DO LOW INTEREST RATES SOW THE SEEDS OF FINANCIAL CRISES?

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BU/Boston Fed Conference on Macro-Finance Linkages
October 28-29, 2011

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A "Risk Taking Channel" of Monetary Policy?

- Thesis: Low interest rates encourage excessive risk taking.
  - Low federal funds rate in 2003-04 coincided with a housing bubble, lax lending standards, and were followed by the 2007-09 financial crisis.
  - Some empirical evidence that low rates are associated with more bank risk taking.
    - Hard to know if it is excessive.
  - Rajan: Asset managers 'reach for yield' when safe interest rates are low.
    - Shouldn't financial intermediaries always maximize profits?
    - Could reflect agency problems (Allen and Gale).

A “Risk Taking Channel” of Monetary Policy?

- Do real rates or nominal rates matter?
  - Real federal funds rate in 2003-04 was not unusually low by historical standards.
- If low nominal rates are the problem, this has big implications for monetary policy.
  - Makes a low inflation target less desirable.
  - Do we want to live in that world?
- If real rates matter, there is little monetary policy can do in the long run.

A “Risk Taking Channel” of Monetary Policy?

- More theoretical analysis is very welcome.

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A real DSGE model with

1. Financial Intermediation
2. Deposit Insurance → Moral hazard of excessive risk taking
3. Monetary policy
4. Capital Regulation

Financial Intermediaries

- Assets:
  - Physical capital (‘small business loans’)
    - High or low risk (random)
  - Government bonds (riskless)
    - Can be sold – or used as collateral in repo market – when banks find out their risk type to buy or sell more physical capital.
- Liabilities
  - Equity (limited liability)
  - Deposits (insured)

Monetary Policy

- Governments sets a real interest rate on government bonds and then satisfies demand at that rate.
  - Deposits proceeds in the banks net of issuance cost.
  - Pays transfers/taxes and deposit insurance payments, if any.

Technology

Single aggregate TFP+capital depr. shock:

	Low	High
• Low risk financial (85%):	0.93	0.94
• Nonfinancial corporate:	0.92	0.96
• High risk financial (15%):	0.68	1.00

- Labor supply is fixed for each technology.
- Capital is mobile between periods.
- Within period, only between banks using repos, *before* knowing the aggregate shock.

Monetary Policy

- Governments **sets real interest rate on government bonds** and then satisfies demand at that rate.
  - Deposits proceeds in the banks net of issuance cost.
  - Pays transfers/taxes and deposit insurance payments, if any.
- Government bonds have option value because they can be used in repo market.
  - Option value is nonnegative, so there is a limit to what the government can do to the real rate: $R^B \le R^D$

Social Planner Solution

- Within-period reallocation with persistent technology shocks (and only then?):
  - Transfer capital to **high** risk projects in **good** state.
  - Transfer capital to **low** risk projects in **bad** state.

- Conditional means of projects are different!

Optimal Policy

- Competitive Equilibrium: Incentive to reallocate too much to the high-risk banks due to moral hazard.
- Solution: Restrict the supply of bonds to limit repo transactions.
  - I.e. **lower** the interest rate to restrict risk taking!
  - Collateral effect of government bonds outweighs portfolio composition effect on risk-taking.
  - Different from open market operations.

Further Results

- Permanently higher interest rates result in more risk taking.
  - Comment: show effect of higher interest rate in each state.

- Capital requirement (almost) eliminates excessive risk taking.
  - There is no cost of imposing a capital requirement, so seems to be the solution.
  - Would like to see welfare numbers for this.

Further Results

- With mispriced collateral, created by banks, lower interest rates can lead to excessive risk taking.
  - Separate mispricing from private issuance.

Comments

- Tight connection between conditional mean and condition variance.
  - What happens if you break that link?

- Repos are a small part of banks' balance sheets, but very volatile.
- Most I-banks borrow. Are high-risk banks investment banks?
- Most commercial banks lend. Are low-risk bank commercial banks?

Investment Banks' Leverage and Asset Growth

Adrian and Shin (2010)

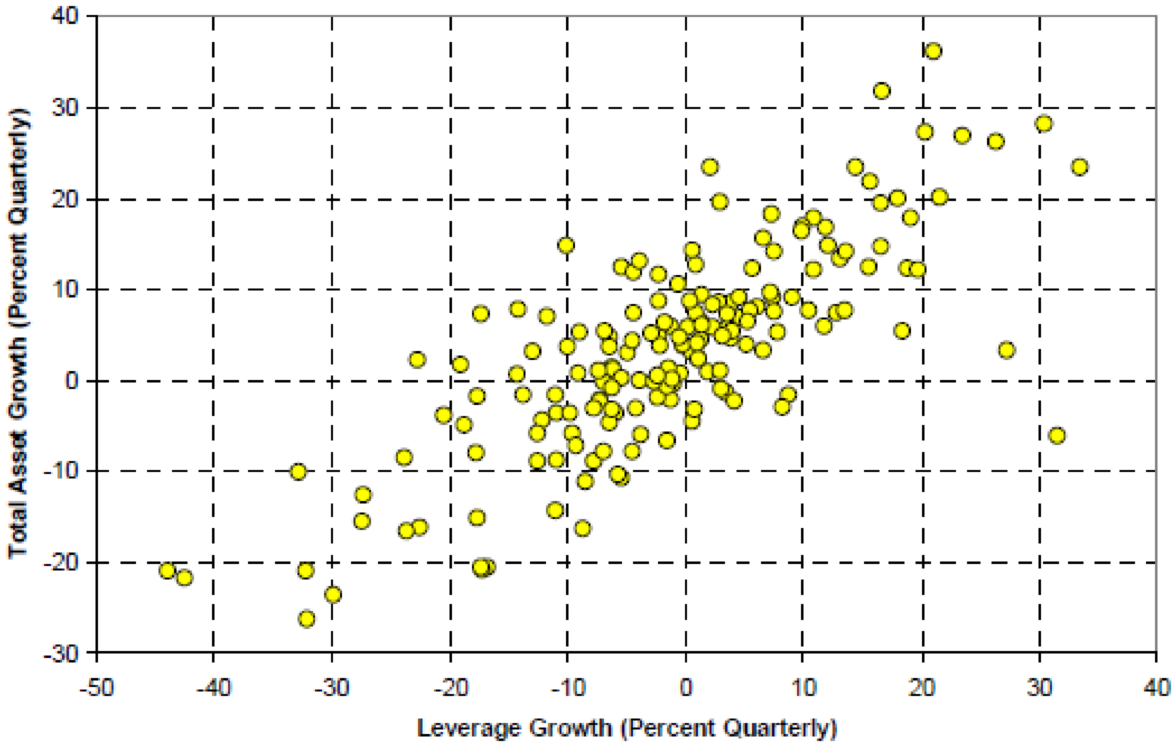

Figure 2.5: Total Assets and Leverage of Security Brokers and Dealers

Investment Banks' Leverage and Asset Growth

Adrian and Shin (2010)

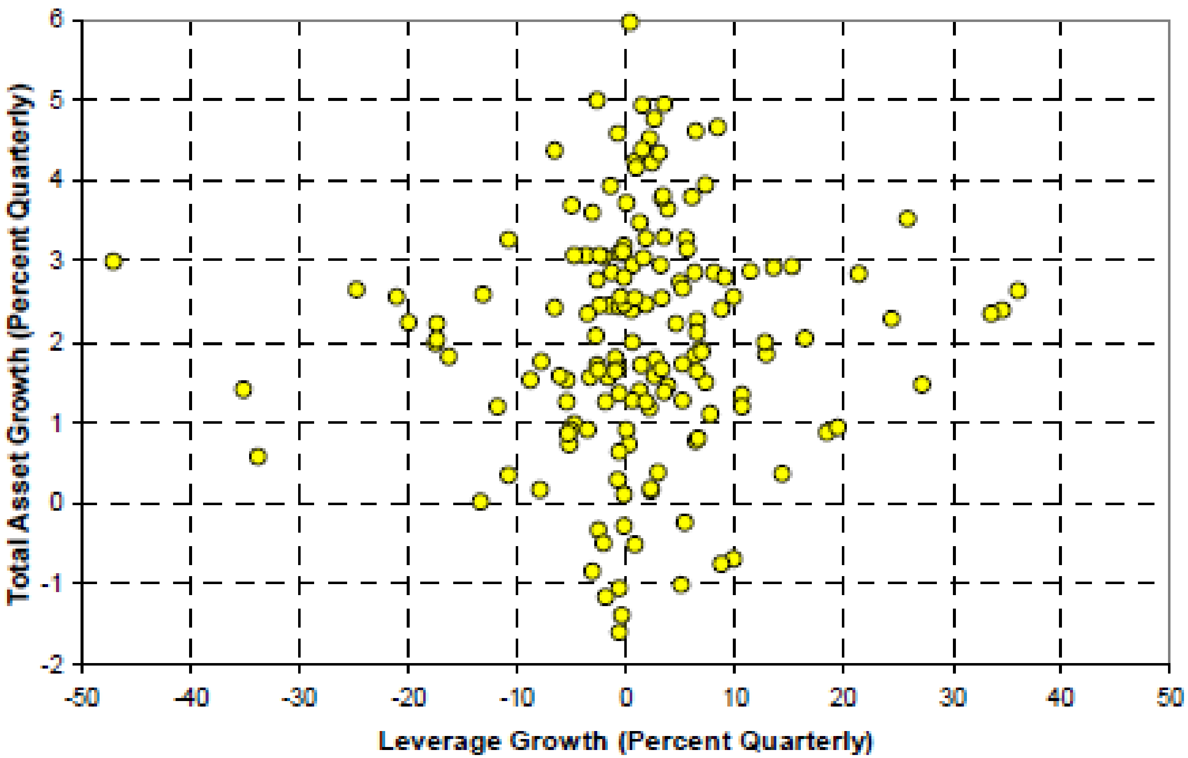

Figure 2.4: Total Assets and Leverage of Commercial Banks

Interest Rates and Balance Sheet Composition

Growth Contribution	Level	Slope	R^2	Share
$(\Delta LNS)/A$	0.973*	-0.836**	0.116	0.637
	(0.514)	(0.384)	-	-
$(\Delta SEC)/A$	0.823	0.464	0.110	0.234
	(1.267)	(0.899)	-	-
$(\Delta FFSRRP)/A$	-3.646***	-3.540***	0.215	0.033
	(1.019)	(0.560)	-	-
$(\Delta BALDEP)/A$	-0.556***	-0.499***	0.118	0.012
	(0.149)	(0.099)	-	-
$(\Delta COREDEP)/A$	-2.152**	-0.729	0.116	0.432
	(1.045)	(0.748)	-	-
$(\Delta TIMEDEP)/A$	0.037	-0.721***	0.121	0.281
	(0.321)	(0.192)	-	-
$(\Delta MNGLIAB)/A$	0.465	0.447*	0.085	0.167
	(0.366)	(1.717)	-	-

NOTE: Robust standard errors in parentheses; *, **, *** denotes statistical significance at the 10-, 5-, and 1-percent level, respectively.