Liquidity and the Structure of Intermediation

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Average lending distance between firm and bank in the United States (Granja, Leuz, and Rajan (2019))
Pro-cyclical Intermediary Leverage

1 Total assets divided by total equity, weighted by asset size.  
2 For all the banks showed in this graph.  
3 Bank of America, Citigroup, Goldman Sachs, JPMorgan Chase, Lehman Brothers (up to 08Q2), Merrill Lynch & Co, Morgan Stanley, Wachovia Corporation (up to 08Q2) and Wells Fargo & Company.  
4 Banco Santander, BNP Paribas, Commerzbank AG, Credit Suisse, Deutsche Bank, UBS, UniCredit SpA.  
5 Barclays, HSBC, Lloyds TSB Group, Royal Bank of Scotland.  

Sources: Capital IQ; BIS calculations.
Motivation

- What explains the seemingly increased risk taking over the financial cycle?
- What explains low intermediary capital/high leverage at the peak?
- Are the two connected?
Liquidity: the wealth (net worth) of experts in the real sector (firms) who are able to produce with specialized assets.

- Current net worth/liquidity ⇒ Can reduce upfront borrowing.
- Increased anticipated future net worth/liquidity ⇒ Increases the future value of the firm as collateral (Shleifer-Vishny (1992)).

Financial intermediaries:

- Increase corporate governance through screening, monitoring, and certification
- Certify intermediation services through “skin in the game” capital
This paper

- What changes over the financial cycle: corporate liquidity!
  - Perhaps affected by monetary policy
- Current and future liquidity alters the need for governance services provided by intermediaries
  - Lowers up front borrowing and increases debt recovery
  - e.g., Liquid housing market
- Periods of abundant anticipated liquidity narrow sources of finance:
  - Increases dependence of corporate borrowing on continuing liquidity while reducing need for “skin in the game” intermediary capital.
  - Riskier loans may be made
- May seem like low intermediary capital causes intermediary risk taking but…
The model in four slides

- Corporate expert needs to borrow for a two-period project of size I
- After starting project, incumbent expert may need to sell out (or raise more financing) at interim date
- Only other experts can run the project. They are the natural bidders at an interim date.
- Their bids allow the incumbent to sell out if needed but also help the financier enforce payments.

Financiers

- Bank – can screen experts
- Direct investors -- cannot

Financiers can enforce debt by

- Seizing project on non-payment and selling to other experts or threatening to do so.
- Directly appropriating cash flows if corporate governance/cash flow pledgeability is high.
The project and current and future liquidity

- Three-date, two-period, uncertain future industry liquidity

Initial expert has liquidity $\omega_0$ and needs to borrow at least $I - \omega_0$ at date 0 through short-term debt contract $D_1$.

- $\omega_0$ - our notion of current liquidity, $\omega_1^{E,s_1}$ is anticipated future liquidity in state $s_1$. 

Pr($G$) = $q$

Pr($B$) = 1 - $q$
Only reliable experts can increase cash flow pledgeability. Only banks can screen for such experts up front.

- Higher pledgeability increases the fraction of verifiable cash flow that any lender can appropriate.

Bank: Costly screening thus enhances governance/pledgeability.

- Bank capital: Costly equity retention to commit to screening/monitoring.
Governance/pledgeability of cash flows

Reliable incumbent can increase pledgeability and borrowing capacity

- Can increase $\gamma_2$ from $\underline{\gamma}$ to $\overline{\gamma}$ after date 0.
- $\gamma_2 C_2$ is verifiable and can be a committed date-2 payment to any investor.
- Increased $\gamma_2$ may allow more to be borrowed at date 1 (and may increase bids for the firm at date 1).
- But $\gamma_2$ is set by the incumbent after borrowing. Why would she increase it if it increases her repayment?
  - Higher incentive to increase if high need to sell/raise funds
  - Incentive lower if high debt outstanding
Payment Enforcement

• Debt enforcement by banker at date 1 through threat of sales to other experts for the amount they bid. Experts with higher net worth can bid more.

• $\omega_{1,s_1}^E$ – outside experts’ own funds (anticipated future liquidity in state $s_1$)

• Cash flow pledgeability: $\gamma_2 C_2$

• At future date 1 experts will bid:

$$B_{1,s_1}^E (\gamma_2) = \min \left\{ \omega_{1,s_1}^E, \gamma_2 C_2, C_2 \right\}$$

   - date-1 liquidity
   - pledgeability-based borrowing
   - value of asset
Results

- Higher anticipated corporate liquidity, higher debt repayment can be supported without pledgeability
- Higher debt outstanding, lower incentive to raise pledgeability

Implications for equilibria

- High future corporate liquidity => higher amount can be borrowed today
  - Low pledgeability set and low need for intermediation
  - Banks have low capital
  - Higher credit risk, especially if liquidity does not materialize
- Moderate corporate liquidity => moderate borrowing today
  - High pledgeability and high need for intermediation
  - Banks have high capital to commit to perform screening services
  - Lower credit risk but more credit rationing
Equilibrium Roles for Intermediaries

Current Liquidity

Future liquidity if good times continue

Lending with certification, Low bank Leverage

Lending without certification/screening
Cov. Lite., Pass-throughs, High Int. Leverage

No Lending
Conclusion

- Abundant corporate liquidity reduces the need for governance and also intermediary services that enhance governance.
  - Narrows sources of finance
- Reduced need for intermediary to commit to providing services implies less need for intermediary capital.
  - Demand for intermediary capital low
  - Pass-through entities proliferate
- Resulting low corporate pledgeability/low intermediary capital can really hurt the economy if corporate liquidity evaporates.
- High liquidity, not low capital, is ultimate cause of risk taking in the model.