Monetary Policy & Central Banking

Central Banking, Crisis Management and Regulation

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Why do we regulate banks?

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1. **Fragility:** Banks provide liquid claims while investing in longer-term, less-liquid assets.
2. **Information and incentives:** Depositors cannot easily observe bank risk, while banks and their shareholders may have incentives to take excessive risk.
3. **Systemic effects:** The failure or actions of one bank can impose costs on other financial institutions and the wider economy.

Different regulatory tools have developed to address these different problems.

Fragility → Safety net

Incentives → Microprudential regulation

Systemic effects → Macroprudential regulation

1. Bank fragility and the financial safety net

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- Moral hazard: a situation where a person or group takes more risks because someone else pays the cost if things go wrong.

Deposit insurance

- **Without deposit insurance:**
- Fear that others withdraw → I withdraw first → bank run
- **With credible deposit insurance:**
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BUT

- **Without insurance:**
- Bank takes more risk → depositors demand compensation / withdraw → bank bears consequences
- **With insurance:**
- Bank takes more risk → depositors remain protected

Lender of Last Resort (LOLR)

- A solvent bank can fail simply because it cannot obtain liquidity when it needs it.
- This is often referred to as emergency liquidity assistance (ELA).
- **Liquidity problem:** Assets are valuable, but cash is unavailable**.**
- **Solvency problem:** Assets are worth less than liabilities**.**
- LOLR addresses the first problem.
- How can you tell a liquidity from a solvency problem in real time?

Lender of Last Resort

- Suppose: Assets $= 100$ but Liquid assets $= 10$.
- If depositors suddenly demand 30, the bank needs another 20.
- The bank may have valuable loans - but those loans cannot necessarily be converted into cash quickly without a large loss.
- This is especially true in times of uncertainty.
  - If banks are unsure about the creditworthiness of other banks, they will not lend to those who need liquidity.
- The central bank can lend against eligible collateral.

Bagehot's Principle

- Lend freely against good collateral at a penalty rate.
- Provide liquidity during a panic, but preserve incentives for banks to manage risk prudently in normal times.

No LOLR → liquidity panic → forced asset sales → bank failures

BUT

Unconditional LOLR →weaker market discipline → moral hazard

- **What happens to banks' incentives when they know a financial safety net exists?**

Central Bank Swap Lines: An International Liquidity Safety Net

- Banks often borrow and lend in foreign currencies, particularly USD.
- During financial stress, banks may struggle to obtain the foreign currency they need to meet their obligations.
- Central bank swap lines provide a backstop:
  - Two central banks agree to exchange currencies temporarily.
  - The receiving central bank can use the foreign currency to provide liquidity to banks in its jurisdiction.
  - This helps prevent foreign-currency funding shortages from spreading financial instability across borders.
- Central bank cooperation extends the liquidity safety net across national borders.

2. From Safety Net to Prudential Regulation

- Deposit insurance, lender-of-last-resort facilities and swap lines make the banking system more stable.
- But they can also weaken market discipline.
  - Insured depositors have less incentive to monitor bank risk.
  - Banks and their shareholders may therefore take risks whose full costs they do not bear.
- This creates a rationale for prudential regulation.

Capital as a Buffer

- Bank capital absorbs losses before depositors and other creditors do.
- Capital is fundamentally different from liquidity.
- Liquidity asks: Can the bank meet its payments today?
- Capital asks: Can the bank absorb losses without becoming insolvent?

Stylised balance sheet

Assets	
Reserves	10
Loans	90
Total	100

Liabilities + Equity	
Deposits	90
Equity	10
Total	100

Assets = Liabilities + Equity

Loans are assets of the bank. Deposits and equity are two ways of financing those assets.

Equity is the difference between the value of assets and liabilities.

Capital absorbs losses

- Suppose the bank suffers a loss of 5 on its loans.

	Before loss	**After loss**
Assets		
Reserves	10	10
Loans	90	85
Total assets	100	95
Liabilities + Equity		
Deposits	90	90
Equity	10	5
Total	100	95

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Losses reduce the value of assets and are absorbed by equity.
The larger the equity buffer, the greater the losses a bank can absorb before becoming insolvent.

Why Might Banks Choose More Leverage?

	Bank A	Bank B
Total Assets	100	100
Liabilities + Equity		
Debt	80	95
Equity	20	5

	Bank A	Bank B
Profit	10	10
Initial equity	20	5
Return on equity	50%	200%

- Bank B is more leveraged: it finances a larger share of its assets with debt.
- Suppose both banks earn a profit of 10, after funding costs.

- For a given profit, higher leverage increases the return to shareholders.

$$ROE = \frac{\text{Profit}}{\text{Equity}}$$

Why Might Banks Choose Too Much Leverage?

	Bank A	Bank B
Initial equity	20	5
Loss on assets	−10	−10
Equity after loss	10	−5

But leverage also magnifies losses.

Suppose both banks suffer a loss of 10 on their assets.

Bank A remains solvent. Bank B becomes insolvent.

Why might banks nevertheless choose high leverage?

- Shareholders benefit when risky investments succeed.
- Limited liability means they can lose no more than their equity investment: potential costs are partly borne by others.

Private incentives may lead to more risk-taking than is socially optimal.

Why Do We Need Prudential Regulation?

- Banks can take excessive risks in several ways:
  - Leverage: Too little capital to absorb losses.
  - Risky assets: Risky lending or concentrated exposures.
  - Liquidity and funding risk: Excessive reliance on short-term or unstable funding.
- Prudential regulation aims to limit these risks and strengthen banks' resilience.
- Pre-GFC framework: Basel I and Basel II primarily required banks to hold capital as a proportion of risk-weighted assets.

Why did pre-crisis banking regulation prove inadequate?

- The Global Financial Crisis exposed the limitations of a regulatory framework centred on capital adequacy:
  - Risk-weights could underestimate risk.
  - Some off-balance-sheet exposures were not adequately captured.
  - Many banks had insufficient capital to absorb large losses.
  - Liquidity and funding risks were inadequately addressed.
- Meeting regulatory capital requirements does not necessarily mean a bank is safe.

Basel III: Strengthening Bank Regulation

- Capital requirements
  - More and higher-quality capital to absorb losses.
  - Capital buffers to provide additional protection during periods of stress.
  - Additional requirements for systemically important banks.
  - A leverage ratio to complement risk-weighted capital requirements.
- Liquidity requirements
  - Must hold sufficient liquid assets to withstand short-term funding stress.
  - Must maintain sufficiently stable funding relative to their assets.
- Aim: Make banks more resilient to losses and liquidity shocks, reducing the likelihood and consequences of bank failures.

Task: Why did Credit Suisse fail?

- Did Credit Suisse meet its regulatory capital and liquidity requirements before the crisis in March 2023?
- If so, why did it nevertheless experience a crisis?
- What did the Swiss authorities do to address the crisis?
- Why might the authorities have been concerned about allowing Credit Suisse to fail in a disorderly manner?

- Use the below link and/or whatever sources you find:
- Why did Credit Suisse fail and what does it mean for banking regulation? - Economics Observatory

3. When individual-bank regulation is not enough

Even if individual banks meet capital and liquidity requirements, does that guarantee the stability of the financial system?

Too Big to Fail: The Regulatory Dilemma

- Some banks are so large, complex or interconnected that their disorderly failure could threaten the wider financial system.
- This creates a dilemma for authorities:
  - Intervene: Protect financial stability, but potentially weaken market discipline.
  - Do not intervene: Preserve incentives to manage risk, but risk wider financial disruption.
- If creditors expect a bank to be rescued, they may have less incentive to monitor its risks.
- Too big to fail creates a trade-off between financial stability today and incentives to take risks in the future.

How can a distressed bank be stabilised or restructured?

- Emergency liquidity assistance (central bank as LOLR, discussed already)
  - Can only address immediate funding pressures.
- Private-sector solutions
  - Raise new capital, sell assets or businesses, or find a buyer.
  - May restore confidence and allow the bank to continue operating.
- Recapitalisation or resolution
  - Recapitalisation: Restore the bank's capital, potentially through public intervention.
  - Resolution: Restructure or wind down a failing bank while preserving critical functions and imposing losses on shareholders and eligible creditors.

Making Systemic Banks Resolvable

- Living wills (recovery and resolution plans)
  - Prepared in advance to make it easier to manage a bank in severe distress.
  - Recovery plans identify measures the bank could take to restore viability.
  - Resolution plans set out how authorities could restructure or wind down the bank while preserving critical functions.
- The objective: Allow even a systemically important bank to fail without causing widespread disruption or requiring a taxpayer-funded bailout.
- But: Having a resolution plan does not guarantee that authorities will choose to use it in a crisis.

Systemic Risk: One bank's failure can affect the whole system

- **Contagion and interconnectedness**
  - Distress at one institution can spread to others through financial exposures, funding markets and confidence.
  - Credit Suisse illustrates this concern.
- **Common exposures and procyclicality**
  - Banks may take similar risks during a boom.
  - When conditions deteriorate, simultaneous asset sales and reductions in lending can amplify the downturn.
- Both mechanisms mean that microprudential regulation may be insufficient to ensure financial stability.

Microprudential vs Macroprudential

	Microprudential	**Macroprudential**
Unit of analysis	Individual institution	Financial system
Main question	Is this bank safe?	Is the system stable?
Focus	Idiosyncratic risk	Systemic risk
Key concern	Bank failure	System-wide instability
Policy orientation	Institution-specific	System-wide / cyclical

Institutional responsibility

- Microprudential supervision may sit within the central bank or a separate supervisory authority.
- Central banks often play a leading role in macroprudential policy, although responsibility may be shared with other authorities.

Two Dimensions of Macroprudential Policy

- **Time dimension**
- How does systemic risk evolve over the financial cycle?
- Boom → Risk accumulation → Downturn
- Policy objective:
- Build buffers in good times → use buffers in bad times

- **Cross-sectional dimension**
- How is risk distributed across institutions?
- Examples: interconnectedness, common exposures, systemically important institutions, concentration
- Who is connected to whom?

Capital-Based Macroprudential Tools

- **Countercyclical capital buffer**
- Raise capital requirements during a credit boom.
- Credit expansion → vulnerability ↑→ buffer ↑

- Reduce them in a severe downturn.
- Losses→capital pressure→buffer release→support lending capacity

Borrower-Based Macroprudential Tools

- **Loan-to-value ratio**

$$LTV = \frac{\text{Loan}}{\text{Property value}}$$

- Example: $LTV \leq 80\%$ means a 1m property requires at least 200,000 of downpayment/deposit.
- **Debt-to-income ratio**

$$DTI = \frac{\text{Debt}}{\text{Income}}$$

- Limits excessive household leverage.

Do mortgage restrictions help or hurt homebuyers?

Task: Do mortgage restrictions help or hurt homebuyers?

- What does the evidence suggest about the effects of mortgage lending restrictions on household debt, house prices and homeownership?
- How do loan-to-income and loan-to-value limits reduce risks to financial stability?
- Who might benefit or lose from tighter mortgage restrictions? Consider prospective buyers, existing homeowners and renters.
- Should regulators tighten mortgage restrictions during a housing boom, even if this makes homeownership harder for some households?
- Use the below link and/or whatever sources you find:
- The impact of borrower-based measures - an international comparison | Central Bank of Ireland

Task: Do mortgage restrictions help or hurt homebuyers?

- **Mortgage Restrictions and the Rental Market**
- Potential spillover: Tighter mortgage restrictions may shift demand towards renting, putting upward pressure on rents.
- Offsetting adjustments: Rental supply may increase, while credit-constrained buyers may adjust their housing choices rather than rent for longer.
- Irish evidence: Mortgage restrictions slowed house-price growth, but had little measurable effect on rental inflation.
- Mortgage Measures and Rental Yields in Ireland | Central Bank of Ireland