



BANKING INDUSTRY: COMPETITION, STABILITY AND REGULATIONS

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UPTO THIS POINT

Previous lectures had laid down several key models to understand the role of competition in banking sector.

We highlighted at the role of competition on the determination of bank's spread and net interest margin.

Finding suggests that competition is always good as it promotes efficiency.

THIS LECTURE

This lecture will move on; we discuss about the following issues:

- Is competition always good?
- What are the unintended consequences of banking competition?
- How does the modern financial regulator design policies that promote the function of financial system?

IS BANKING COMPETITION ALWAYS GOOD?

Should banking system have large number of banks/financial providers?

Not necessarily.

At least two reasons: ambiguous relationship between number of bank and competitive outcome.

- Competition under asymmetric information
- Competition with switching cost

COMPETITION UNDER ASYMMETRIC INFORMATION

All the pro-competition financial policies are built upon the *complete information environment*.

Realistically, bank operates under asymmetric information.

Taking deposit rate as given, each bank screens their clients' creditworthiness and compete with other banks by offering loan rates charged on borrowers.

COMPETITION UNDER ASYMMETRIC INFORMATION

Unlike the case with incomplete information, competitive lending leads to *negative externality* under imperfect screening.

For example, increasing loan rates cause bank to earn more profit through

- the usual direct price effect.
- The indirect effect through loan quantity.

With asymmetric information, this also leads to another unintended consequence.

- Bank will likely attract borrowers with bad creditworthiness into their lending pools.

As a result, increasing the number of banks in the market would generally lead to a lower quality of borrowers on average.

- The case for small number of bank.

COMPETITION WITH SWITCHING COST

Moving from one bank to another bank is costly process for most borrowers.

- Fixed cost / Location effect / transaction cost

Implication: each bank has implicitly earned some degree of monopoly.

How does pro-competition financial policy affect market output?

COMPETITION WITH SWITCHING COST

Competition shapes the way each bank behaves.

First, it might be collusive.

Second, they might engage into **excessive** competition.

- Gaining bigger market share is to acquire monopoly power.
- Offering low rate, and having customer lock-in.
- Winner's curse problem: once they get locked in, things change.

THE CASE FOR REGULATION

Bank fragility

Banking excessive risk-taking

BANKING AND BANK FRAGILITY

Natural activities of banking operation involve with

- Borrowing with liquidity liability (deposit)
- Invest in the long-term illiquid asset

Prone to run: **multiple equilibria**

Consider the following game.

BANKING AND BANK FRAGILITY

Suppose we have two households, each with \$1.

- Both seek to gain return from financial investment.

Bank has a client (firm/borrower) with **long-term investment technology**.

- \$2 of initial outlay needed. Firm can pay back " $R > 2$ ".
- But it is 2 years from now.
- If firm's project somehow gets liquidated before the project is matured, one can only recover \$1.

Each household cannot directly invest in this firm.

- Each does not have sufficient funding resource to make the investment viable.
- They invest through a bank that offers them deposit contract.

BANKING AND BANK FRAGILITY

		second household	
First household		Withdrawn	Not Withdrawn
	Withdrawn	$(\frac{1}{2}, \frac{1}{2})$	$(1, 0)$
	Not withdrawn	$(0, 1)$	$(R/2, R/2)$

BANKING AND BANK FRAGILITY: MULTIPLE EQUILIBRIA

		second household	
		Withdrawn	Not Withdrawn
First household	Withdrawn	$(\frac{1}{2}, \frac{1}{2})$	$(1, 0)$
	Not withdrawn	$(0, 1)$	$(\frac{R}{2}, \frac{R}{2})$

BANKING AND BANK FRAGILITY

Two NE equilibrium: **inferior v.s. superior one.**

- One in which bank run occurs (Withdraw, withdraw)
- The other in which bank intermediates funds smoothly (not withdraw, not withdraw).

People knew that there is a chance of bank run at the first place because of the way banking system has been designed.

Non-fundamental reason trigger this run;

- Hey dude, “I just saw many people waiting in line at the bank”

BANKING AND BANK FRAGILITY

Non-fundamental bank run had occurred frequently at the early development of banking system.

Prior to 1900s, Gorton (1989, 1990) did not find any clear evidences that suggest the **fundamental-based** bank panics.

- No sign of **financial insolvency** prior to the start of bank run.

Non-fundamental run is **undesirable** feature of banking system.

BANKING AND BANK FRAGILITY

To reduce bank fragility, some regulation policies might be imposed to better resilient the system.

Examples:

- Establishment of central bank as lender of the last resort.
- Suspension of convertibility.
- Federally insured deposit insurance.

THE CASE FOR REGULATION

Bank fragility

Banking excessive risk-taking

EXCESSIVE RISK-TAKING

Banking firm naturally arises as the respond to mitigate the **asymmetric information**.

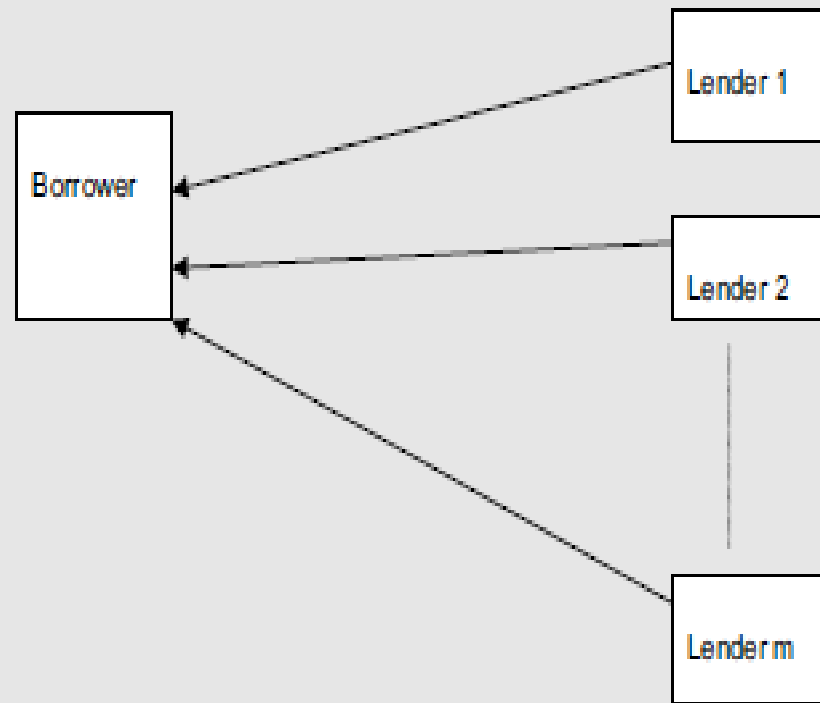
They collect deposit and create loan.

- They adopt **leverage** investment strategy.
- Leverage = small Capital + large amount of borrowing → holds asset.

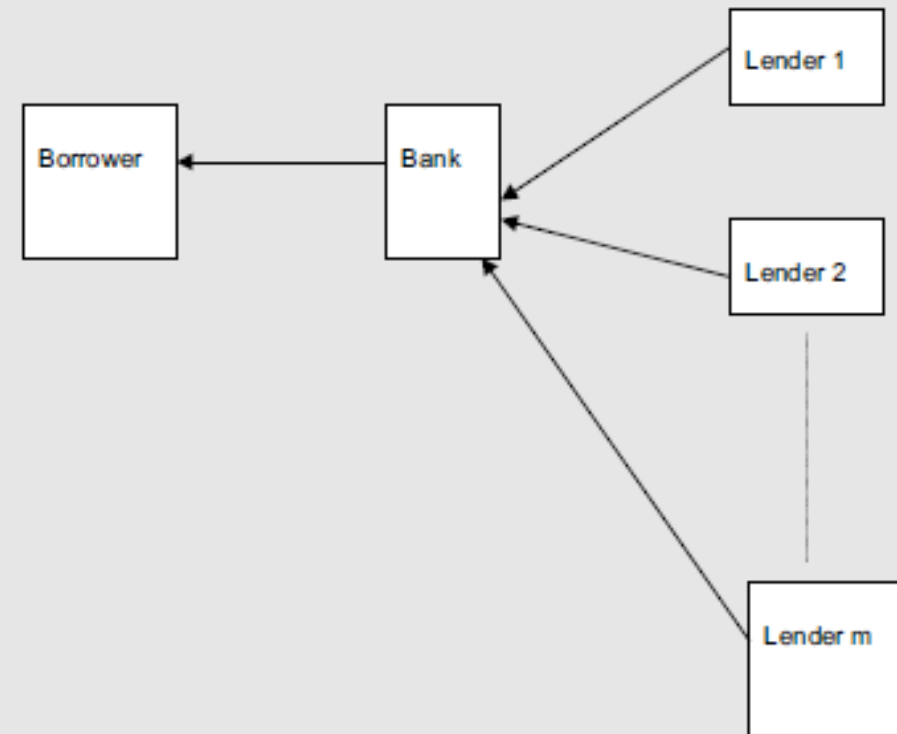
Loan activity requires monitoring; bank solves double (free-rider) monitoring issue and acts as a **delegated monitoring agent**.

EXCESSIVE RISK-TAKING

(a) Monitoring without a bank



(b) Monitoring with a bank



EXCESSIVE RISK-TAKING

- Monitoring activity is costly.
- Given that bank borrows externally, another layers of agency problem arises; shareholder (bank owner) might prefer to sub-optimally monitor their borrower.
- As benefit of shareholder is convex, bank has incentive to take excessive risk activities.
- This leads to *fragility* in banking system.

EXCESSIVE RISK-TAKING

Bank's failure is one thing, but banking firms (FIs) are interconnected.

Failure of a commercial bank (FI) can ruin the whole system, putting the system that is already prone to run into a greater degree of “systemic” run.

Collapse in the banking system disrupts market activities.

This justifies the regulation of banking system at the first place.

HOW DOES THE FINANCIAL INDUSTRY PLAY BY THE RULE?

The case for regulation is clear.

But, how do we regulate banking system?

How to balance between *competition* and *stability (resilience)*?

Regulation in financial system is greatly shaped by *theory of regulation* and *international practical experiences*.

INTERNATIONAL REGULATORY STANDARD: THE BASEL ACCORDS

Banking regulation is unique; mostly **internationalized** standard.

- Banks compete internationally; regulation ought to be standardized.

The idea of having **international standard** of banking regulation was initiated during 1980s, known under the Basel accord.

- Basel accord is a proposal made by the Bank of international settlement (BIS).
- BIS is located in Basel.

The accords have been improved and evolved over years. Current generation of the accord is called **Basel accord 3**.

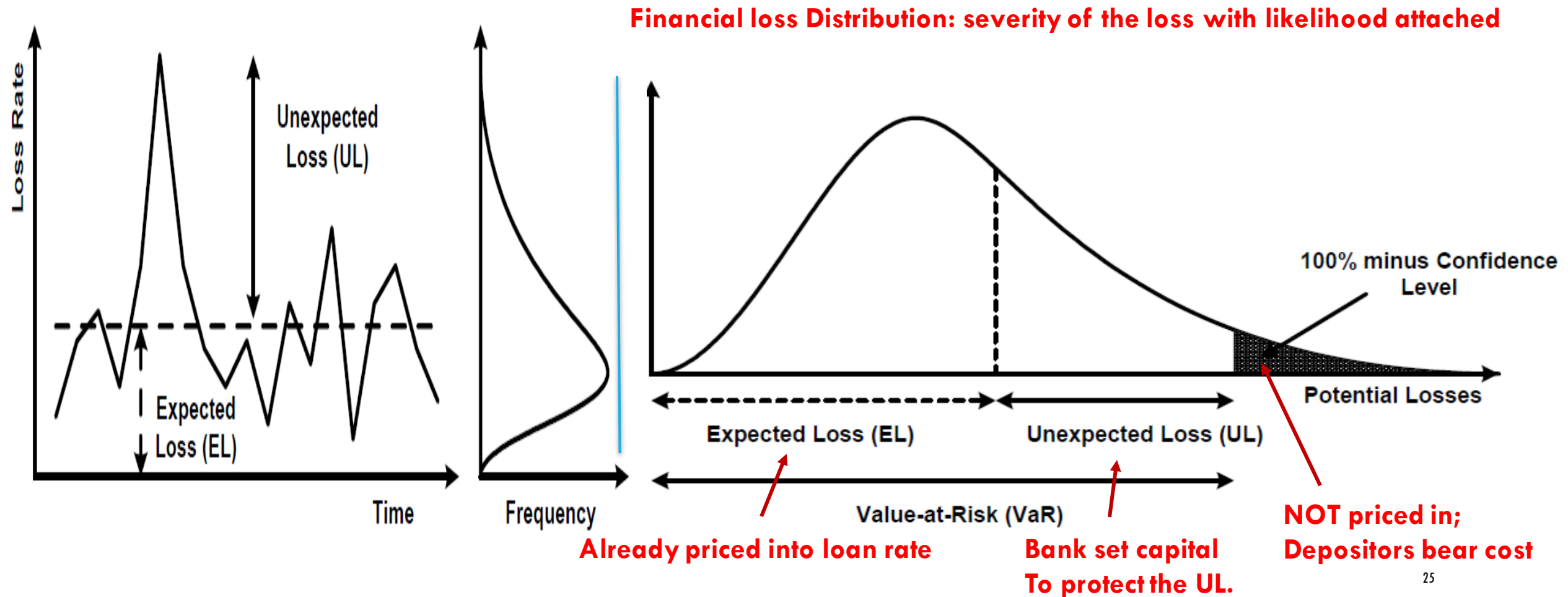
BASEL 1: RISK-BASED CAPITAL ADEQUACY

Basel 1: The accord was first released and adopted among industrialized G10 country by 1988.

What is the idea of Basel 1?

- Bank's failure is costly. Bank's **insolvency** should be avoided and prevented.
 - Insolvency occurs when outstanding value of bank asset drops below the outstanding value of liability.
 - Outstanding value of asset value can drop because of the financial loss incurred from financial investment (loan/tradable security).
 - Insolvency can be cushioned/avoided if bank have sufficient amount of capital to cover the financial loss.
- Thus, regulator sets a mandatory requirement that **each commercial bank has met certain minimum amount of capital, i.e. commonly known as micro-prudential regulation approach.**

BASEL 1: CAPITAL SURCHARGE IS BASED ON THE LOSS OF INVESTMENT



BASEL 1

Minimum amount of capital; set to ensure that bankruptcy is less likely, i.e. low probability.

Following Basel 1, each commercial bank is required to meet the so called “capital adequacy ratio”

$$\text{Capital-to-Risk-adjusted-asset} > 8\%$$

Risk-adjusted asset is the value of asset converted into its *risk-adjusted value* with *risk weights*.

BASEL 1: RISK TOPOLOGY AND RISK WEIGHT

Risk-asset ratio – an illustrative calculation

Asset	£ million	Weight fraction	Weighted (£m)
Cash	25	—	—
Treasury bills	5	0.1	0.5
Other eligible bills	70	0.1	7.00
Secured loans to discount market	100	0.1	10.00
UK government stocks	50	0.2	10.00
Other instruments – government	25	0.2	5.00
– company	25	1.0	25.00
Commercial loans	400	1.0	400.00
Personal loans	200	1.0	200.00
Mortgage loans	100	0.5	50.00
<i>Total assets</i>	<i>1000</i>		<i>707.50</i>
Off-balance-sheet risks			
Guarantees of commercial loans	20	1.0	20.00
Standby letters of credit	50	0.5	25.00
<i>Total risk-weighted assets</i>			<i>752.50</i>
<i>Capital ratio 8%</i>			<i>60.2</i>

Source: Bank of England 'Banking Supervision' Fact Sheet, August 1990.

- Loss in financial operation can arise because of two types of risk.
 - Credit risk (default)
 - Market risk
- Each bank should (must) set aside the amount of capital that can be used to cover the loss attributed to the two risks.
- Standardized approach suggests that bank look into the risk weight table, and calculate the capital surcharged accordingly.

BASEL 1: INCENTIVE COMPATIBLE REGULATION

- High-risk, high-return, but high penalty.
- If any bank wishes to take risky investment, it's fine. But, that bank must be charged for high level of the capital
- The regulation is designed to be a self-evolving regime that promotes both stability and competition.

BASEL 1: PROBLEM TO THE FIRST PROPOSAL

So, why later generation of Basel accord then?

- Commercial loan and personal loan are treated the same.
- Good-credit commercial loan and low-quality commercial loan are treated the same.
- One-size fit all problem: *efficient banks might be over-penalized.*

Likely to create the so called “*capital regulatory arbitrage*”

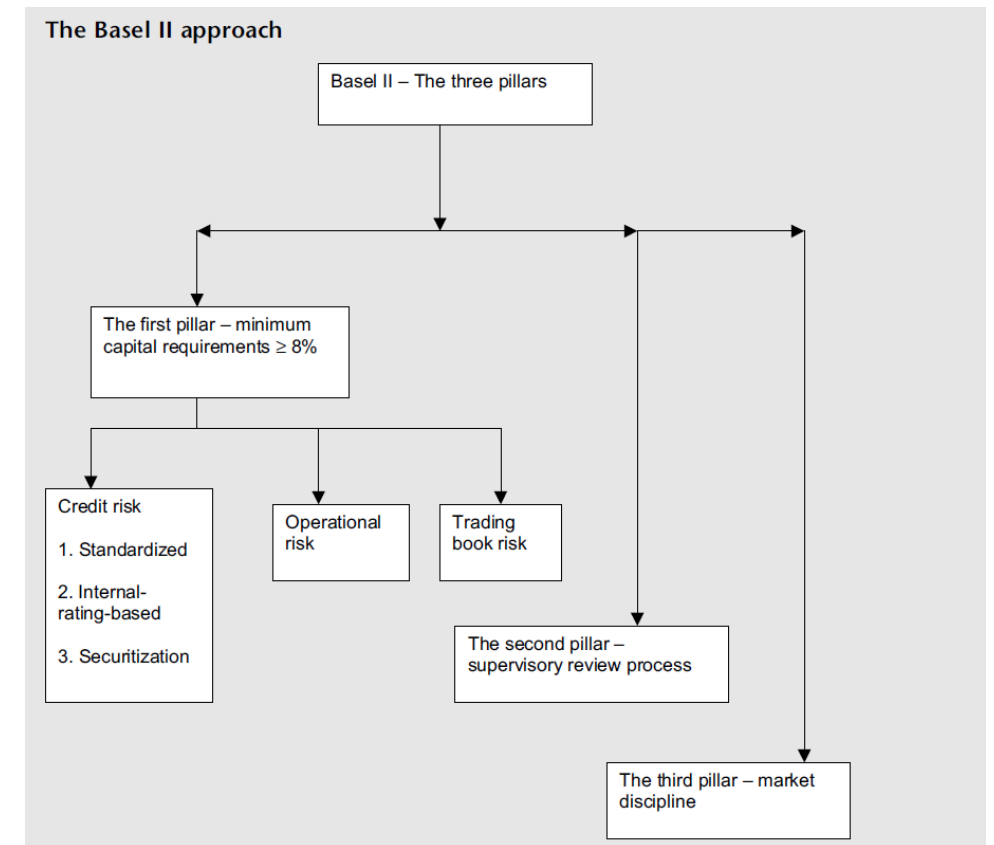
BASEL 2: AN AUGMENTED BASEL 1.

Basel 2: “New” **Risk-based capital adequacy**

- Improved upon the older version of Basel 1.
- Introduce *finer* concepts of *implementation* and *risk topology*.
- Other elements included: *supervisory* and *market discipline*.

BASEL 2: FINER RISKS TOPOLOGY

- Finer risk-weight coefficients
- Allow an efficient bank (with advanced management) to use an internal rating score for picking the risk weight, and hence capital surcharged.
- More types of risk addressed



BASEL 3

Basel 3: “Newer” **Risk-based capital adequacy**

- Even before Lehman Brothers collapsed in September 2008, the need for a fundamental strengthening of the Basel II framework had become apparent. The banking sector entered the financial crisis with **too much leverage and inadequate liquidity buffers**. These weaknesses were accompanied by poor governance and risk management, as well as inappropriate incentive structures. The dangerous combination of these factors was demonstrated by the mispricing of credit and *liquidity risks*, and *excess credit growth*.
- Micro-prudence v.s. *Macro-prudence regulation*.

BASEL 3

a **Countercyclical capital buffer**, which places restrictions on participation by banks in system-wide credit booms with the aim of reducing their losses in credit busts.

a **Leverage ratio** - a minimum amount of loss-absorbing capital relative to all of a bank's assets and off-balance sheet exposures regardless of risk weighting.

Liquidity requirements - a minimum liquidity ratio, the Liquidity Coverage Ratio (LCR), intended to provide enough cash to cover funding needs over a 30-day period of stress; and a longer-term ratio, the Net Stable Funding Ratio (NSFR), intended to address maturity mismatches over the entire balance sheet.

Additional proposals for systemically important financials (SIFIs), including requirements for supplementary capital, augmented contingent capital and strengthened arrangements for cross-border supervision and resolution.