Maintaining Safe Banks: Should Cocos Play a Greater Role?

Mark J. Flannery
University of Florida

EBA Research Workshop

November 15, 2013
Outline

I. Results of supervisory discretion

II. Recent regulatory changes

III. Contingent capital instruments should play a larger role.

Rules vs. discretion
Capital Regulation

• Formulas for “adequate” capital
  – Basel II (2006): PD $\leq$ 0.1% at one-year
  – Higher portfolio risk requires more capital.
  – Rules have grown increasingly complex.
  – Expressed as *book* value ratios.
Moreover, Pillar 2 ...

... requires national supervisors
“to intervene at an early stage to prevent capital from falling below the minimum levels required to support the risk characteristics of a particular bank and should require rapid remedial action if capital is not maintained or restored.” (BCBS (2006), p. 212, emphasis added)

Among the “range of options” supervisors should consider is “requiring banks to raise additional capital immediately” (BCBS (2006, p. 212)).
How could so many failures have happened?

Protection requires sufficient market-valued or economic capital.

Bear Stearns
Washington Mutual
Lehman Brothers
Wachovia
Merrill Lynch

“failed” in 2008

Tier 1 capital ratio was 12.3% - 16.1%
Large Banks’ Survival

• Maturity and liquidity transformations.

• Uninsured, short-term liabilities.

• Two equilibria

• Market solvency estimates determine the ability to roll short-term financing

• Runs → failure or government support
Regulatory View: “Banks are opaque. So market valuation of bank claims are often
• wrong
• noisy
• manipulated”

Response #1: even if markets have it wrong, those assessments drive largest institutions’ solvency.
Regulatory View: “Banks are opaque. So market valuation of bank claims are often
• wrong
• noisy
• manipulated”

Response #2: Book values are
• also noisy and manipulated.
• more biased as the firm’s true condition gets worse.
Figure 1: Market and Accounting Metrics for SCAP Firms

Notes: Market value and book value ratios are simple means for 18 FIs that participated in the SCAP, excluding GMAC. CDS spreads are simple means of available data.

Source: Kevin Stiroh, NY Fed
Conclusion: Basel Ratios are Flawed

• Book values do not reliably measure ability to absorb losses.
  – Backward-looking
  – Distorted by managerial options (choices)
  – Distortions greatest when a firm encounters problems.

• Market values
  – Forward-looking
  – Reflect current information about asset values
  – Affect solvency at financial firms with substantial uninsured claimants.
Top 25 European Banks

Source: Bloomberg
The Data Show Large Default Probabilities for Large Banks

- At each year-end, 25 largest European banks, 1997-2011
- Total of 38 institutions

Diagram:

- MVEQ
- Equity return vol.
- MV of Assets
- Asset return vol.
Valuing Gov’t Guarantees

\[ E = VN(x) - \rho BN(x - \sigma_v \sqrt{T}) \]

\[ \sigma_v = \frac{\sigma_E E}{VN(x)} \]

Solve for estimates of \( V, \sigma_v \)

Where \[ x = \frac{\ln \left( \frac{V}{\rho B} \right) + \sigma_v^2 T / 2}{\sigma_v T} \]
Mean Capital Ratios, Volatilities
Top 25 European banks

MVE/V
BVE/TA
Asset Volatility (Right)
One-Year PDs: \[
\hat{PD} = N^{-1}\left(\frac{\text{MVE}}{\hat{\nu} \hat{\sigma}_\nu}\right)
\]

1997 - 2011
One-Year PDs, 1997 - 2006
Consecutive PD > x%, largest European Banks, 1997-2011
Conclusions so far

• Even in good times, PDs have been persistently high at Europe’s largest banks.

• Supervisory Discretion (Pillar 2) has not maintained adequate loss-absorbency.

• “capital does not appear to be a very effective regulatory weapon.” (Herring (2010, p. 272))
Would More Aggressive Supervision Have Made Much Difference?

Simulating a policy of “Prompt Re-Capitalization”

• At each yearend

  – If PD > 0.1%, add enough capital
  – If PD ≤ 0.1%, repurchase simulated prior issues
Value of Conjectured Guarantees, % of MVEQ, over 15 years
Recap to PD = 0.1%

<table>
<thead>
<tr>
<th>History</th>
<th>Mean</th>
<th>Median</th>
<th>Timely Recapitalization</th>
<th>Mean</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997-2011</td>
<td>28.49%</td>
<td>1.25%</td>
<td>6.13%</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>1997-2006</td>
<td>7.40%</td>
<td>0.31%</td>
<td>3.42%</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>2007-2011</td>
<td>70.67%</td>
<td>25.07%</td>
<td>11.60%</td>
<td>0.24%</td>
<td></td>
</tr>
</tbody>
</table>
## Value of Conjectured Guarantees

% of MVEQ, over 15 years
Recap to PD = 0.5%

<table>
<thead>
<tr>
<th></th>
<th>History</th>
<th>Timely Recapitalization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
</tr>
<tr>
<td>1997-2011</td>
<td>28.49%</td>
<td>1.25%</td>
</tr>
<tr>
<td>1997-2006</td>
<td>7.40%</td>
<td>0.31%</td>
</tr>
<tr>
<td>2007-2011</td>
<td>70.67%</td>
<td>25.07%</td>
</tr>
</tbody>
</table>

Aggressive capital measures could have mitigated the crisis, but not eliminated it.
Outline

I. Results of supervisory discretion

II. Recent regulatory changes

III. Contingent capital instruments should play a larger role.
Why hasn’t supervisory discretion worked to maintain adequate capital?

It works ok with monetary policy(?)

• At non-critical capital ratios
  – Focused, “personal” costs.
  – Diffused benefits.

• So supervisors want to be VERY CERTAIN
Why? (continued)

• Noisy estimate of true loss-absorbing capacity
  – Opaque assets, trading strategies
  – Particularly when far from insolvency – tail probabilities
  – No depositor “runs” to force the issue

• Constraining (statutory) definitions of solvency
  – book valuations
  – forcing a capital raise therefore requires challenging audited financial statements.

• Potential political pressure?
But everything’s different now(?)

Bernanke, March 22, 2013:

“I hope that we’ll make progress against too big to fail, because I agree with [Sen. Elizabeth Warren] 100 percent that it’s a real problem and needs to be addressed if at all possible.”
But everything’s different now(?)

Dudley, November. 8, 2013

“We also need to create new mechanisms and incentives for bank management to act early, well before resolution becomes necessary. Early intervention is likely to be much more successful in preventing failure as compared to last-ditch efforts.”
What’s New?

• More and better capital requirements in Basel III
  – Accounting will have to stretch more to distort enough.
  – But doesn’t address the discretion problem.
  – Shadow leakage with high (MV) capital ratio.

• CCAR is a step in the right direction.
  – Forward-looking credit losses
  – Rigidly accounting-based
  – Excludes some market valuations
  – Only once per year
  – Not designed to reflect each bank’s worst stress.

• Lots of enthusiasm for Bail-in bonds
Orderly Resolution and Bail-in

• Not directly relevant to capital adequacy, ex ante.
  – Bail-in debt cannot have covenants.

• Success depends on supervisory discretion
  – Close firm at PONV
  – Without any runs
  – Bond yields will rise (continuously)
  – Until supervisors act, shareholders remain in control, with very poor incentives.

• Low social cost?
Is Everything Now Different?

• No.

• Regulatory procedures continue to rely heavily on discretion.
Outline

I. Results of supervisory discretion

II. Recent regulatory changes

III. Contingent capital instruments should play a larger role.
Improving Solvency Supervision: Rules Instead of Discretion

• A different approach

• Contingent capital bonds
  – Automatically convert to de-lever.
  – Conversion affects some governance issues too.

• Basel III provides a VERY limited role for cocos
  – Just AT1; why not part of the various “buffers”?
  – Restricted to book value triggers in Europe
  – No role for bonds in the U.S. version of Basel III
Things People Would Like Cocos to do

1. De-lever
2. Avoid pricing “situations”
3. Moderate risk-taking incentives
4. Have a wide, deep market among real-money investors.
5. Some firm governance stuff.

Any instrument will require tradeoffs among these competing goals.
How to Decide?

1. Would cocos be better than the best alternative(s)? Complementary?

2. How should we use models in designing a new security?
What Killed Cocos?

• “death spiral”
  – Not necessary to the coco design.

• “multiple equilibrium”
  – Sundaresan and Wang (forthcoming)
  – Birchler and Facchinetti (2006 wp)
  – Bond, Goldstein, Prescott (RFS 2010)
  – Prescott (2011)
Model Assumptions Matter: The Price Problem

• Discrete time model: SW (forthcoming): Shares can have two rational market prices.
  – Share price affects number of shares through trigger;
  – Number of shares outstanding affects share price

• Continuous time (Glasserman and Nouri (2013)): there is no value transferred at conversion because prices always reflect the likelihood of a conversion.
Model Assumptions Matter: Incentives 1

• Albul, Jaffee and Tchistyj (2010)
  – assume infinite debt
  – no incentive for shareholders to issue cocos.

• Chen et al. (2013)
  – similar (Leland-Toft) model with endogenous, finite debt maturity
  – under some circumstances, shareholders prefer issuing cocos over straight debt.

• What’s the difference?
Model Assumptions Matter: Incentives 2

• Berg and Kaserer (2012): direction of wealth transfer affects risk attitude

• Himmelberg-Tsyplakov (2012): voluntary share issuance to avoid dilution

• Hilscher and Raviv (2012): PD lower with cocos than with an equal amount of common – because the incentive to take risks is lower with the cocos.
Model Implications: Conclusions

• The available models have conflicting implications about some important coco features/effects.

• No single security will satisfy all possible goals.

• Urge study of available trade-offs in security design.
Why I Prefer CoCos

• Better incentives (risk, equity issuance) than those provided by supervisory discretion.

• Rapid re-capitalization ➔ lower required common equity provides equal safety.

• Mitigates risk migration out of regulated sector into shadows. (Is that good?)

• Feasible political bargain with the banks ...
The Bargain

Common Equity Vs. Contingent Common Equity Vs. Common Contingent

Common Equity Vs. Contingent
Final Conclusion

1. Basel capital framework is conceptually flawed: large banks’ PDs have too often been too high, for too long.

2. Regulatory reforms continue reliance on supervisory discretion.

3. Effective capital regulation requires at least some focus on market equity valuations.

4. Assure bank solvency by replacing discretion with rules embedded in cocos.

5. Let’s find a workable coco design!
Thank you!


Consecutive PD > x%, largest European Banks, 1997-2011
Bail-in Debt

Even “orderly” resolution would be messy and potentially disruptive.

Quote from Dudley, Nov 8 (it’s now somewhere else...)

<table>
<thead>
<tr>
<th></th>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loan, etc.</td>
<td>100</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
</tr>
</tbody>
</table>
Where should I mention bonuses?

Recent proposals to pay bonuses in bail-in bonds.
• The FSOC report says:

• BSBS: ”Death spiral – ...However, these concerns could potentially be mitigated by specific design features, eg if the conversion price is pre-determined, there is less uncertainty about ultimate creation and allocation of shares, so less incentive to manipulate prices.” (page 19)
• FSOC study to congress, page 19: The United States experience with instruments similar to contingent capital is quite limited and, as discussed above, there are a range of potential issues that could be associated with contingent capital instruments, depending on their structure and, in particular, the structure and timing of conversion triggers.

• Therefore, at this time, the Council recommends that contingent capital instruments remain an area for continued private sector innovation. The Council encourages the Federal Reserve and other financial regulators to continue to study the advantages and disadvantages of including contingent capital and bail-in instruments in their regulatory capital frameworks.