The Macroeconomics of Imperfect Capital Markets

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Lecture 1: Introduction to the Modern Financial System

Introduction

Why should we care about imperfections in capital markets?

In particular, why should we care about it in macro and international finance?

- Financial markets are at the heart of market economies, coordinating
  - most intertemporal allocations
  - a great deal of intratemporal allocations
- But sometimes they suffer from a "heart attack:"
  - real estate bubble and subprime mortgage crisis
  - emerging market financial crises
  - European debt crisis
  - continuing US credit crunch
  - ...

Alessandri and Haldane: Banking on the State (BoE, 2009)

Social Contract between Banks and the State:

- banking sector relies on the state for support in crisis times
- in return it accepts regulation by the state

$\longrightarrow$ terms of this social contract have recently worsened
$\longrightarrow$ for many countries, biggest sovereign risk is banking system

- safety nets have expanded considerably
- there is a time consistency problem in "bailout policy:"
  - talk tough, but act weak

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3 Components of Banking Safety Net:

1. liquidity insurance
2. deposit insurance
3. capital insurance

Focus on "Insurable Interest" of the State:

- starting in 1970s:
  - bank balance sheets have expanded tenfold
  - capital and liquidity ratios have fallen significantly
- before 1970s, ROE typically around 10%
- in 2006 it was close to 30%

Alessandri and Haldane: Banking on the State (BoE, 2009)

History of Financial Safety Nets:

1. liquidity insurance:
   - started in UK in early 19th century
   - expanded significantly in recent crisis (10 - 40% of GDP)
2. deposit insurance:
   - started in US in 1934
   - over time introduced in many other countries, typically in response to banking crises
3. capital insurance:
   - started in US in 1932 (Reconstruction Finance Corporation)
   - commonplace in recent crisis

$\Rightarrow$ strong ratchet effect (hysteresis)

$\Rightarrow$ suggests danger of moral hazard

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Five Ways for Banks to Exploit Safety Nets:

1. Higher leverage: increase total assets
2. Higher trading assets: take on more market risk
3. Business line diversification: diversify idiosyncratic risk but enhance exposure to aggregate risk
4. High default assets: take on more credit risk
   (losses bunched in tail)
5. Out-of-the-money options: appear to generate "alpha" in good times

Feedback Effects:

- each crisis leads to new bailouts
- new bailouts lead banks to take on even more risk

$\longrightarrow$ doom loop

Alessandri and Haldane: Banking on the State (BoE, 2009)

Two Solutions to Resolve Time-Inconsistency:

1. Redesigning the Financial System:
   - Introducing leverage limits (in Europe)
   - Increasing/recalibrating risk weights
   - Rethinking bank capital structure to reduce limited liability:
     - contingent capital
     - depositor preference in bankruptcy
   - Reconsidering industrial structure ("too big to fail")
2. Redesigning the Safety Net:
   - Creating a pre-defined & transparent framework for:
     - liquidity insurance
     - deposit insurance (more risk-sensitivity)
     - capital insurance

Otherwise: *Risk expands to exhaust available resources.*

Haldane: The $100bn Question (BoE, 2010)

The $100 Billion Question:

- Discusses the external cost of the financial sector to society
- draws analogy to traditional forms of externalities
- analyzes optimal policy responses:
  - taxation (price regulation)
  - prohibition (quantity regulation)

Haldane: The $100bn Question (BoE, 2010)

External Costs of the Financial Sector:

- narrowest interpretation: realized fiscal cost
  ($\approx$ \$100bn in US for recent crisis)
- broader output costs: $\approx$ 6.5% of world output in 2009
  if 25% of these are permanent: \$60tn cost
- implicit fiscal subsidy to banks: captured by "support" vs. "standalone" ratings: $\approx$ \$100bn/year in US

Regulation vs. Prohibition:

- if social costs $>$ private benefits, strong case for prohibition

Haldane: The $100bn Question (BoE, 2010)

Price Vs. Quantity Regulation: Weitzman (1974)

- assume $MPV = \hat{p} - a\left(q - \hat{q} - \varepsilon\right)$, $MSC = \hat{p} + b\left(q - \hat{q}\right)$ and ε is unobservable to policymaker
- optimality requires $q^* = \hat{q} + \frac{a}{a+b}\varepsilon$
- deadweight loss of deviations is $DWL = \frac{(a+b)(q-q^*)}{2}$
- under optimal price regulation $p = \hat{p}$: $q = \hat{q} + \varepsilon$, $DWL = \frac{b\varepsilon}{2}$
- under optimal quantity regulation $q = \hat{q}$: $p = \hat{p} + a\varepsilon$, $DWL = \frac{a\varepsilon}{2}$

$\longrightarrow$ if $a > b$ (steep private value function), better regulate prices

$\longrightarrow$ if $b > a$ (steep social cost function), better regulate quantities

Haldane: The $100bn Question (BoE, 2010)

Historical Examples of Regulation in US:

- McFadden Act of 1927: prohibition of new bank branches across state lines
- Glass-Steagall Act of 1933: separation of commerical and investment banking $\longrightarrow$ stability concerns

- both were progressively undermined starting from 1970s, e.g. through shadow banking
- both were lifted in 1990s

Note: regulatory policy followed perceived social cost/benefit tradeoff as in Weitzman (1974)

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Benefits of Prohibition:

- modularity: greater systemic resilience to (foreseeable) shocks
- robustness to unforeseen events
  (counterexample Basel II: extremely complex, unrobust)
- less incentives for banks to generate tail risks

Costs of Prohibition:

- economies of scale
- economies of scope

But: empirics suggests that these are exhausted around $5 – $10bn
$\longrightarrow$ after some threshold, there may be diseconomies of scale

$100bn may not just be part of the question,
it may be the answer