

Maintaining Safe Banks: Should Cocos Play a Greater Role?

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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.

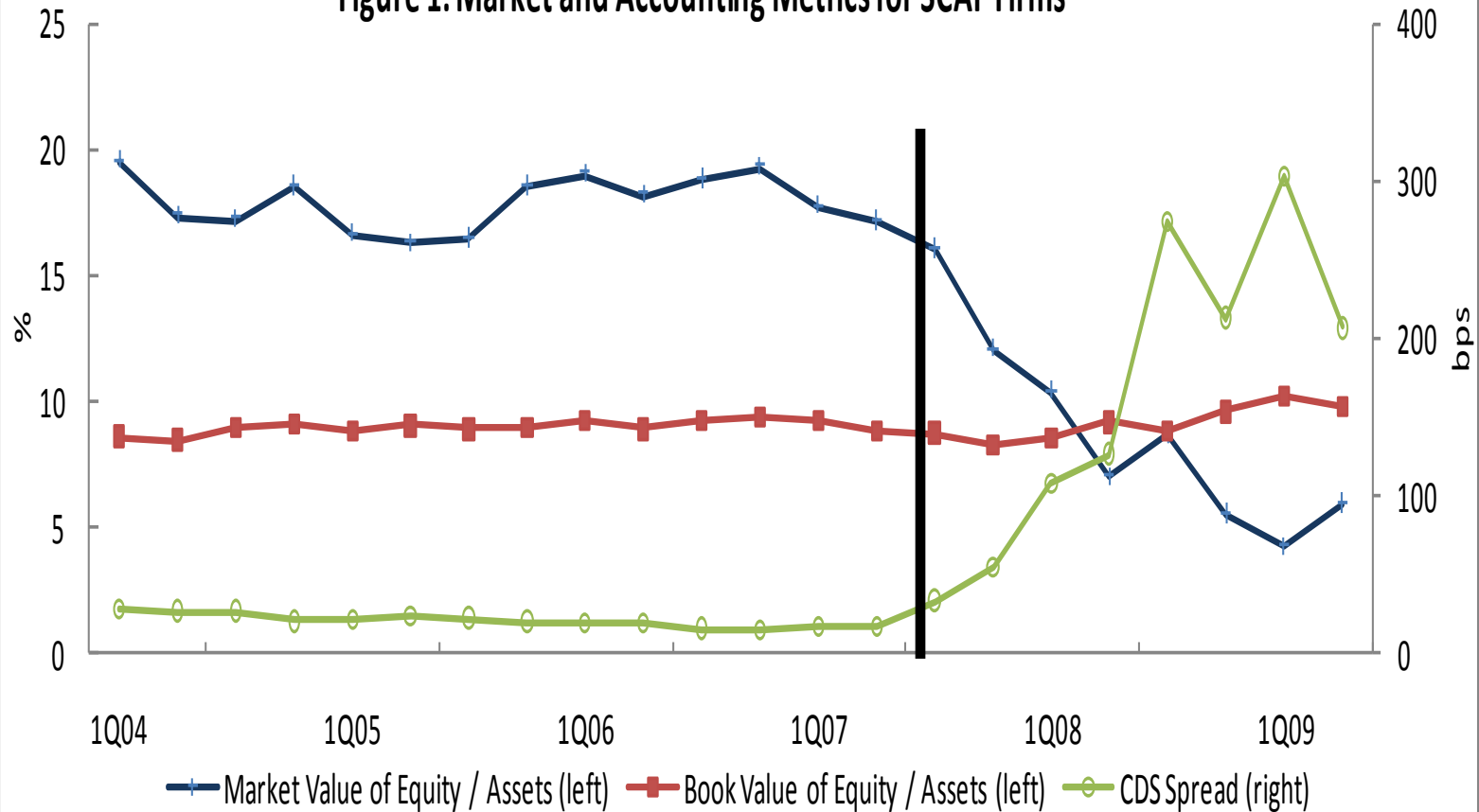
Regulatory View: “Banks are opaque. So market valuation of bank claims are often

- wrong
- noisy
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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



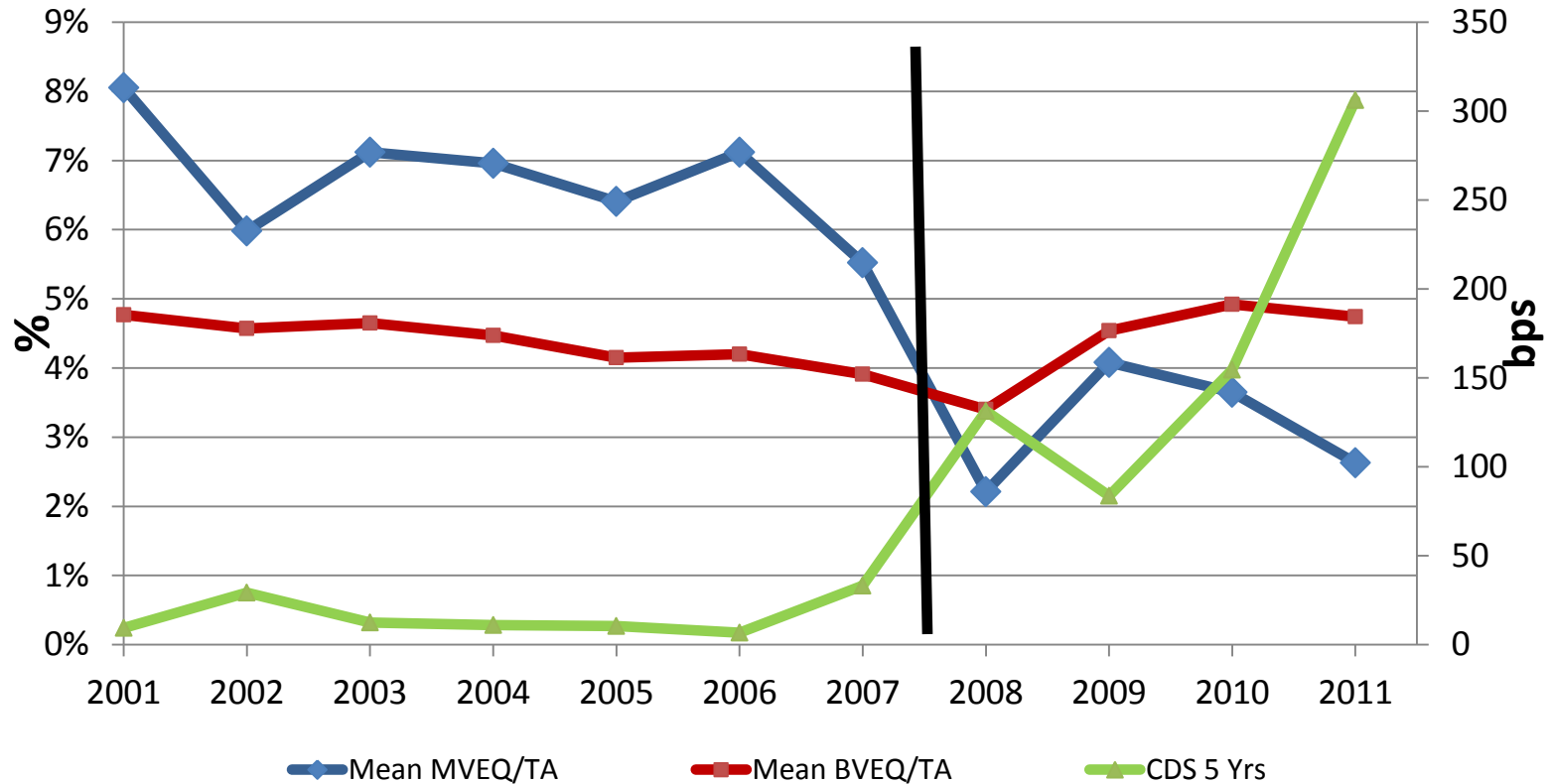
Notes: Market value and book value ratios are simple means for 18 FIs that participated in the SCAP, excluding GMAC. CDS spreads are simple means of available data.

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 when a firm encounters problems.
- Market values
 - Forward-looking
 - Reflect current information about asset values
 - Affect solvency at financial firms with substantial uninsured claimants.

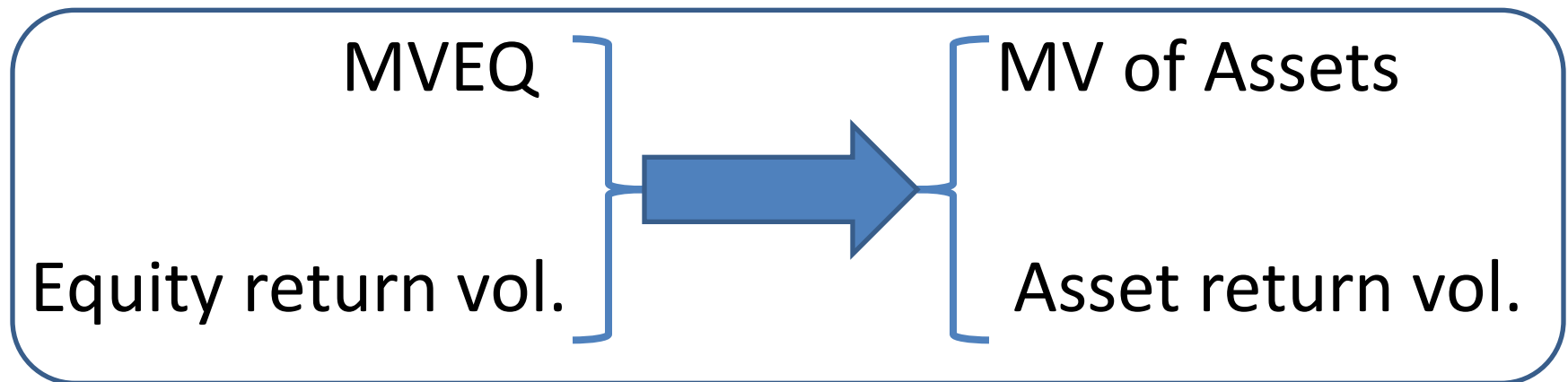
Top 25 European Banks



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



Valuing Gov't Guarantees

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

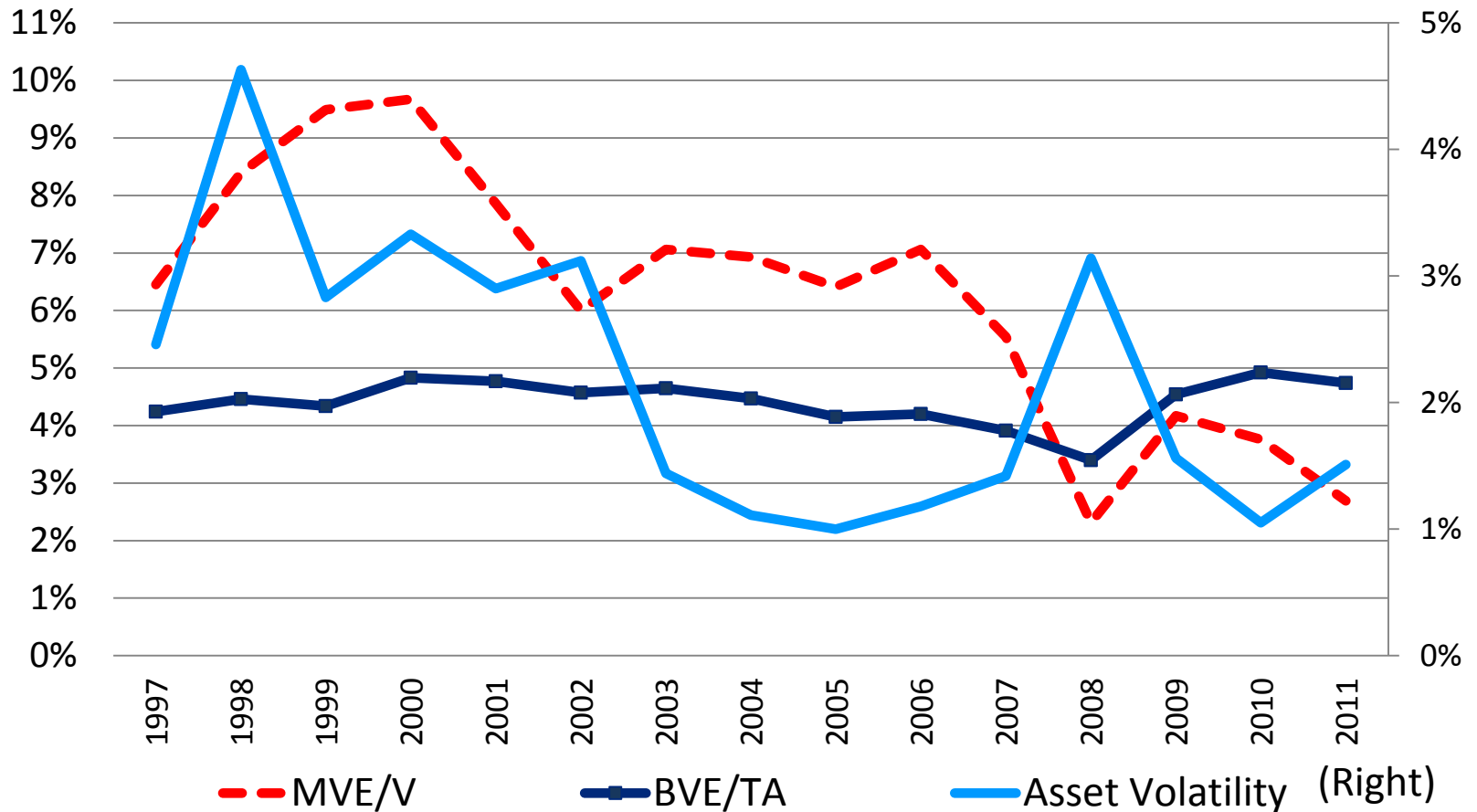
$$\sigma_v = \frac{\sigma_E E}{VN(x)}$$

Solve for estimates of
 V, σ_v

Where $x = \frac{\ln(\frac{V}{\rho B}) + \sigma_v^2 T / 2}{\sigma_v T}$

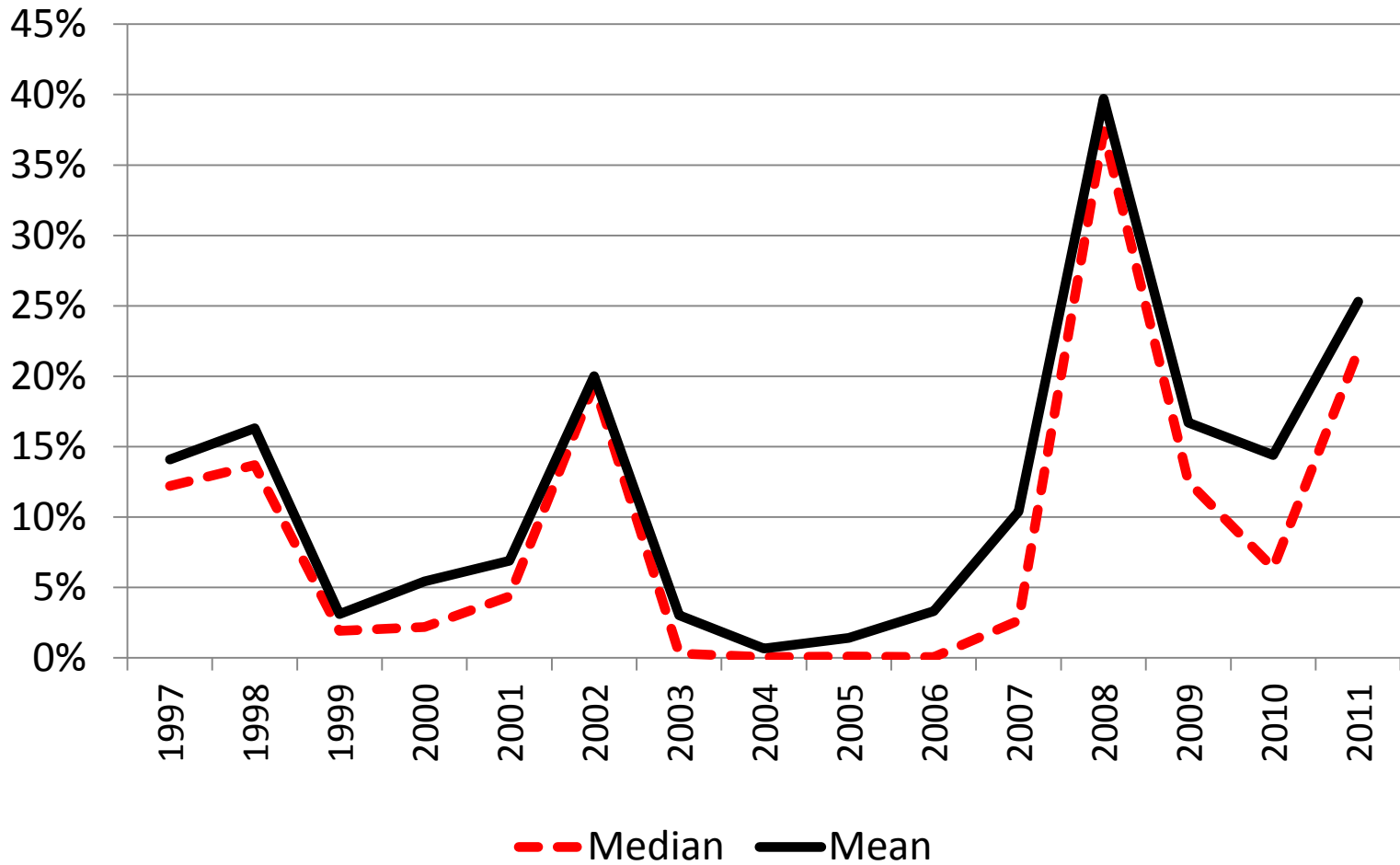
Mean Capital Ratios, Volatilities

Top 25 European banks



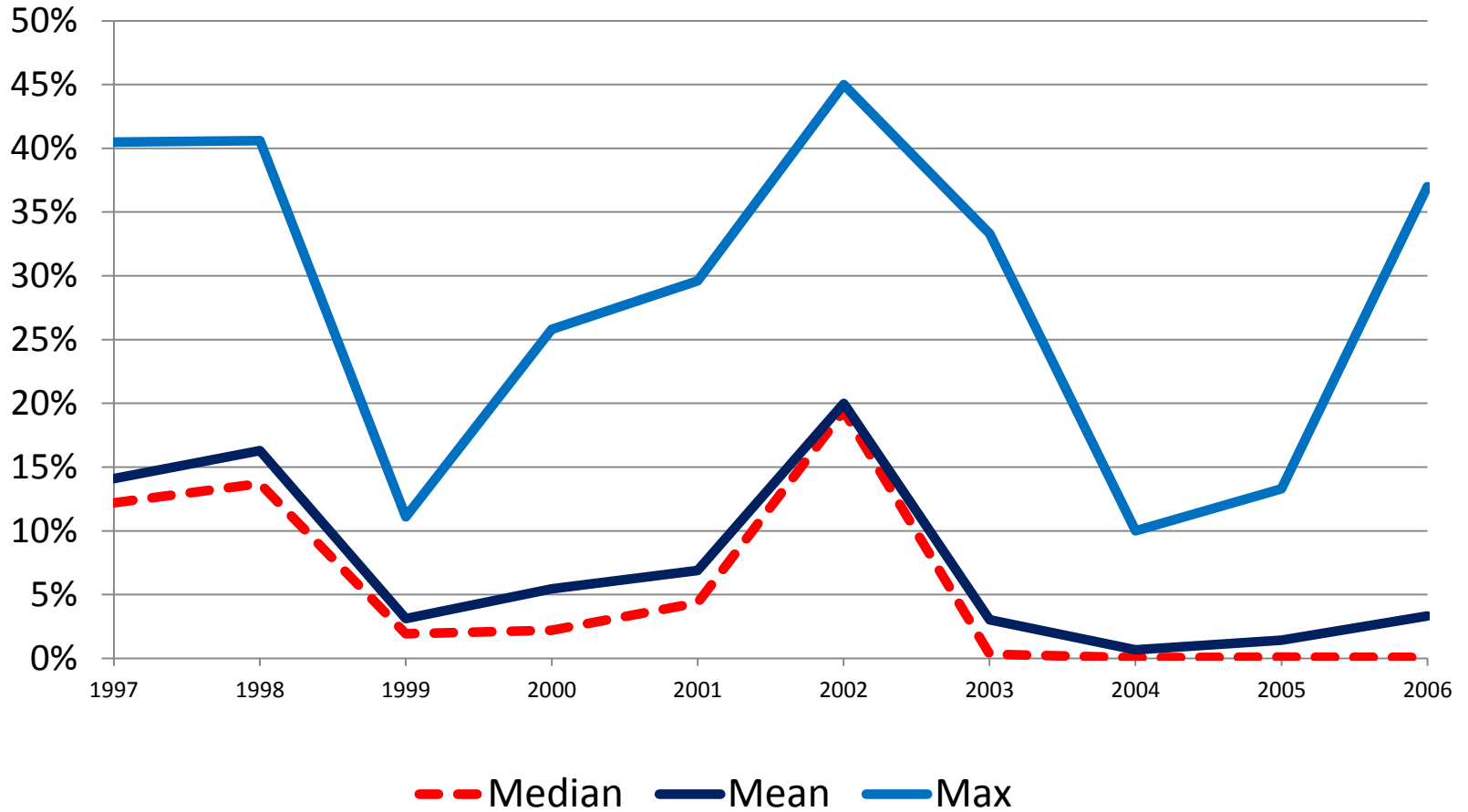
One-Year PDs:

$$\widehat{PD} = N^{-1} \left(\frac{MVE}{\widehat{V} \widehat{\sigma}_v} \right)$$

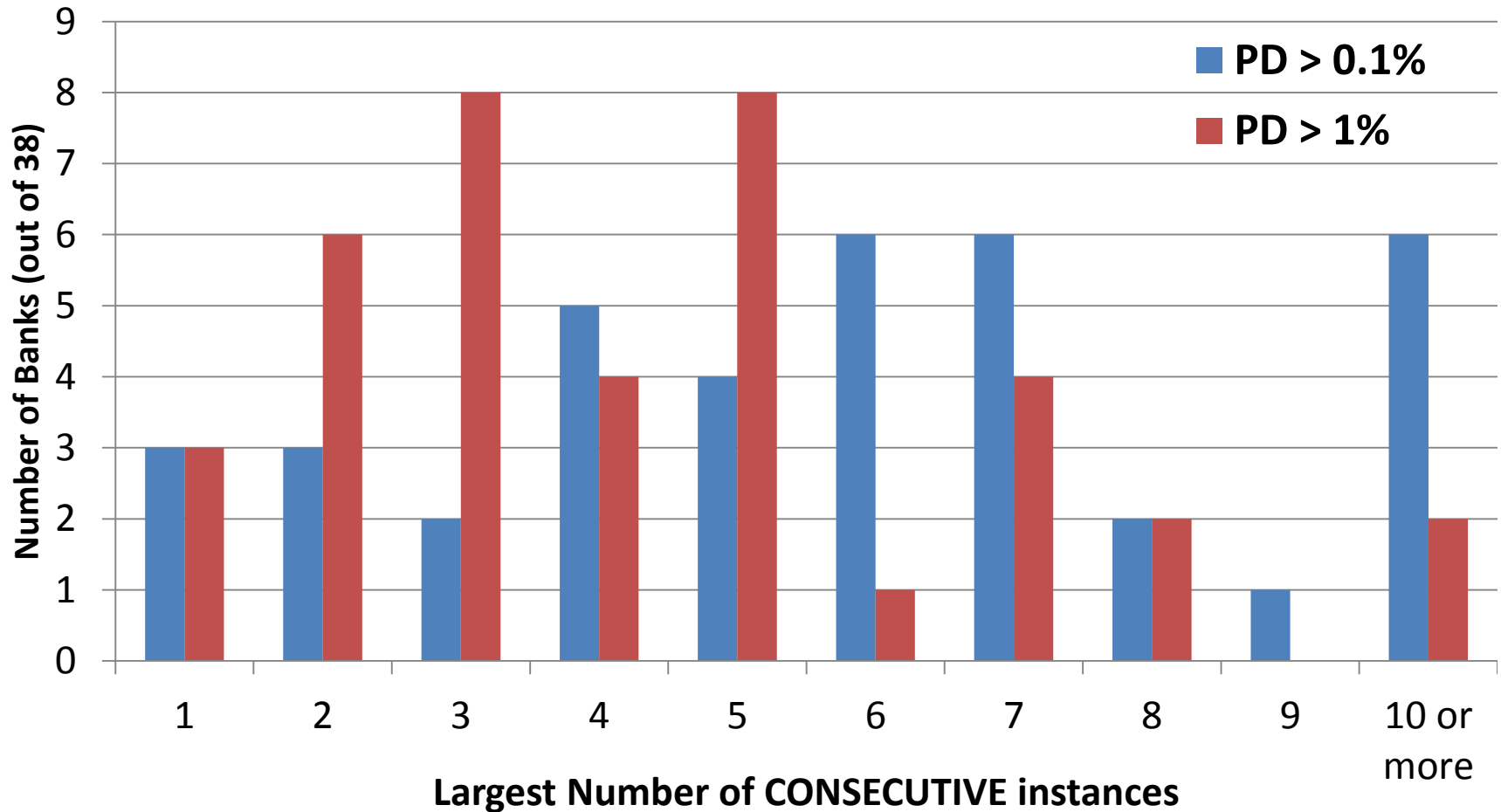


1997 - 2011

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 $PD \leq 0.1\%$, repurchase simulated prior issues

Value of Conjectured Guarantees, % of MVEQ, over 15 years Recap to PD = 0.1%

	History		Timely Recapitalization	
	Mean	Median	Mean	Median
1997-2011	28.49%	1.25%	6.13%	0.00%
1997-2006	7.40%	0.31%	3.42%	0.00%
2007-2011	70.67%	25.07%	11.60%	0.24%

Value of Conjectured Guarantees

% of MVEQ, over 15 years

Recap to PD = 0.5%

	History		Timely Recapitalization	
	Mean	Median	Mean	Median
1997-2011	28.49%	1.25%	7.72%	0.02%
1997-2006	7.40%	0.31%	3.67%	0.01%
2007-2011	70.67%	25.07%	15.90%	0.50%

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

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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.

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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 Tchisty (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.

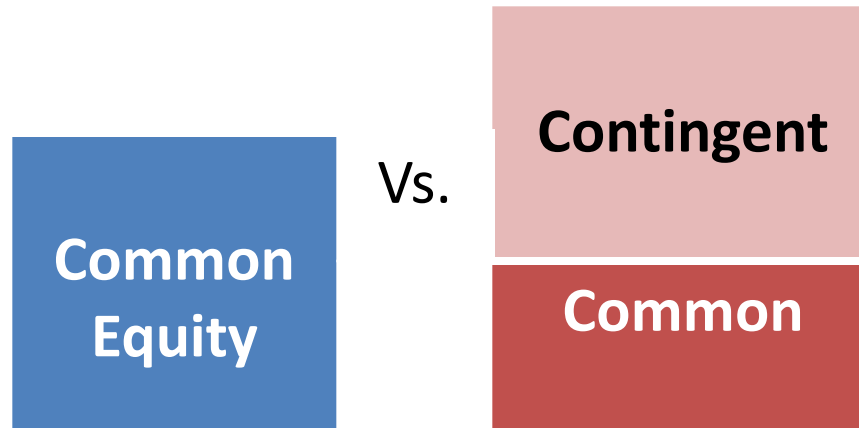
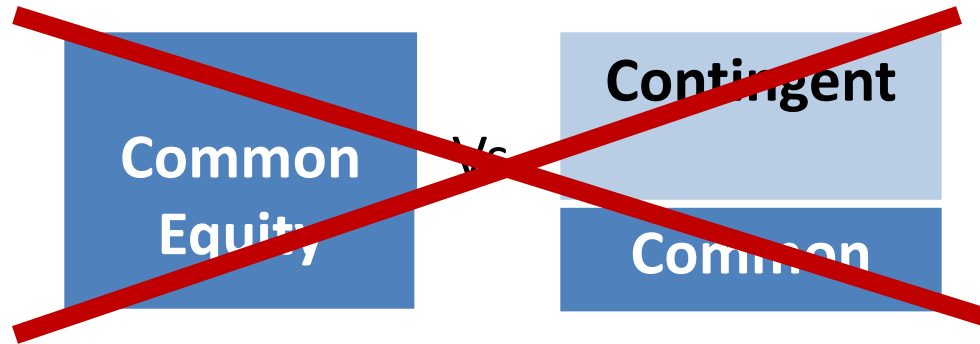
Model Implications: Conclusions

- 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



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!

Flannery M.J., 2014. “Maintaining adequate bank capital,” *Journal of Money, Credit and Banking*.

Flannery, M.J., 2014, “Contingent Capital Instruments for Large Financial Institutions: A Review of the Literature,” *Annual Review of Financial Economics*, V6.

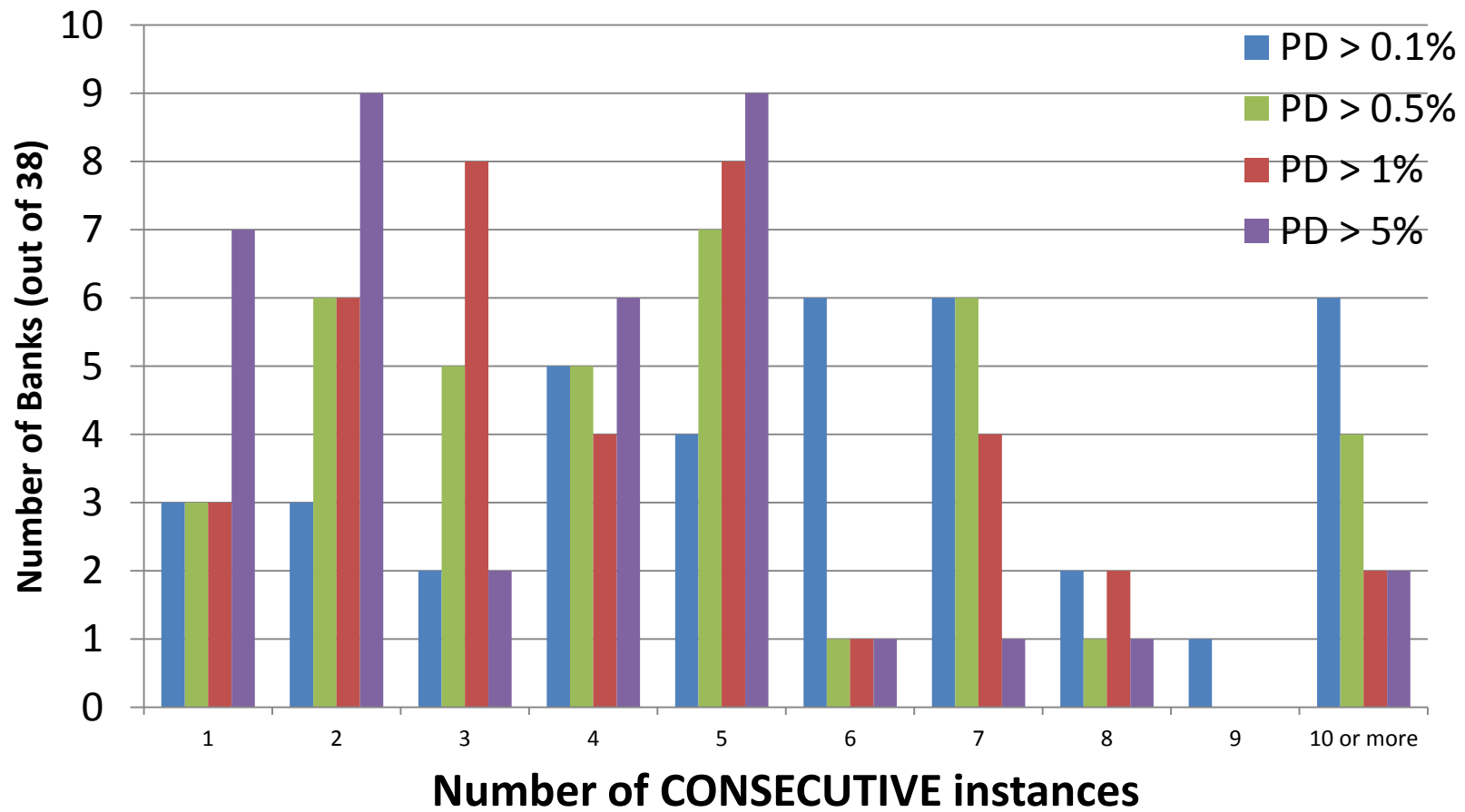
Flannery, M.J. and E. Giacomini, 2013, “Maintaining Adequate Bank Capital: An Empirical Analysis of European Banks,” *working paper*.

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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...)

	Assets	Liabilities	
Loan, etc.	100	85	Deposits (short term)
		7	LT unsecured debt
		8	Equity

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.