ILLIQUIDITY AND ALL ITS FRIENDS

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Funding and market liquidity

- A
  - T-bills, quasi-cash ✓
  - other securities ✓
  - "illiquid assets" ✓

- L
  - retail deposits ✓
  - wholesale deposits ✓
  - MT/LT debt, hybrid securities ✓
  - equity ✓

issuing new securities/ diluting existing claimholders = funding liquidity
[ determinants: corporate governance, absence of debt overhang, ...]

Others: risk management, reputation risk, ...
### Funding and market liquidity

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Hard to capture with a single statistics
Demand for liquidity

(1) Return to capital market ("finance as you go")
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(2) "Reserves"

  self-hoarding  • low ST debt (relative to earnings)
  • liquid assets on balance sheet
  • resell, securitize less liquid assets

contracted for  • credit line, CDS, ...
Should liquidity be monitored?

✓ In theory: underhoarding (sacrifice insurance for scale), or overhoarding (Jensen: too much cash) if left unmonitored.
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✓ Underhoarding key concern:
  
  • regulator protects debt claims
  • externalities (systemic risk)
  • macro-prudential regulation.
2 causes: adverse selection and insufficient financial muscle (local liquidity).

Recent work: adverse selection and market breakdowns highly endogenous.
Well-known

- *rationales*
  
  [exit and reinvestment; demand for stores of value; diversification]

- *hazards.*
Well-known

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- hazards.

Does perceived fragility create a stigma? (Malherbe 2009)
Well-known

- **rationales**
  [exit and reinvestment; demand for stores of value; diversification]

- **hazards.**

Does perceived fragility create a stigma? (Malherbe 2009)

Assumption: banks have imprecise estimates of other banks’ liquidity position.
Topsy-Turvy principle:

- funding liquidity: perceived fragility impairs refinancing
  [discount window, CCL, ...]

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✓ Multiple equilibria:

market believes little liquidity $\implies$ little adverse selection $\implies$
securitization market operates $\implies$
no need to hoard much liquidity,
and conversely.

Background:

- Debt as a low-information intensity security
  
  [Myers-Majluf 1984, security design literature]

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- Agents relying on market liquidity (short horizons) have a preference for easily resalable, low-information-intensity claims
  [Gorton-Pennacchi 1990]
DGH’s double whammy argument:

Debt claim

\[ D \]

Expected value
here:
information
acquisition

Expected value
here:
LLI security,
fully tradable

freezing
of market

liquid
FINANCIAL MUSCLE

Are there specialized buyers (with financial muscle) on other side?


\[
\begin{align*}
\text{Lots of liquidity sellers} & \rightarrow \text{may trigger further sales & price decrease} \\
\text{Price softness} & \quad \text{[bankruptcy in their work, MVA]}
\end{align*}
\]
Are there specialized buyers (with financial muscle) on other side?

- **Allen-Gale** (1994, 1998, ...) *cash-in-the-market pricing model*: precursor of fire-sale models:

  - Lots of liquidity sellers → may trigger further sales & price decrease
  - Price softness [bankruptcy in their work, MVA]

  - Underhoarding: if intact banks’ liquidity exerts a positive externality on distressed ones

  [Caballero-Krishnamurthy 2001, 2003]
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\text{Underhoarding: if intact banks’ liquidity exerts a positive externality on distressed ones} & \Rightarrow \text{[Caballero-Krishnamurthy 2001, 2003]} \\
\text{Overhoarding: vulture behaviors; hoard liquidity to overbid rivals for distressed assets. Reinterpretation: wait for prices to decrease even more} & \Rightarrow \text{[Holmström-Tirole 2009]} 
\end{align*} \]
✓ Regulators’ lenient attitude toward OTC markets

[indirect form of regulatory evasion/put on taxpayer money]

unregulated players had to be rescued

inter alia

[AIG holding, investment banks]
 ✓ Regulators’ lenient attitude toward OTC markets
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     ➔ unregulated players had to be rescued
       inter alia
         [AIG holding, investment banks]

 ✓ Benefits of centralized platforms with standardized products
   - multilateral netting
   - transparency.
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   unregulated players had to be rescued
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✓ Benefits of centralized platforms with standardized products
   - multilateral netting
   - transparency.

Remarks:
   - platform should be carefully monitored (avoid TBTF)
   - can have bilateral exposures in centralized system
     [some payment systems]
   OK. Key is transparency and netting.
Reforms

- don’t try to regulate everything:
  1. insufficient staff,
  2. migration
- insulate “regulated sphere” against large-scale defaults
  [representation hypothesis].

To this purpose impose high capital charges on OTC contracts.
Models of contagion

✓ Allen-Gale (2000) and others: domino effects:

Caballero-Krishnamurthy (2009): as in Dang et al., information acquisition in bad times

[here: about health of counterparty of counterparty of... Daunting task]
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✓ “Lucas critique”: network of cross-exposures affected by
   - regulatory environment
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✓ “Lucas critique”: network of cross-exposures affected by

   • regulatory environment
   • underlying risk

   [compare OTC and payment systems]

✓ What are bilateral exposures about?

   Must go together with incentives to monitor. Otherwise not justified.

   [Rochet-Tirole 1996 monitoring model]
Possibility of shortages

[Holsmtröm-Tirole 1998]
AGGREGATE LIQUIDITY

✓ Possibility of shortages

[Holsmtröm-Tirole 1998]

Key:

Imperfect pledgeability of income

private demand for liquidity
[none in Arrow-Debreu]

rationale for shortages of private liquidity/public supply of liquidity
[creation of stores of value]
✓ Recent crisis: dire consequences of a widespread maturity mismatch:

- Commercial banks’ liquidity support to conduits, and wholesale borrowing.
- Increase in market share of investment banks (which rely more on repos and CP than retail banks).
- Primary dealers.
- LBOs, households (ARMs, refinancing), ...
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Widespread monetary and fiscal bailouts.
Benefit: Rescue institutions that rely on the wholesale market for funding.
[Farhi-Tirole 2009]

**Benefit:** Rescue institutions that rely on the wholesale market for funding.

**Monetary bailouts:** Costs of low interest rates

- wedge MRS/MRT
- (implicit) subsidy to borrowers
- sows seed of next crisis. Three channels: incentive to lever; incentive to borrow short; reputation
- inflation; price dispersion (New Keynesian models).
Observation:

Distortion costs are to a large extent “fixed”

\[\rightarrow \text{strategic complementarities}\]
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Distortion costs are to a large extent “fixed”

→ strategic complementarities

When everyone engages in maturity transformation....

- authorities have little choice but enabling refinancing
- refusing to adopt risky balance sheet lowers ROE.
Consequences

- There may exist multiple equilibria.
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- An increase in probability of distress may well *reduce* liquidity/capital insurance.

- *TI problem*: central bank would like to commit to rigorous monetary policy. But when push comes to shove...

  ➔ rationale for macro-prudential regulation
Use quantity instrument (minimum liquidity ratio), not price instrument (subsidizing liquidity hoarding).
REGULATION

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- Need to monitor *quality* of liquid assets. $SC$ in substituting toward toxic assets.
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Monitor liquidity of strategic and politically powerful agents.
Mechanism design (optimal monetary + recapitalization bailout)

- **Question**: Does monetary policy still have a role? Involves subsidy anyway, and is not targeted...
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- **Question**: Does monetary policy still have a role? Involves subsidy anyway, and is not targeted...

  **Answer**: monetary policy helps those who really need refinancing. Fiscal bailouts are more restricted, but may hand over money to institutions that do not need it (analysis: authorities face adverse selection).
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Thank you very much!