

# Efficient risk and bank regulation

Behzad Diba and Olivier Loisel

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## In which direction do banks shift efficient risk?

- ▶ **Research question:** What is the socially optimal level of aggregate risk when risk is efficient? Is it different from private optimum of banks?
  - ▶ More specifically: if it is efficient to take on risk (i.e. higher expected return than safe technology), is the level of risk in a banking economy in which deposits are insured and with limited liability still necessarily too high?
- ▶ Usual argument (Kareken Wallace 1978 for ex): deposit insurance induces risk shifting towards too much risk (if riskiness of portfolio not observable such that premium not set at efficient level)
- ▶ But, with efficient risk, risk-shifting argument can be re-investigated: **could there be risk avoidance?**

## Motivation: is regulation based on wrong approach?

- ▶ Empirically, claim that risk is efficient could be made
- ▶ Very important for bank regulation to know if and under which conditions there is over risk taking or risk avoidance by banks
  - ▶ Do we really understand effects of capital ratios? Do they have monotonous effect?
  - ▶ Could other type of regulation be designed to deal with risk avoidance?

## Model Overview

- ▶ Static setting (2 periods), banking model with **risk-averse HH**, **ex ante identical banks** hit by **aggregate shock on return** in period 2, and regulation authority

Bank Balance Sheet	
<b>LT safe asset Z (exo)</b>	<b>equity E (exo)</b>
ST safe asset X	deposits D
ST risky asset Y	

- ▶ **Institutional framework given**: deposit insurance + limited liability + resolution with seizure of LT assets
- ▶ Regulator has an instrument to deal with inefficiencies: capital ratio and observe total asset but not risk structure of the portfolio

## Source of inefficiency

- ▶ In the presence of frictions, inefficiency arises from the fact that banks do not internalize the impact of their decision on taxpayers as they only care about dividends of shareholders
- ▶ What are the frictions?
  1. Deposit insurance financed by lump-sum taxes on HH: cost of failure does not rely on banks shareholders
  2. Limited liability: when failure, shareholders do not suffer loss
  3. Bankruptcy rule: LT assets seized and returns redistributed to HH so that charter value is lost to shareholders from the point of view of the bank (even if all HH get return from LT assets in the end)

## Mechanism

- ▶ Different equilibria for which conditions are identified.  
**Strategic interactions** between banks can imply **mixed equilibria** where *ex ante* identical banks take different decisions i.e. being vulnerable (fail in worst state of the world) or not
- ▶ In some equilibria, banks take on **too much risk**
  - ▶ Banks do not internalize cost of failure for taxpayers
  - ▶ Happens when  $d > R^Z z$  i.e. when loss of charter value  $R^Z z$  is sufficiently small
- ▶ In some other equilibria, banks can take **too little risk**
  - ▶ Banks do not internalize the fact that charter value is not lost to HH in case of failure
  - ▶ Happens when  $d < R^Z z$  i.e. loss of charter value  $R^Z z$  is too high

## Remarks on setting and interpretation - 1

- ▶ If interpret risky and safe ST technologies as loans, then fact that risky would remain efficient over the cycle can be discussed: what can lead to a financial crisis is the fact that bank take on riskier and riskier loans so that expected return might end up being lower than safe technology: story of bad mortgage. In a sense, returns of risky not exogenous
- ▶ Interpretation of risk cycle as different from credit cycle unclear if assets are loans in the sense that lending more would be equivalent to invest more in risky technology  $y$ ?
- ▶ To get these cycles, would be nice to have endogenous equity  $e$  varying over the cycle and generating this - would need a dynamic setting. Income shocks on HH leading to variation in their wealth and then of  $e$ ?

## Remarks on setting and interpretation - 2

- ▶ As riskiness choice only for ST assets, and not long-term which are exogenous and have no uncertainty, is it more akin to studying liquidity ratio than capital ratio? Here failure occurs for liquidity reasons, not pure insolvency (?)
- ▶ General remark on this class of models: inefficiency comes from institutional features (deposit insurance, limited liability etc.) taken as given and whose benefits are not modeled



## Policy-oriented remarks - 1

- ▶ Set of instruments of social planner here restricted to capital ratio (and later LLR), what other policy could be contemplated? Could a tax on realized return align interest of shareholders and tax payers incentivizing banks to take the socially efficient decision?
- ▶ What would be the effect of a bail-out implying no loss of charter value (i.e. no seizure of LT assets) as internalized by the bank: would the mechanism leading to risk-avoidance disappear?
- ▶ How empirically relevant is the resolution policy with seizure of assets?

## Policy-oriented remarks - 2

- ▶ Here, HH is altogether shareholder, depositor, taxpayer. In real world, shareholders represent only a fraction of the population. For welfare analysis, would having heterogeneous HH (some idiosyncratic income shock such that some can become shareholders and other not) matter for the social planner? Only different level but probably not different direction of welfare effects (?)
- ▶ If deposit insurance were financed by taxes imposed on banks rather than taxpayers, would over risk taking disappear? Could go towards aligning incentives

## Conclusion: a very nice model with crucial implications!

- ▶ Very clear theoretical framework, very well designed for the purpose and mechanism clearly identified and explained
- ▶ Contribution is very relevant
  1. Identifies equilibria in which there is risk-avoidance by banks
  2. As a consequence, shows that capital ratio effects are not monotonous: in case of risk avoidance, not suited (harmful?)
  3. Relies on strategical behavior of banks coming from last standing bank creating mixed equilibria
- ▶ The paper has very important policy implications: capital ratios should be reexamined, **new argument for counter-cyclical ratios once setting is dynamic**