Bank Capital Regulation: An Academic Perspective

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The Challenges of Bank Regulation

- Capital Regulation is one of the most important aspects of our financial system
- What is the academic perspective?
- Overarching Importance and yet unresolved
- I am going to argue that we do not yet have a correct framework to calibrate the degree of optimal bank capital. Many important aspects of capital regulation is similarly not well understood.

Issues in Bank Capital

- Overarching Importance
- Required bank capital and regulation of bank capital is laid down by Basel agreements.
- Historical capital ratios
- Basel I was introduced in 1988 in response to the international expansion in bank lending by Japanese banks.
- The main reason given for their competitive advantage was that they had lower required capital ratios than banks in major countries.

Issues in Bank Capital

What is the optimal capital structure for a banking firm?

- Optimality of current bank capital
- Optimality of capital regulation rules.
- Federal deposit insurance and capital regulation
- Contingent Capital
- Capital regulation to prevent contagion and systemic risk

Issues in Bank Capital

- Well-capitalized banks 90-93% debt?
- Based on a careful study of the literature, no theoretical justification for it.
- Compare to corporate finance
- Regulation had an incremental aspect to it
- x% + y%
- Survey: Gorton and Winton (2003)

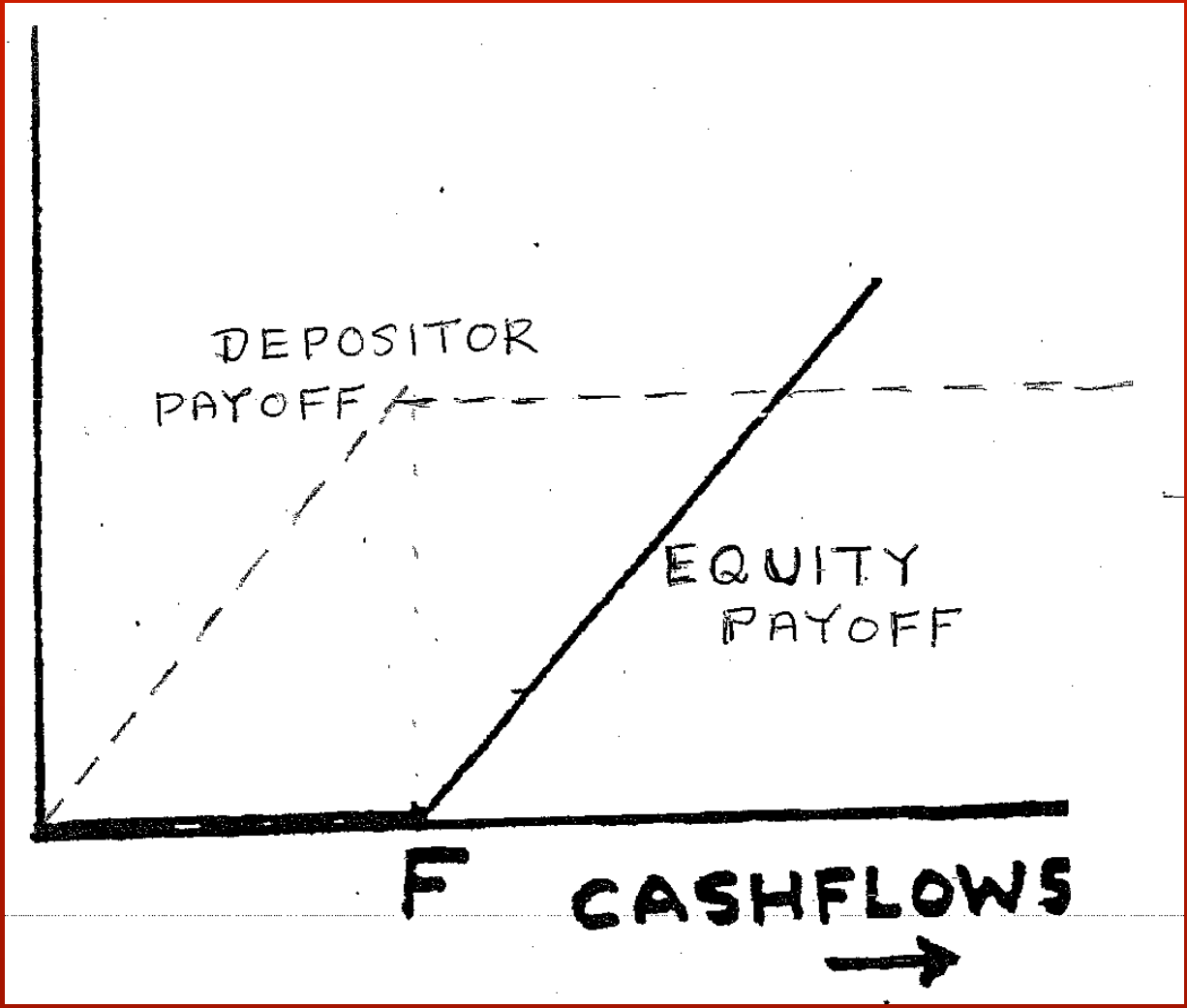
Framework

- Costs and Benefits
- What problems are being solved?
- Historical levels—Used in the past.
- Did it prevent crisis or reduce its severity?
- Put in place as a reaction to Great
- Depression and incrementally changed it
- No coherent theoretical framework
- Risk-based capital?

Framework

- No agreement—different groups
- Stanford (Admati, Pfleiderer, Hellwig)
- Chicago (Diamond, Rajan, Kashyap)
- Vast array of proposals
- Existing theories
- Risk-shifting and Deposit insurance
- Mispriced FDI premium?
- Bank (Equity) incentives are the same

Equity Incentives with Deposit Insurance



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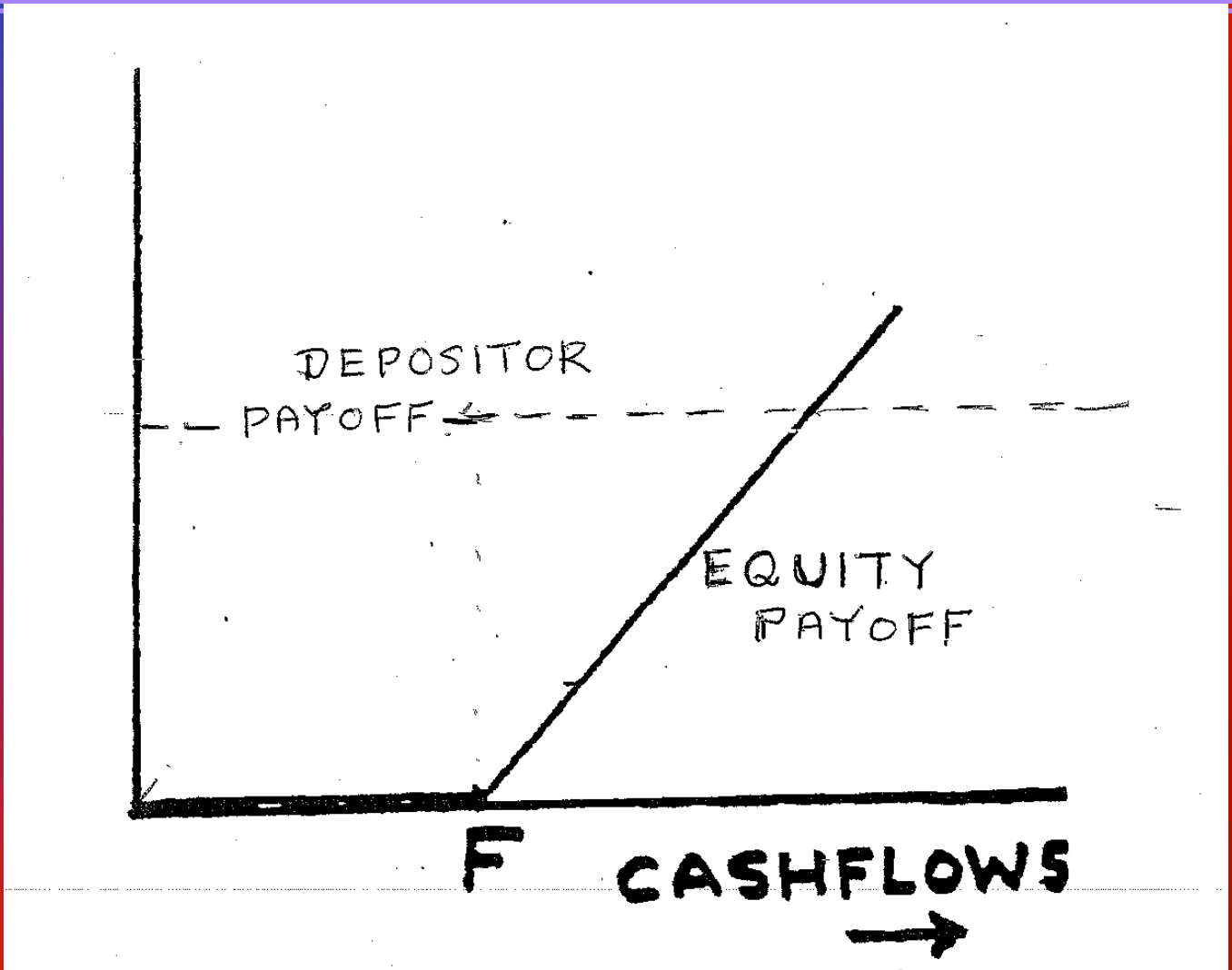

Existing Models

- De Angelo and Stulz (2012)
- Pfleiderer: “Chameleons: Misuse of theoretical Models”
  - Liquidity Provision
  - No frictions
  - Objective linear in the fraction of assets financed by deposits
  - 100% debt is optimal

Existing Models (Cont'd)

- Calomiris and Kahn (AER, 1991)
- Pay P or leave town leaving behind (1 – A) Assets
- Incentives for manager to run of with the money is greater when the bank assets have lower value
- Incentives for depositors to monitor bank assets and withdraw their money before manager absconds

Existing Models (Cont'd)

- Diamond and Rajan (JF, 2000)
- Banks can create liquidity precisely because deposits are fragile and prone to runs
- Two kinds of hold-up problems
- Bank and the borrowers, and between bank managers and depositors

Existing Models (Cont'd)

- The relationship lender is an intermediary who has borrowed from other investors. In the same way as the borrower can renegotiate his repayment obligations down by threatening not to contribute his human capital, can threaten not to contribute his specific collection skills and thereby capture a rent from investors.
- Solution: A very fragile funding structure
- Short-term debt and fragility disciplines managers. Reason not to have too much capital?

Existing Models (Cont'd)

- Admati and Hellwig (2013)
- "The Banker's New Clothes:…."
- 30% of total assets, conservation buffer between 20% and 30%
- Banks, Manufacturing firms and M&M (1958)
- Ignores the social benefits of bank lending
- In economies with market frictions

New Framework

- Social Benefits
- Agency costs and external finance
- Insiders maximize their private objectives
- -100 million +125 mil
- -100 million +95 mil Agency costs 30 mil
- Frictions, pledge able capital and therefore which projects are financed
- Banks, depository financing and intermediation

Towards a New Framework

- Agency Problems and external finance
- Governance, Pledge ability and Growth
- Intermediation and depository finance
- Cost of capital and the marginal project
- Additional subsidies by the social planner
- Low priced deposit insurance, tax deductibility of debt
- Growth and innovation
- Especially important in economies with market frictions

Towards a New Framework (Cont'd)

- Off-setting costs
- Bank governance and risk-shifting incentives
- Bank governance ***vs.*** Bank Supervision
- Contagion and systemic risk
- Interconnectedness and financial system architecture
- Trade-off should determine optimal bank capital
- May be different in different economies
- Frictions, Need for intermediated capital

12/31/1933

The Chase National Bank

OF THE

CITY OF NEW YORK

57 BROADWAY

METROPOLITAN
BRANCH

FOURTH AVENUE AT
23RD STREET

Chase National Bank: 1923

RESOURCES

Cash and Due from Banks	$145,878,115.19
Loans and Discounts	243,195,590.26
United States Government Securities	77,372,129.17
Other Securities	18,896,825.44
Redemption Fund—United States Treasurer	55,000.00
Customers' Acceptance Liability	10,497,616.37
Other Assets	332,756.21
	$496,228,032.64

LIABILITIES

Capital	$ 20,000,000.00
Surplus and Profits	23,706,884.76
Reserved for Taxes, Interest, etc.	1,528,517.67
Dividend Payable January 2nd, 1924	800,000.00
Deposits	437,467,181.36
Circulating Notes	1,083,500.00
Acceptances Outstanding	11,035,283.59
Other Liabilities	606,665.26
	$496,228,032.64

Chase National Bank: 1923

- **Capital:** 8.3%
- **Deposits:** 87.4%
- **Loans:** 48.6%
- **Treasuries:** 15.6%
- **Other securities:** Less than 5%

ANNUAL
REPORT
2012

December 31, (in millions)	2012
Assets	
Cash and due from banks	$ 53,723
Deposits with banks	121,814
Federal funds sold and securities purchased under resale agreements	296,296
Securities borrowed	119,017
Trading assets:	
Debt and equity instruments	375,045
Derivative receivables	74,983
Securities	371,152
Loans	733,796
Allowance for loan losses	(21,936)
Loans, net of allowance for loan losses	711,860
Accrued interest and accounts receivable	60,933
Premises and equipment	14,519
Goodwill	48,175
Mortgage servicing rights	7,614
Other intangible assets	2,235
Other assets	101,775
Total assets	$2,359,141

Liabilities	
Deposits	$1,193,593
Federal funds purchased and securities loaned or sold under repurchase agreements	240,103
Commercial paper	55,367
Other borrowed funds	26,636
Trading liabilities:	
Debt and equity instruments	61,262
Derivative payables	70,656
Accounts payable and other liabilities	195,240
Beneficial interests issued by consolidated VIEs	63,191
Long-term debt	249,024
Total liabilities	2,155,072
Stockholders' equity	204,069
Total liabilities and stockholders' equity	$2,359,141

Chase: 2012 versus 1923

	1923	2012
Capital	8.3%	8.7%
Deposits	87.4%	50.6%
Loans	48.6%	31.1%
Treasuries	15.6%	
Other securities	5%	

Contingent Capital

- Start out as bonds and converts to equity in bad states
- Based on triggers
  - Market price triggers?
  - Accounting triggers?
- Multiple Equilibrium Problem: Complex Literature
- More capital?
- Cost of equity capital?

Cost of Equity Capital for FIs

- Tax deductibility of debt or something deeper?
- Tax regulation opposite of capital regulation?
- Two ways to change it
  - Eliminate tax deductibility
  - Give tax deductibility for the required slab of equity

Capital Regulation to prevent Contagion and Systemic Risk

- Measures of systemic risk
- Measures of connectedness
  - Network Theoretic approaches
- Contribution of Individual LCFIs
- How much additional capital is requireded?
- More theory needed.

Institutions and Systemic Risk

- Financial Architecture and systemic risk
- Stability in financial networks
- Interconnectedness and Contagion
  - Acemoglu, Ozdaglar and Tahbaz-Salehi (AER, 2015)
- Governance failures and financial crisis?
- Two objective functions?
- Dynamically optimal compensation structures

CONCLUSIONS

- Specialness of banks and intermediation
- Better understanding on the role of depository debt and equity and cost of capital
- Optimal leverage and debt structure for banking firms
- Coherent framework for capital regulation
- Contagion and Systemic risk
- Broader issues in financial system design

Why Are Banks Special?

1. Engage in leveraging capital more than other firms to provide credit.
2. Engage in maturity intermediation to provide liquidity and spread returns.
3. Engage in Financial Innovation.

What do Public Utilities Do?

1. Provide highly standardized products.
2. Low Level of Innovation.
3. High Level of Regulation.
4. Low and Often Regulated ROE.

1. Effect of Basel III on Leverage Specialness

At least 4 changes increasing banks capital and reducing their leverage.

	Common Equity Tier 1	Tier 1 Capital	Total Capital (Tier 1 plus Tier 2)
Minimum	4.5	6.0	8.0
Conservation buffer	2.5	2.5	2.5
Countercyclical buffer range	0 - 2.5	0 - 2.5	0 - 2.5

Thus capital ratios for some banks could rise to 13% but even more capital will be required for globally systemically important banks (GSBI's).

Who are the GSBI's?

29 originally "Indentified" by group of 20's Financial Stability Board in November 2011.

Bank of America, Bank of China, Bank of New York Mellon, Banque Populaire, Barclays, BNP Paribas, Citigroup, Commerzbank, Crédit Agricole, Credit Swisse, Deutsche Bank, Dexia, Goldman Sachs, HSBC, ING Bank, JP Morgan Chase, Lloyds Banking Group, Mitsubishi UFJ, Mizuho, Morgan Stanley, Nordea, Royal Bank of Scotland, Santander, Société Générale, State Street, Sumitomo Mitsui, UBS, Uncredit Group and Wells Fargo.

- Why only one Chinese Bank, could be at least 7!
- Since then Dexia, Lloyds and Commerzbank are viewed as being in restructuring by Governments, so dropped from November 2012 list.
- Latest to join are Standard and Chartered and BBVA.

G-SIBs as of November 2012

Bucket 5 (3.5%) Banks = None

4 (2.5%)	3 (2.0%)	2 (1.5%)	1 (1.05)
Citigroup	Barclays	Bank of America	Bank of China
Deutsche Bank	BNP Paribas	Bank of New York Mellon	BBVA
HSBC		Credit Suisse	Groupe BPCE
JP Morgan Chase		Goldman Sachs	Group Crédit Agricole
		Mitsubishi UFJ FG	ING Bank
		Morgan Stanley	Mizuho FG
		Royal Bank of Scotland	Nordea
			Santander
			Société Générale
			Standard Chartered
			State Street
			Sumitomo Mitsui FG
			Unicredit Group
			Wells Fargo

Systemic Risk Capital

For these 28 extra capital requirement of 0% to 3.5% according to an "S" factor calculated on 5 major variables (e.g., size, interconnectedness, complexity, cross jurisdictional activity, substitutability).

- Thus for these bank capital requirement for credit risk *alone* could be as high as 16.5%.
- Have to add to this an increase in the market risk capital requirement and operational risk.
- Does this mean total required capital ratios of 20%?

Possible Implications of Basel III for Largest Banks Leverage

- Leverage ratios of only 5:1.
- ROE in the region of 8% - 10% instead of 15% to 20%.
- Who wants to invest in a bank? Why not invest in a public utility.
- Where is all this capital to come from?
- Who will fill the credit “gap” if banks reduce lending especially as all Credit Institutions will be subject to Basel III?

2. Effect of Basel III on Maturity Intermediation Specialness

- No doubt that crisis did create a liquidity crisis for many banks especially those heavily reliant on purchased funds.
- Basel Response

  Introduce:

  (I) A Liquidity Coverage Ratio - That matches short term assets to short term liabilities.

  (II) A Net Stable Funding Ratio - That matches long term assets to long term liabilities.
- Implications

  Severe challenge to Financial Intermediation, i.e., borrowing short and lending long far more difficult – how will banks generate spread income?
- Jamie Dimon, CEO of JPM/Chase has called the new liquidity ratios "Anti-American" -- I think he means Anti-Banking!

3. Implications of Basel III for Financial Innovation Specialness

No doubt that structured products such as MBS played a role in the crisis.

- Basel III response, higher market risk capital requirements with 99% Var to be replaced by "expected shortfall."
- Even higher capital requirement for "Structured Finance" products where good innovations will be squeezed as much as "Bad."
- Much higher risk - weights for structured products and mortgages in calculating a bank's "risk weighted assets."
- Higher risk - weighted assets means even more capital required to meet risk-weighted capital ratios.

Implications of Basel III cont'd…..

Innovation problem in US compounded by Dodd-Frank Act of 2010 and so-called the Volker rule

- Banks cannot engage in proprietary trading for their own account beyond 3% of the holding companies assets.
- Only engage in trading for clients and hedging.

Issues

Is Basel Redundant?

(1) Is it Consistent with its Original Intentions?

- Historically Basel I was introduced in 1988 in response to the international expansion in bank lending by Japanese banks.
- The main reason given for their competitive advantage was that they had lower required capital ratios than banks in other major countries.
- A primary objective of Basel was to create a level playing field across countries banking systems by equalizing capital requirements.
- However Basel III deviates from this:

  (i) The contra-cyclical buffer can differ across countries.

  (ii) The systemic risk buffer differs across banks and across countries.
- What happened to the so-called level playing field?

- In addition, historically Basel was supposed to "credit risk weight" assets differently. For example Basel II distinguished between the credit risk of commercial loans in setting capital requirements (varying form 1.6% to 12% of the loan amount).
- Basel III, at least as being implemented in the U.S. will go back to the same capital requirement for all commercial loans, i.e., 8% capital requirement.
- This will create incentives to risk-shift towards more risky loans creating a more not less risky banking system.
- Isn't this the reasons Basel II replaced Basel I?

- In addition Basel Capital Requirement are much more complex than the simple leverage ratio. Have they become too complex?
- For the largest banks who use the so-called internal rating based approach, it requires the estimation of 1000s of parameters. Isn't this over and beyond what was originally intended back in 1988?
- Isn't the simple leverage ratio more transparent.
- Both Andrew Haldane (Executive VP of the Bank of England) and the U.S. Comptroller of the currency have advocated a return to the simple leverage ratio with some adjustment for off-balance-sheet activities.

- In fact buried in Basel III is a requirement that in addition to all the complex risk-based capital ratios discussed above, banks will have to calculate a simple leverage ratio such that the capital to on and off balance sheet assets must exceed 3%.
- This is similar to the ratios that existed pre-Basel, *i.e.*, pre 1988!

Conclusions

1. Basel Risks Turning Banks into Public Utilities by
   (a) Reducing Leverage Excessively.
   (b) Limiting Maturity Intermediation.
   (c) Limiting Financial Product Innovation.
   (d) Reducing Bank ROEs.

2. Basel May Have passed its "Due Date"
   (a) No longer a level playing field across banks internationally.
   (b) Has become too "complex" too many ratios, too many parameters leads to a loss of transparency and imposes a excessive regulatory burden on banks.
3. Are fees the answer? Looking at large banks income statements this seems to be increasingly the case.