Liquidity and Transparency
in Bank Risk Management

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Liquidity Risk

■ A solvent bank cannot refinance

■ <u>Stylized facts</u> (recent events)

➢ Solvency concerns

  ☐ 1991, *Citibank* and *Standard Chartered* (HK)
  ☐ 1998, *Lehman Brothers*
  ☐ 2002, *Commerzbank*

➢ Strain in wholesale finance

  ☐ 2006, *BAWAG*, 5% retail withdrawals

Liquidity and Transparency

- Two ways to manage liquidity risk:

  - ☐ Liquidity

    buffer of short-term assets

  - ☐ Transparency

    mechanisms that facilitates communication of solvency info → enable refinancing

- Both - strategic ex-ante decisions

- Optimal choices, interaction, policy implications

Strategic Transparency

- **Invest today into ability to borrow tomorrow**

- **Transparency: ex-ante**
- **Disclosure: ex-post – info release**
  - Uncertain credibility / effectiveness

- **Examples:**
  - Subordinated debt
  - Risk management / external oversight
  - Streamlining LCFIs
  - Commitment to credible disclosure
    Citicorp 1987: provisions $3bn, positive reaction

Main results

- **Banks can combine liquidity and transparency in risk management**
  - □ Liquidity – small shocks, complete
  - □ Transparency – all shocks, partial

- **Banks may under-invest in both**
  - □ Leverage (or LOLR or externalities)

- **Regulation complicated by multitasking**
  - □ Liquidity requirements can compromise transparency choices

Policy

- **Solvency is not enough**
  - ☐ Asymmetric info → Liquidity risk

- **Liquidity regulation**
  - ☐ If incorrect, can compromise transparency
  - ☐ Extra emphasis on transparency beneficial

Set-up

- Liquidity risk driven by asymmetric information
- Wholesale refinancing for known solvent banks

- Bank has a valuable long-term project
  - Small probability of 0 return
  - Does not prevent initial funding

- Intermediate refinancing
  - Exogenous random withdrawal
  - Most states – bank confirmed solvent, investors willing to refinance
 - Risk: negative signal (possible for a solvent bank), no refinancing

Economy

- ■ Multiple competitive investors
    - ☐ Endowed with money
    - ☐ Lend at 1 risk-free interest

- ■ A bank   with an investment project
    - ☐ Date 0: Investment
    - ☐ Date 1: Refinancing
    - ☐ Date 2: Returns,

      per unit invested: X w.p. $1-s$

      0 w.p. s (s small)

- ■ A bank does not borrow more than 1 at date 0

Intermediate Refinancing – date 1

- **Random withdrawal,** $L<1$ or 1 w.p. ½
    - ☐ Uninformed depositors
    - ☐ Maturing term liabilities

- **Noisy solvency signal**

    - ☐ Fundamentals: solvent $1-s$, insolvent s

    - ☐ Probability $1-s-q$: correct signal "solvent"
      Outsiders willing to refinance

    - ☐ Probability $s+q$: "possibly insolvent"
      High posterior insolvency $s/(s+q) > s$
      Outsiders unwilling to refinance, incl q solvent banks
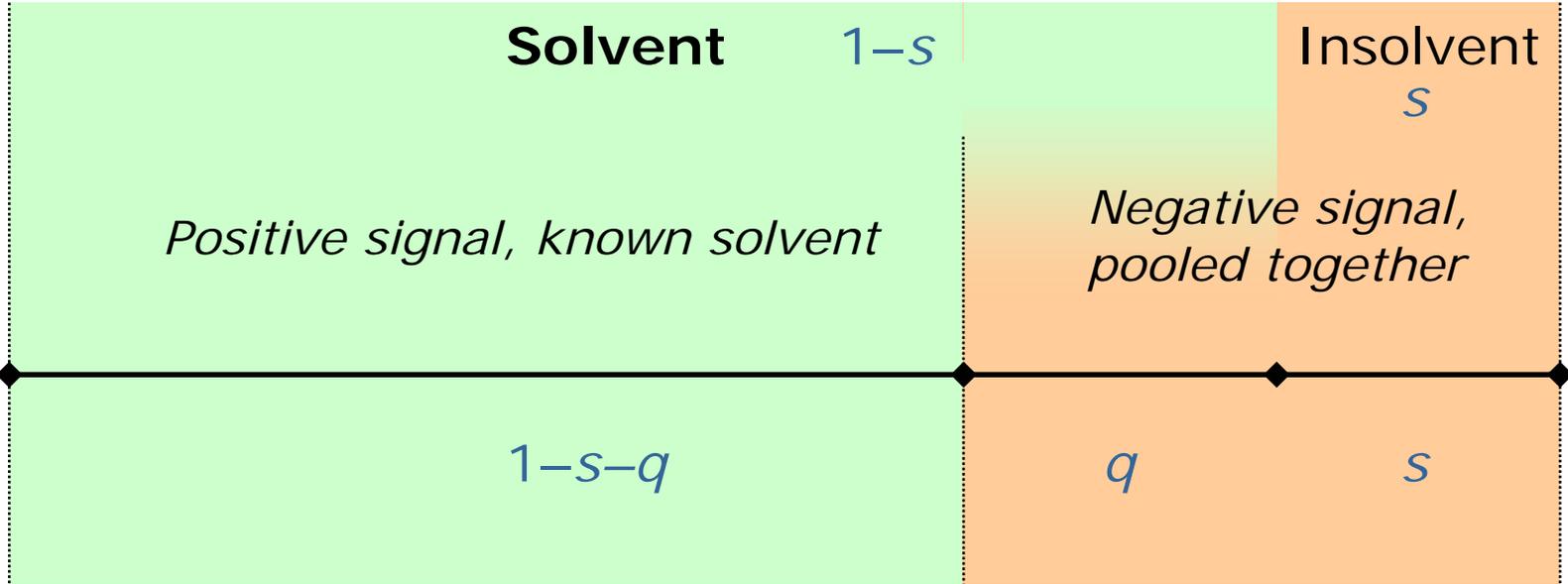
Hedging

- **Liquidity buffer**
  - ☐ Invest L into short-term assets
  - ☐ Covers small outflows internally
  - ☐ Not suitable for large outflows
- ➢ Complete insurance against small shocks

- **Transparency**
  - ☐ Invest T to establish communication mech-ms
  - ☐ Helps resolve uncertainty, refinance any shocks
  - ☐ Effective only with probability $t<1$
- ➢ Partial insurance against any shocks

Optimal choices

- Liquidity and transparency are costly hedges
- When costs are sufficiently low…

- Banks can optimally *combine* liquidity and transparency in risk management
  - ☐ Liquidity – small shocks, complete
  - ☐ Transparency – large shocks, partial

Distortion

- Banks are leveraged   →

- Can under-invest in both liquidity and transparency

- Alternative set-ups possible (LOLR rents or systemic externalities)

Regulation

- **Liquidity is verifiable → impose ratios**
- **Transparency   →   ?**

- **Multi-tasking**

- **Liquidity requirements can compromise transparency choices**

  - ☐ Impose "too much" liquidity on transparent banks, get liquidity only & exposure to larger shocks

Contribution

- **Novel model of liquidity risk**

- **Closest:** Chari and Jagannathan, 1988
  - ☐ Consumer runs under asymmetric information
  - ☐ Uninformed observe a withdrawal
    May be not information-based
    Amplification of liquidity withdrawals
  - ☐ No refinancing

- **Our approach**
  - ☐ **Wholesale funding under asymmetric information**
  - ☐ Downplay withdrawals:
    Known solvent can refinance, Goodfriend and King, 1988
  - ☐ Refinancing problem: Imprecise info of informed investors
  - ☐ How to prove solvency?

- **Liability-side liquidity risk, but no bank runs**
- **Reflects flight to quality**

Main results

- Banks can combine liquidity and transparency in risk management

- Banks may under-invest in both

- Regulation is complicated by multitasking

- Lessons for liquidity regulation
  - ☐ Solvency regulation not enough
  - ☐ Incorrect liquidity requirements can compromise transparency choices
  - ☐ Additional emphasis on transparency beneficial