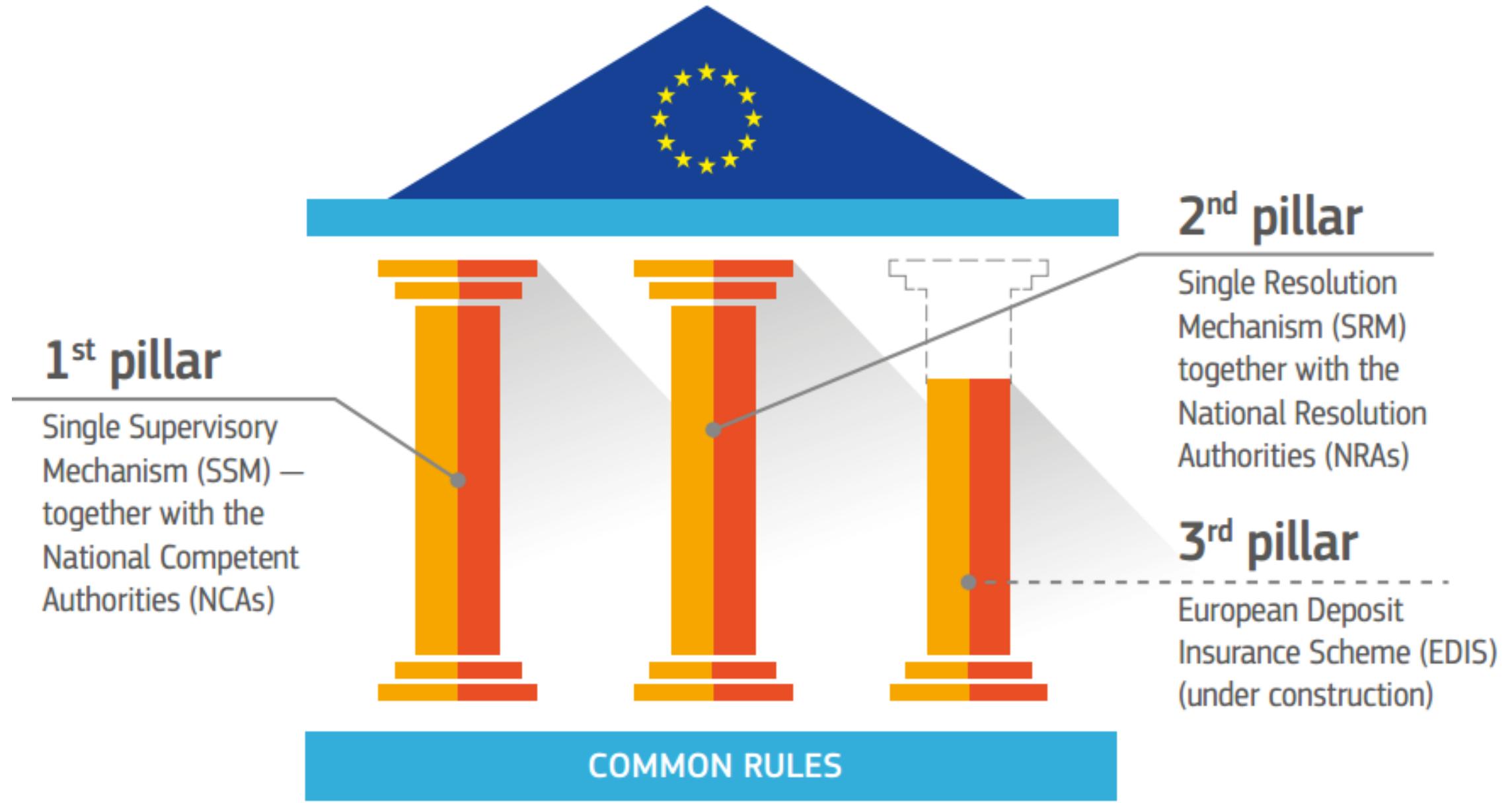
- The Supervision is now European – Single Supervisory Mechanism
- The Supervision is taken over by the European Central Bank either:
 - Directly for big financial institutions
 - Indirectly for others – jointly with the national(s) supervisors.
 - In that case, the National Supervisor is responsible for the day-to-day supervision but the ECB exercises oversight.
- The ECB is ultimately supervising European Banks
 - Direct/Indirect supervision
 - Oversight
 - Issue guidelines, recommendations for NCAs.
- De facto eliminating cross-border issues – Joint Supervisory Teams (NCAs, ECB) & College of Supervisors

Structure of regulation and supervision

- The European Commission has proposed on 20th of Dec 2017 that the European Central Bank assume full supervision of major investment banks in the Eurozone, replacing a system in which oversight is spread across national regulators.
- The move is seen as part of an effort to ensure orderly relocation of financial institutions away from London after Brexit, by curbing inducement and by enforcing requirements on staffing and capitalization at newly established hubs.

What is a college of supervisors?

- National supervisors remain competent for supervision, BUT...
- Many financial groups are crossborder
- Need to address the home – host issue (who supervises and regulate what)
- Supervisors of each MS + relevant authority will meet and assess the group



Bank Recovery and Resolution Directive (BRRD) phases

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Preparation	Recovery	Resolution
Recovery Plan <ul style="list-style-type: none">- prepared by the bank- reviewed and approved by supervisor (NCA)	Administered by NCA <ul style="list-style-type: none">- early intervention (preventative)- significant deterioration of financial condition (capital, NPLs)	Administered by NRA <ul style="list-style-type: none">- “failing or likely to fail”- no private sector solution- liquidation not feasible or not in public interest- conditions for State Aid not fulfilled
Resolvability Assessment <ul style="list-style-type: none">- feasibility of liquidation- prepared by resolution authority (NRA)	Recovery options <ul style="list-style-type: none">- Intra-group support- (Temporary) administration- Sale of business	<p>→ Resolution Plan implemented</p> <p>→ Resolution tools deployed</p>
Resolution Plan <ul style="list-style-type: none">- directed by NRA (supported by college)		



BRRD - guidelines

Protection of depositors, secured and other privileged creditors

- Exclusion of guaranteed deposits (< EUR 100k), secured (e.g. covered) bonds, short-term liabilities and other privileged creditors

“No creditor worse off than in liquidation” (Art. 73 BRRD)

- No creditor should be left worse off than it would have been if the bank became insolvent
- Bail-in of creditors generally follows prevailing creditor hierarchy

“Burden sharing” (Art. 44/5 BRRD)

- Investors to contribute at least 8% of total liabilities and own funds to the cost of resolution before external funds can be accessed
- “ex ante” test for G-SIIs/O-SIIs proposed by EBA but rejected by Commission



Coverage

List of supervised banks



The ECB maintains a list of all significant banks under its direct supervision (Part A) and less significant banks under its indirect supervision (Part B). Within Part B, less significant banks classified as "High-impact LSIs" are identified with the designation "(HI)".

The list of supervised entities is updated regularly and reflects all decisions on bank significance that entered into force before the relevant cut-off date.

Number of banks directly supervised by the ECB: 113

21 December 2023

List of supervised entities - (as of 1 November 2023)



[+] Annexes

[+] Related

<https://www.banksupervision.europa.eu/banking/list/html/index.en.html>



Resolution

- **Aims**
- To minimize disruption to the financial system: failure should be orderly
- To avoid interruption to critical economic functions & services provided to customers
- To ensure taxpayers are not exposed to losses: costs borne by shareholders and creditors, as for every other firm that fails

Resolution planning & resolution process



Single Supervisory Mechanism (ECB + NCAs)



Recovery plan
is used



Recovery plan
FAILS

PRE-CONDITIONS TO RESOLUTION



EUROPEAN CENTRAL BANK
EUROSYSTEM

**ECB determines
that bank is failing
or likely to fail
(or SRB)**



**Private measures/
supervision actions
exhausted**



**Public interest
assessment**



If in public interest, bank
goes into **RESOLUTION**



If not in public interest,
BANK WOUND UP



Different tools are used to **safeguard public interests**, including the continuity of the bank's critical functions and financial stability, at minimal cost to taxpayers.

Sale of business tool

The sale of business tool allows for the total or partial disposal of the entity's business.

Bridge institution tool

Part or all of the entity is transferred to a temporary entity, which is totally or partially publicly owned.

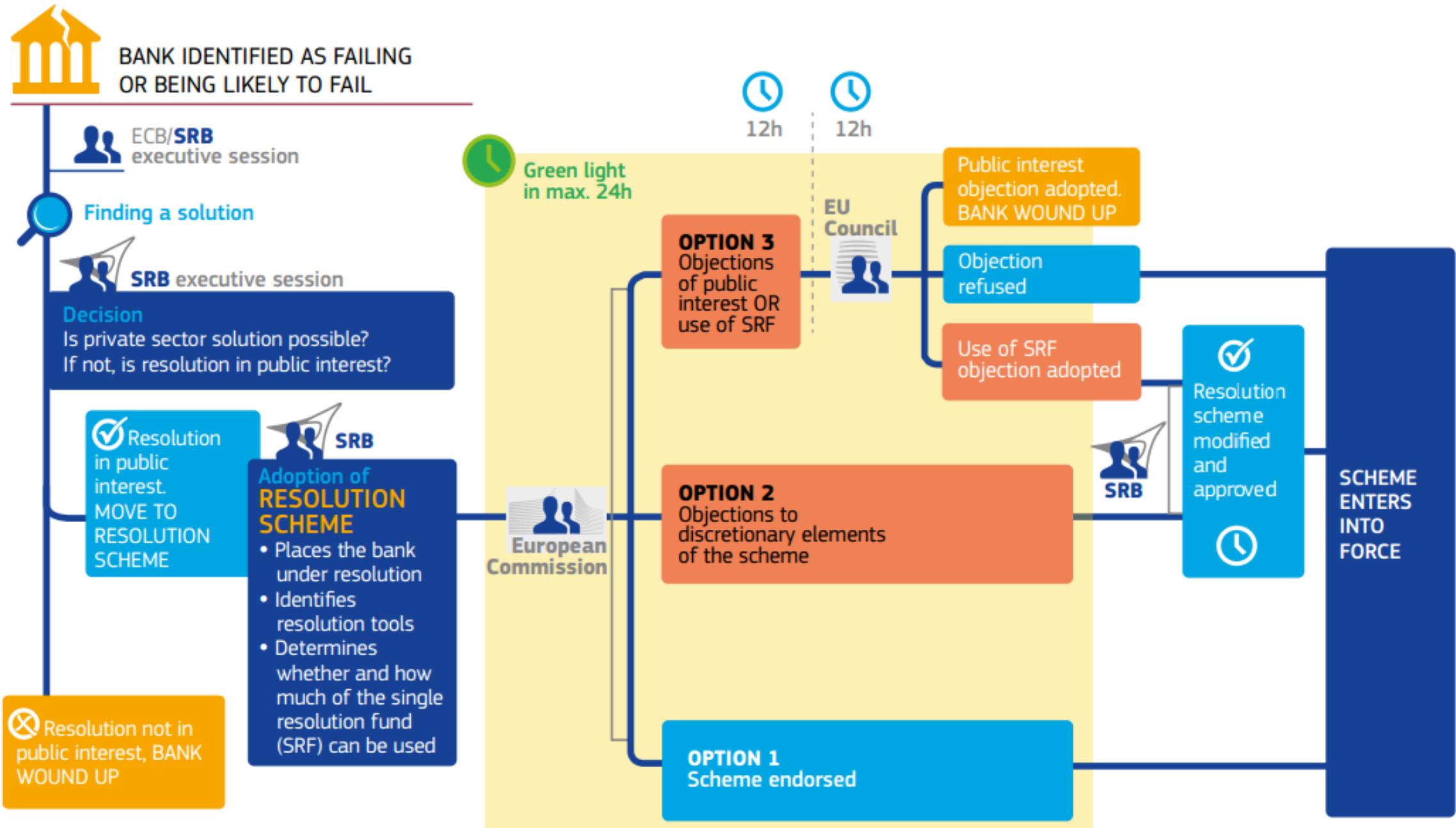
HELP TO
PROTECT
MARKETS AND
CITIZENS FROM
FUTURE CRISES

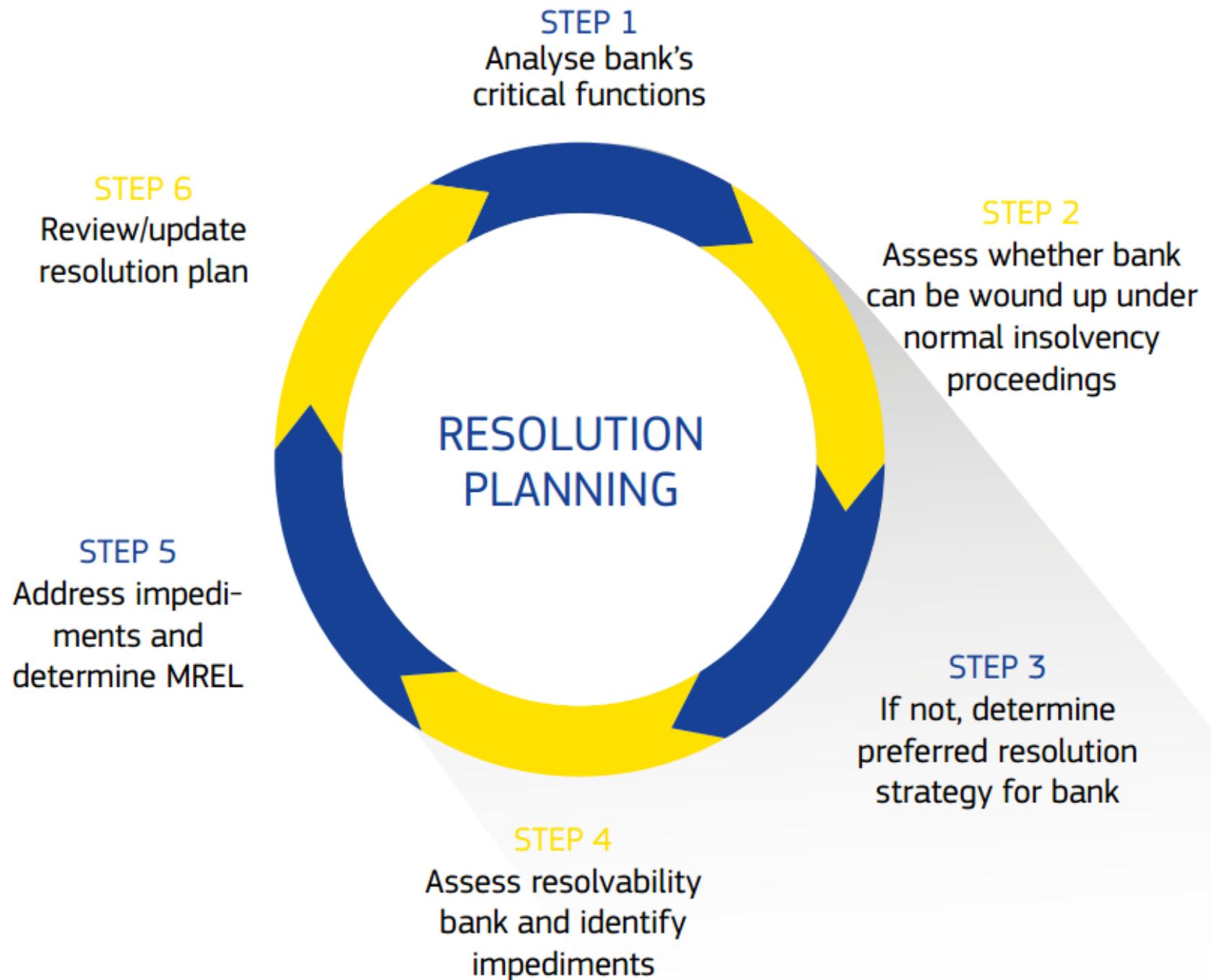
Assets, rights or liabilities can be transferred to an asset management vehicle, which is totally or partially publicly owned.

Asset separation tool

Equity and debt can be written down or converted, placing the burden on share holders and creditors rather than taxpayers.

Bail-in tool







BRRD - guidelines

Who pays to keep the bank afloat?

How much and what type of **capital and debt instruments** must be held by a bank so that it can be restructured or wound up in an orderly fashion?

TLAC (Total Loss Absorbing Capacity): global standard by the Financial Stability Board, covers **only G-SIIs**; not legally binding itself but must be adopted by Member States. From 2022 onwards it requires a minimum of **18% of RWA or 6.75% total assets**

MREL (Minimum Requirement for Own Funds and Eligible Liabilities): legally binding standard for all EU banks, based on BRRD. Imposes **no binding minimum** but mandates NRAs to set requirements on a case-by-case basis. Due to come into force in 2016 but will need to be modified for TLAC.



Minimum requirements for eligible liabilities and own funds (MREL)

What is MREL?

- MREL is a critical part of a **resolution** strategy. It determines the minimum loss-absorbing capacity these institutions must hold, and it can comprise both ‘going concern’ and ‘gone concern’ resources.
- **Going-concern resources**, typically in the form of common equity, absorb losses in times of stress and ensure that a bank can keep operating and that it can maintain the supply of credit to the economy.
- **Gone-concern resources**, typically in the form of debt, absorb losses when a bank undergoes resolution or is placed into insolvency.
- Smaller institutions that provide banking activities of a scale that means that they can be allowed to go into insolvency if they fail, will satisfy MREL by simply meeting their minimum regulatory capital requirements as a going concern. There is no gone-concern requirement for these firms.

Bank balance sheet

Assets

Liabilities

Non-eligible liabilities

Eligible liabilities

Non-CET1 regulatory capital

CET1

Excess CET1

- The firm has sufficient eligible liabilities and non-CET1 regulatory capital to meet MREL
 - The firm is not using the same CET1 resources to meet MREL and its buffers
 - The firm does not have a CET1 buffer shortfall

MREL

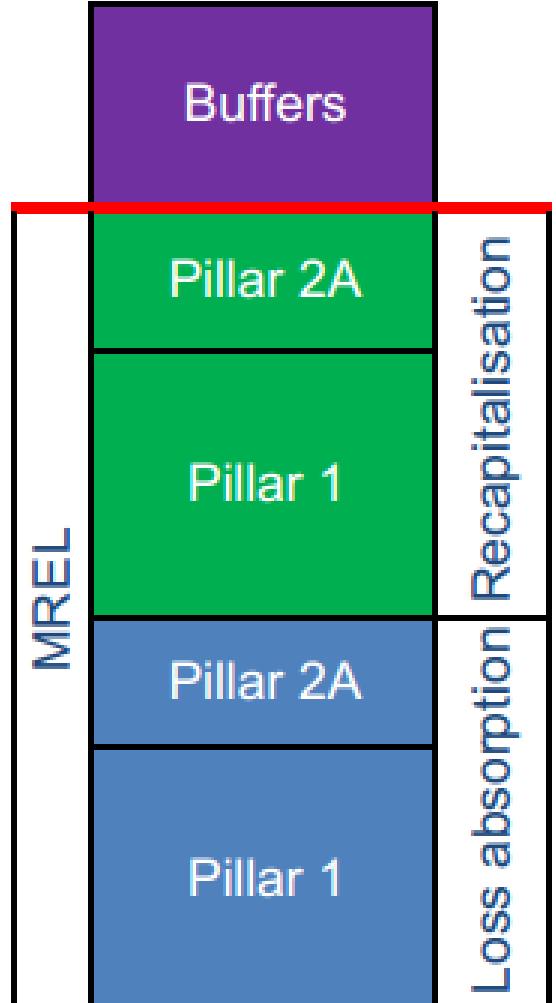
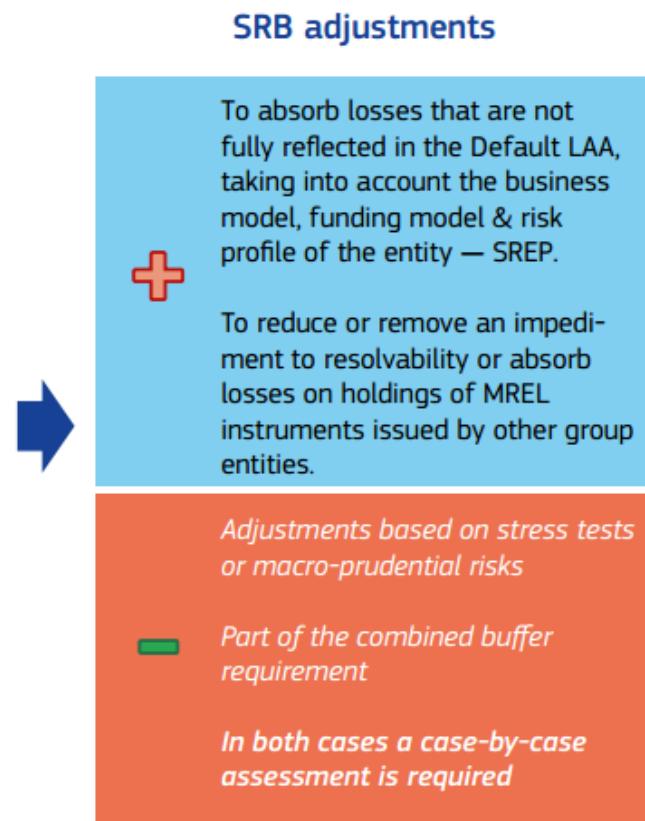
Buffer requirement

Minimum requirement
(CRD IV or leverage)

$$\text{MREL} = \text{Loss-absorption amount (LAA)} + \text{Recapitalization amount (RCA)} - \text{DGS adjustment}$$

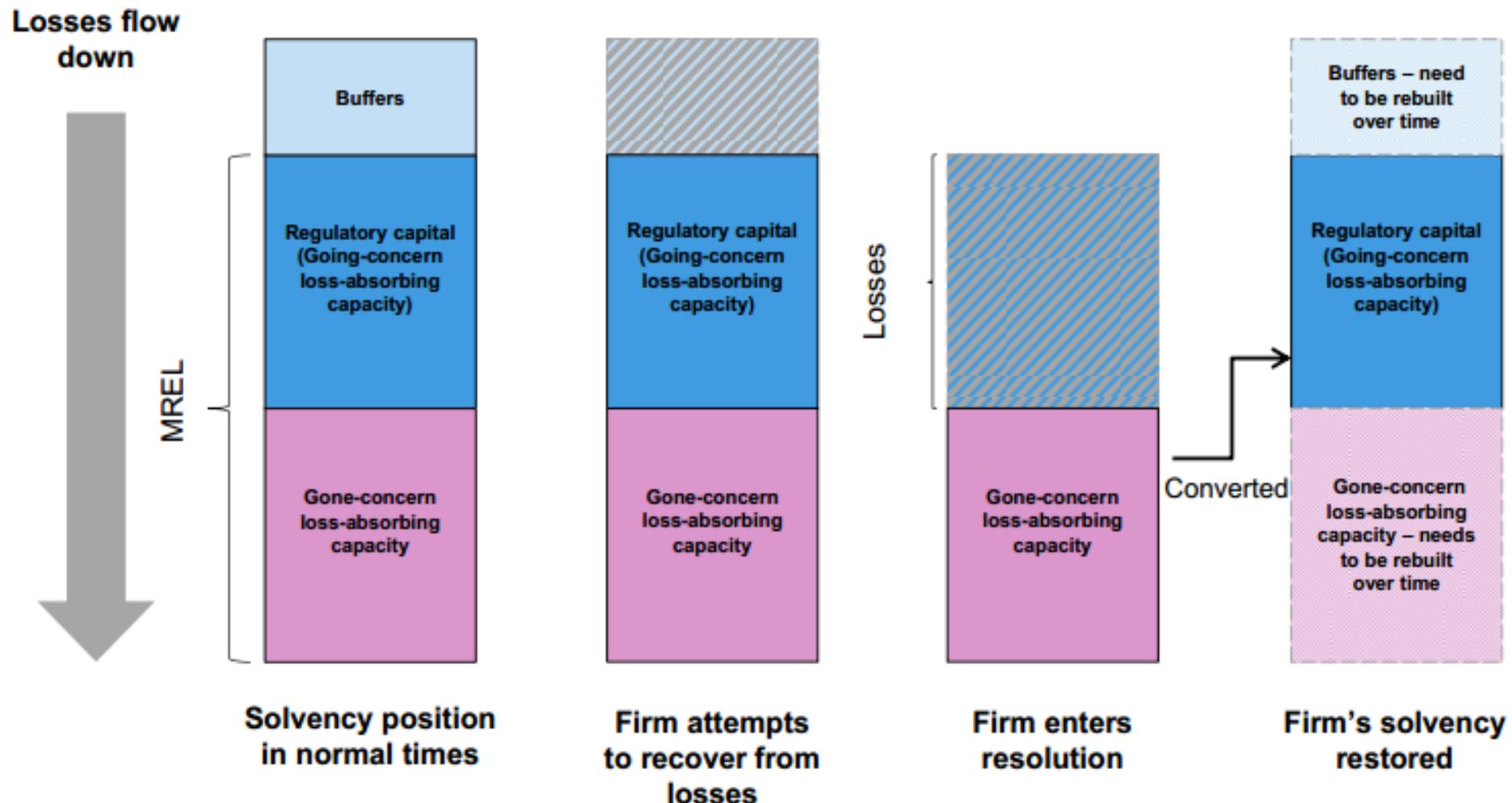
Constraints:

1. Consider the conditions for use of Single Resolution Fund
2. NCWO adjustment in eligible liabilities



How MREL supports effective resolution

- Resolution (bail-in/transfer) enables non-regulatory capital MREL to absorb losses and the recapitalisation of the continuing business



Single Resolution Fund

- **The Single Resolution Fund:**

- ensures uniform practice in the financing of resolutions within the Single Resolution Mechanism (SRM);
- pools contributions raised at national level from institutions within the SRB's remit in each of the Member States within the Banking Union;
- is built up over eight years (2016-2023) to reach the target level of at least 1% of covered deposits of all credit institutions authorised in the participating Member States;
- was established by the SRM Regulation (EU) No 806/2014 and is owned by the Single Resolution Board (SRB).

- **Use of the SRF:**

- Within the resolution scheme, the SRF may be used only to the extent necessary to ensure the effective application of the resolution tools, as a last resort, *inter alia*:
 - to guarantee the assets or liabilities of the institution under resolution;
 - to make loans to, or to purchase assets of, the institution under resolution;
 - to purchase assets of the institution under resolution;
 - to make contributions to a bridge institution and an asset management vehicle;
 - to pay compensation to shareholders or creditors who incurred greater losses than under normal insolvency proceedings and;
 - to make a contribution to the institution under resolution in lieu of the write-down or conversion of liabilities of certain creditors under specific conditions.
- The SRF shall not be used directly to absorb losses or to recapitalise an institution. In exceptional circumstances, where an eligible liability or class of liabilities is excluded or partially excluded from bail-in, a contribution from the SRF may be made to the institution under resolution under two key conditions, namely:
 - **Bail-in of at least 8%:** a contribution to loss absorption and recapitalisation totalling not less than 8% of the total liabilities including own funds of the institution under resolution has already been made by shareholders, the holders of relevant capital instruments and other eligible liabilities through write-down, conversion or otherwise
 - Contribution from the SRF of maximum 5%: the SRF contribution does not exceed 5% of the total liabilities including own funds of the institution under resolution.

In practice ...

	Actifs		Passifs
Banking book	80	Depots	55
Trading book	20	Obligations	35
		Capital	10
TOTAL	100	TOTAL	100

CRR = 10% of RWA

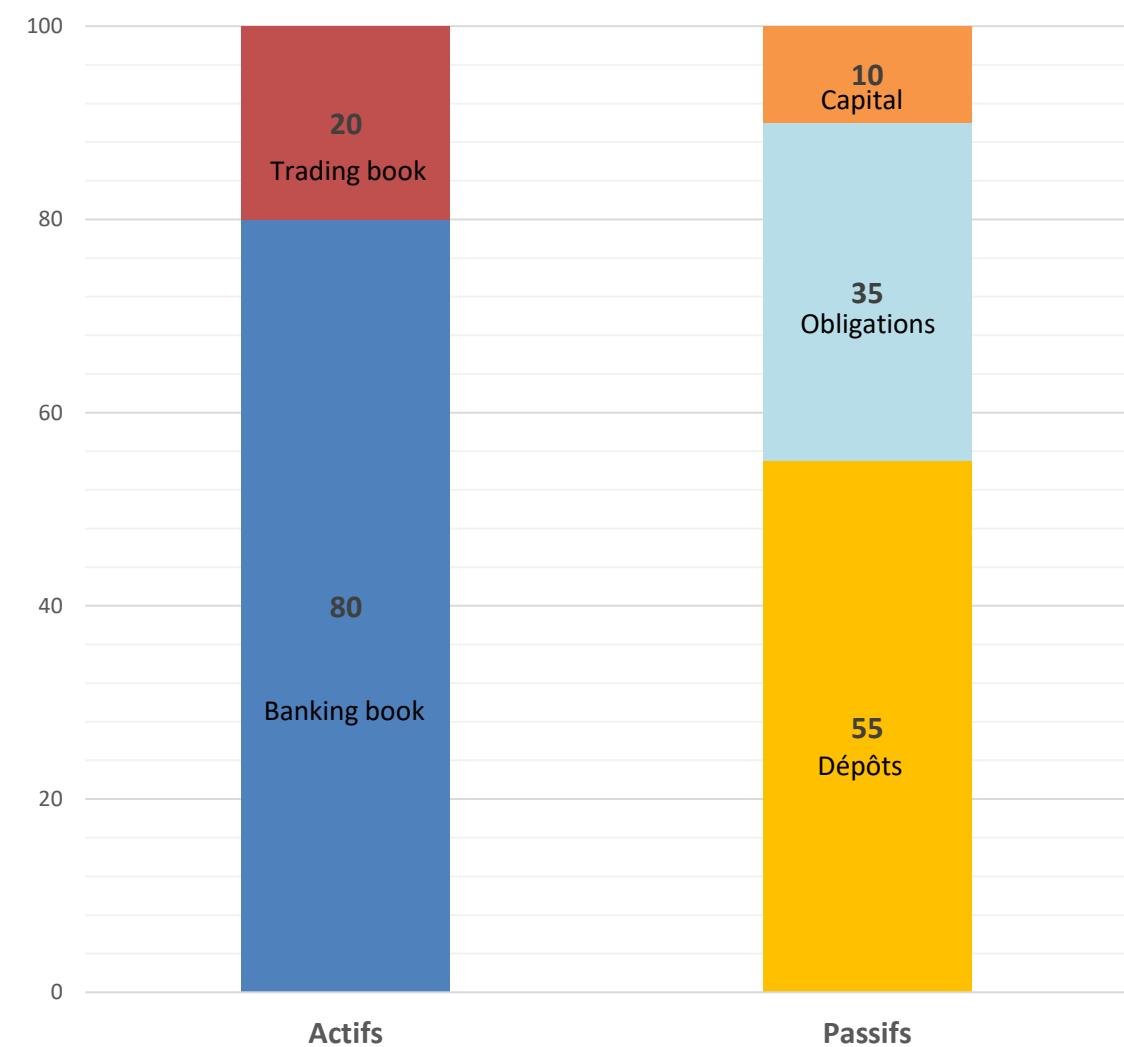
Assuming Trading book RWA = 10

RWA Banking book	67
RWA Trading book	10
Total RWA	77

Hence capital requirements = $10\% \times 77 = 7.7 < 10$

CRR compliant

Bank Y Balance Sheet



In practice ...

	Actifs		Passifs
Banking book	80	Depots	55
Trading book	20	Obligations	35
		Capital	10
TOTAL	100	TOTAL	100

After the shock, expected losses are of 12.5 bn and **total RWA is 70**

MREL ?

In theory, apart from bail-in, What are the resolution tools that can be used ?

Can bail-in be used here ?

Funding needs breakdown?

What is the fund waterfall ? Is there enough MREL to cover the funding gap ? Is there enough MREL to cover the gap and recapitalise the bank ?

Bank Y Balance Sheet

