Capital: How Much is Enough?

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- Goals of capital regulation:
  - Micro-prudential vs. macro-prudential.
- Sizing capital requirements:
  - Goal is reduce system's vulnerability to crises.
- What about the costs of higher capital requirements?
  - Impact on the cost of credit?
- Possible unintended consequences.

Micro- vs. Macro-prudential Approaches

- **Micro-prudential**: Each bank should have enough capital to ensure that DIF losses/bailouts are unlikely.
  - Market failure is moral hazard/TBTF: Firms take on excessive risk/leverage to extract subsidies.
  - Partial equilibrium: Following a loss, bank must take steps to bring capital ratios back in line.

- **Macro-prudential**: Limit the excessive contraction in credit when multiple intermediaries are hit with a common shock.
  - Market failure is fire-sale externalities and credit-crunch effects: Leverage/maturity-transformation makes system overly vulnerable to crises even without moral hazard.
  - General equilibrium: worry about credit from non-banks.

Sizing Capital Requirements

- Large social benefits of higher capital requirements due to a reduction in likelihood/severity of crises.

- Key challenge: Regulatory requirement in good times must be higher than market-imposed requirement in bad times, which drives deleveraging.
  - Example: Creditors require 8% equity to fund in bad times.
  - If losses are 4% of assets in bad times, want to start with 12% equity in good times to avoid market pressure to shrink.
  - Cumulative losses at U.S banks '07-'10 = 7% of assets, so could easily argue for good-times capital requirement of 15% or more that is drawn down in bad times.

- But what about the cost side of the equation?

What Are Costs of Higher Capital Ratios?

- Real costs if higher capital ratios raise banks' overall cost of finance and make bank loans more expensive.
- Start with Modigliani and Miller ("MM") theorem:
  - Leverage declines → equity less risky → cost of equity falls.
    - Clear evidence of this effect in the cross-section of bank stocks.
  - Under strict assumptions of MM, capital structure is irrelevant → capital regulation has zero impact on the cost of credit.
- Modern finance recognizes that MM does not hold exactly, but seen as a good starting approximation.
  - Distinguish flow costs of raising outside equity with steady-state costs of having more equity on the balance sheet.
  - Costs of raising equity are understood. Don't fully understand why banks perceive such high costs of having equity.

What Are Costs of Higher Capital Ratios?

- Costs of raising new equity:
  1. Asymmetric info: issuing signals that bank is in trouble.
  2. Debt overhang: Unwilling to issue equity when debt trading at large discount.
  - Clear evidence that banks are reluctant to raise equity. This is why shocks to capital may impact loan supply. → Need to be thoughtful about Basel III transition.

- Costs of having more equity financing:
  1. Tax-shielding benefits of debt: Not a "social" MM violation, but may impact cost of credit under current law.
  2. Safe, ST debt provides savers with "money-like" services: Social MM violation and some evidence on magnitude.

Back-of-the-Envelope Calculation

- Suppose equity displaces long-term debt and only deviation from MM is tax deduction on debt interest.
  - Suppose raise capital ratios from 10% to 20%—big change.
  - If yield on LT debt is 7%, then at 35% tax rate, the effect on banks' total cost of financing is (7% × 35%)×10% = 0.25%.
- Now assume equity displaces short-term wholesale debt (capturing combined effect of capital and liquidity regulations):
  - Assume ST debt enjoys a 1% "money-like" premium.
  - Now total impact is 0.35% = 0.25% + (1% × 10%).
- <u>Big change in capital requirements, but a small impact on cost of credit.</u>

So Why Do Banks Care so Much About Their Capital Structures?

- And why are banks so different than non-financial firms, who often don't seem to care much about capturing tax (or other) benefits of debt?

- Natural answer: **<u>competition</u>.**
  - For non-financials, cheap capital is only one of many inputs, often far from the most important.
  - For an auto manufacturer, 35 bps higher capital cost is likely dwarfed by other factors: if you don't fully optimize on this dimension, you <u>don't get evolved away</u>.
  - <u>For banks, cheap capital is just about everything.</u>
  - Especially for large banks who compete most directly with securities markets and shadow banking system.

Evidence on Competition Hypothesis from Hanson, Kashyap, and Stein (2011)

- Intrastate branching and interstate banking deregulations as a state-level shocks to intensity of competition from 1976-1994.

- Capital ratios fell in U.S. states post-deregulation.
  - Impact of increased competition = 0.5% decline in *E*/*A*
  - Meaningful relative to average *E*/*A* of roughly 7%

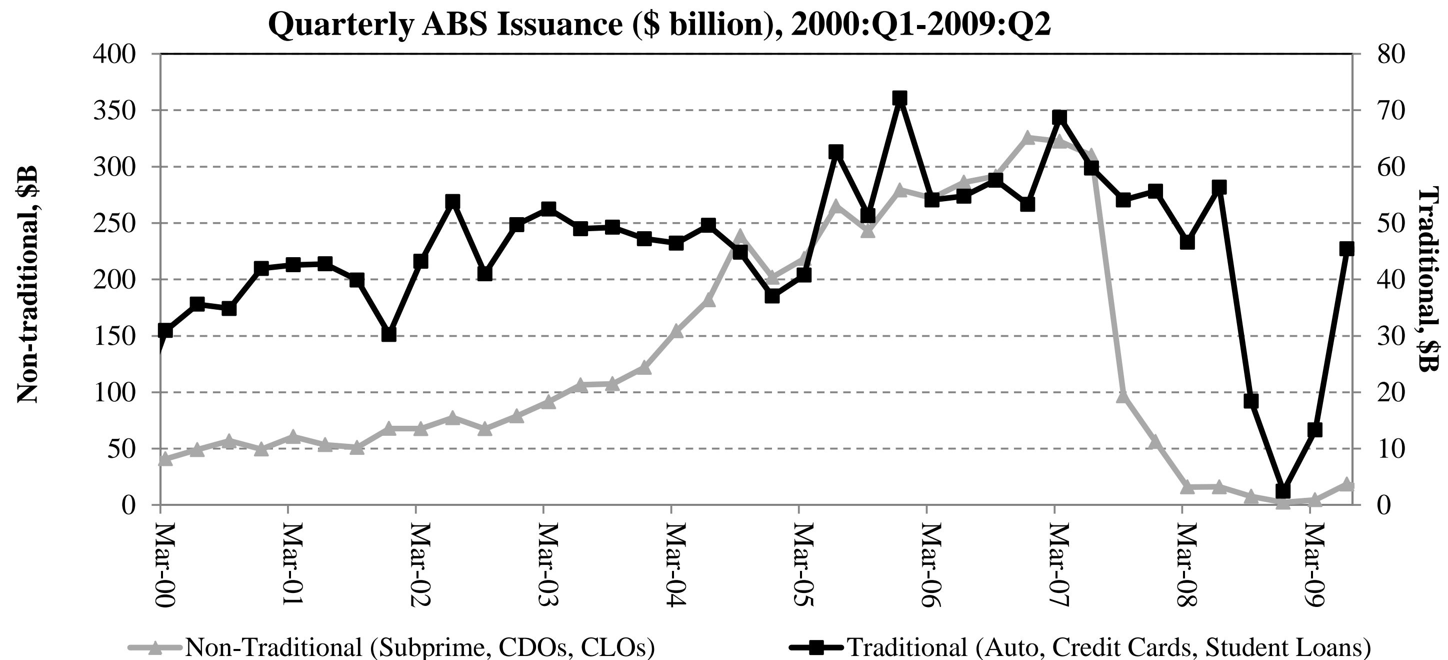
- Compression effect: Capital ratios fell most for banks who started with the highest ratios.

- As if competition forces everybody towards the max-leverage point.

- Major concern with significantly higher capital is not the impact on cost of credit. Rather, it is the competitive response within the financial sector.
- Intensified regulatory arbitrage by banks?
  - Next generation of off-balance sheet risk-taking.
- Migration of credit creation away from the banking sector and into shadow banking?
  - For instance, securitized credit held in highly levered form by hedge funds (e.g., ABS financed with repo)?
- Response may reduce effectiveness of capital requirements in achieving the broader macro-prudential goal.

Cannot Ignore Shadow Banking Reform

- Breakdown of ABS markets during the crisis lead to major disruptions in the flow of credit.
- Evidence that rising repo “haircuts” and fire sales played a major role in market collapse.



Conclusion

- How to level the playing field between banking and shadow banking?
  - Minimum haircut requirements for any leveraged credit investor to reduce fire-sale effects--similar to margin requirements for stocks.
  - Heightened regulation of money-market mutual funds.

- In conclusion, higher Basel III capital requirements are an important step in the right direction and likely room to go further.
  - Reduce system's vulnerability to crises.
  - Don't anticipate much impact on cost of credit.
  - But worry that regulatory arbitrage and migration of activity toward shadow banking may reduce effectiveness.