The Case for a Properly-Structured Contingent Capital Requirement

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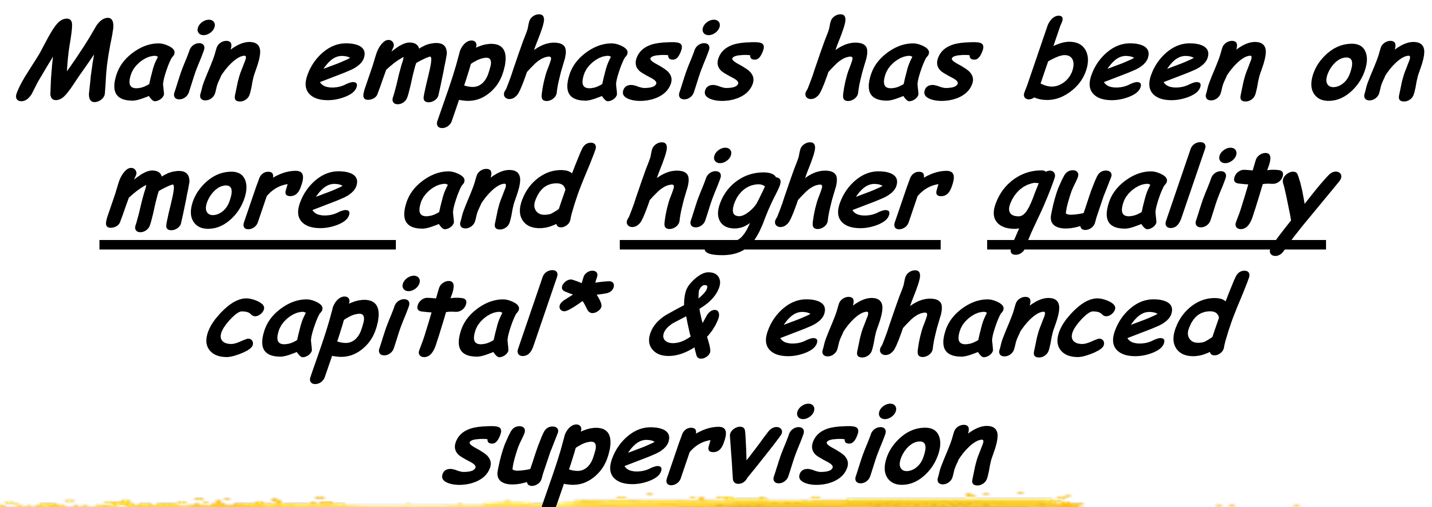
- A properly-designed Contingent Capital (CoCo) requirement, alongside common equity, would be a more effective prudential tool
  - Create strong incentives for prompt recapitalization before a bank has run out of options to access the equity market
  - Enhance incentives for improved risk governance
  - Provide a more effective solution to the 2B2F problem
  - Reduce forbearance risk
  - Address uncertainty about the amount of equity a bank needs & how that changes over time
  - If in place, could have avoided '08 meltdown

Background

INTERNATIONAL REFORM TO DATE HAS FOCUSED PRINCIPALLY ON THE NUMERATOR IN THE MINIMUM CAPITAL RATIO



THIS HAS GENERALLY PLACED FAR GREATER EMPHASIS ON THE REQUIREMENT FOR EQUITY, WHICH HAD FALLEN FROM THE ORIGINAL 4% OF RWA UNDER BASEL 1 TO 2% OF RWA UNDER BASEL II

*The other innovation in Basel III is two new liquidity requirements that we will not discuss in this presentation.

Little Reason to Believe Closer Supervision will work

Regulation and supervision is a continual contest between regulatees and less-well-paid & less-well informed regulators

"These new regulations will fundamentally change the way we get around them."

New Yorker, March 9, 2009, p. 52.

SUPERVISORS CONTINUALLY SURPRISED DURING CRISIS.

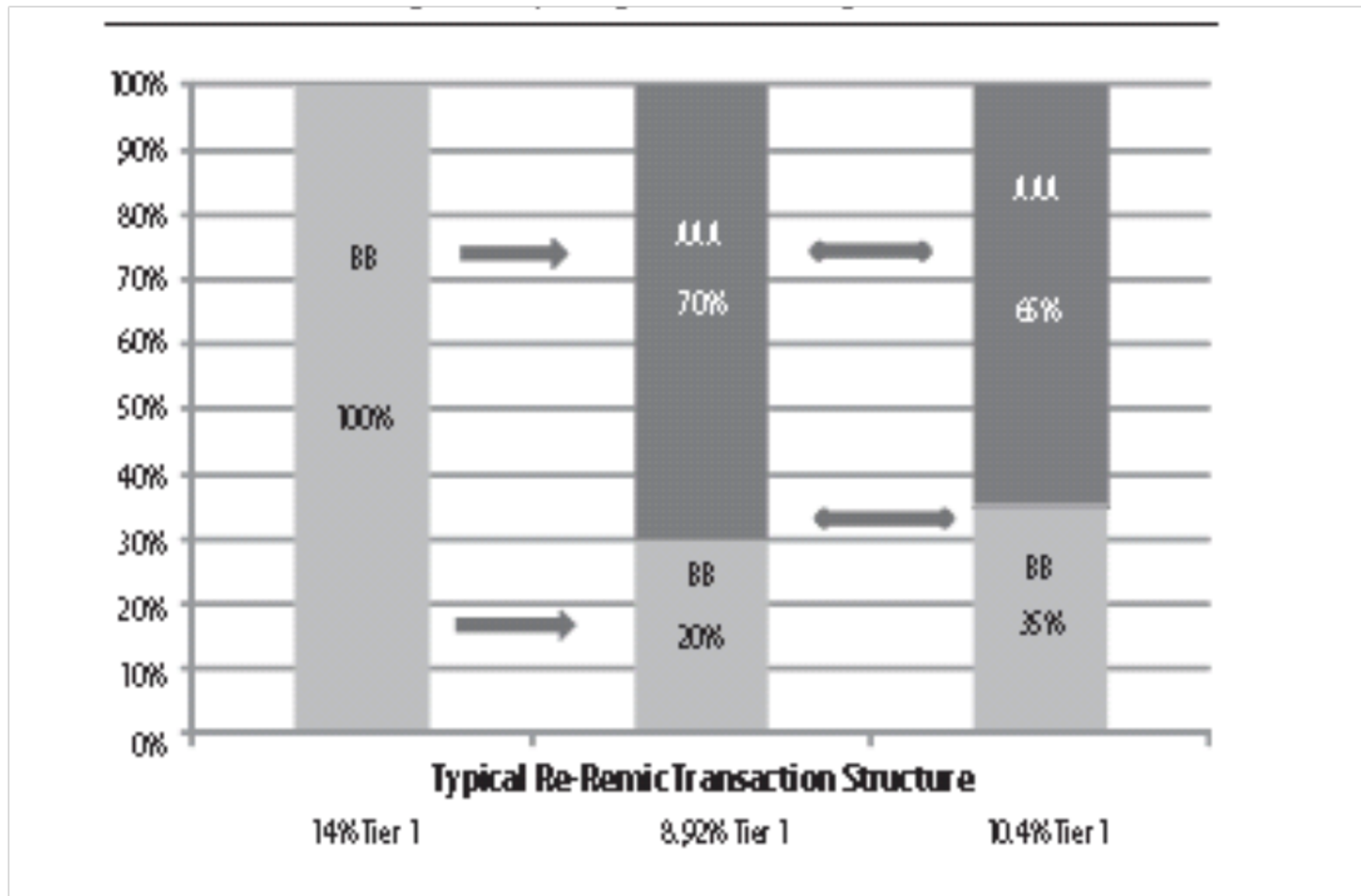
APPEAR NOT TO HAVE CONTEMPLATED CHANCE OF COLLAPSE

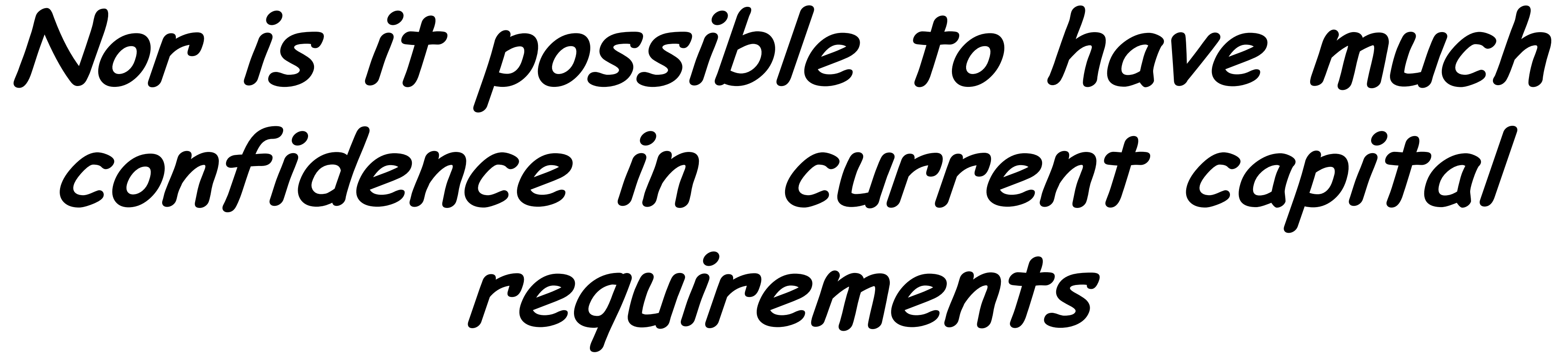
Moreover, the Regulatory Dialectic is Alive & Well

- A particularly good example in July 2008
- The Basel Committee tried to discourage re-securitizations by raising the capital charge on BB-rated tranches of resecuritizations from 350% to 650% and on the AAA-rated tranches from 20% to 40%
- Within weeks financial engineers had found a work around
  - The Re-Remic

But can't stop arbitrage even when they try

Took punitive approach to resecuritizations: 1. Raised risk weight on BB from 350% to 650% and a AAA from 20% to 40%





NEITHER CAPITAL (AS REDEFINED) NOR RISK WEIGHTS WILL OFFER SUFFICIENT PROTECTION

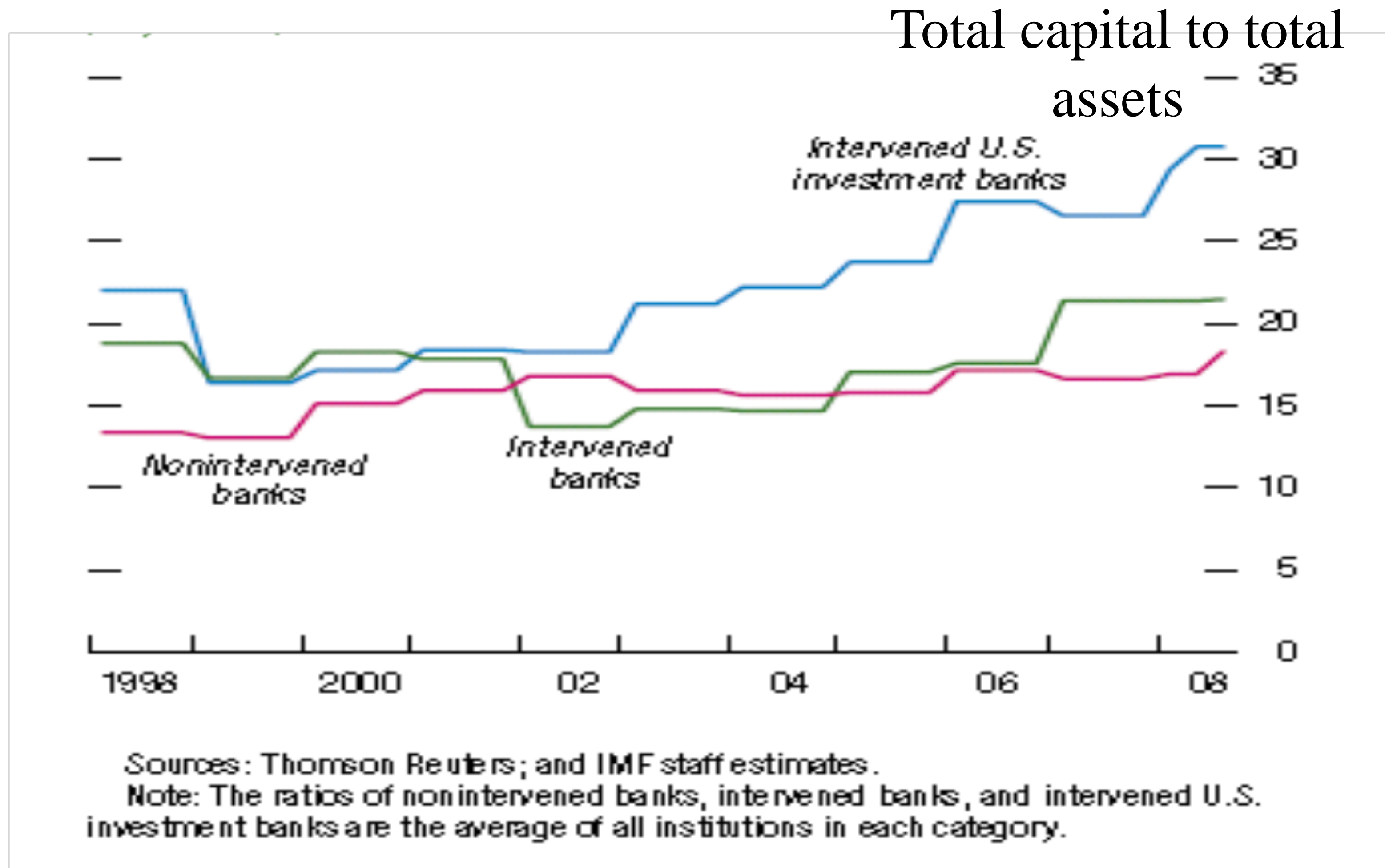
Post-Mortems of Failing Institutions Raised Questions

- ✓ About whether anyone – Boards, Senior Managements or Supervisors – comprehended the exposures of these institutions to subprime mortgage risk
  - Failures of: Lehman Brothers, Northern Rock, ING, Indy Mac, Washington Mutual, Wachovia, Dexia &
  - Losses sustained by UBS, AIG, Citi, Merrill Lynch, Bank of America, etc.

Disheartening Because Regulators & Supervisors Have

- Focused on risk management & capital requirements for more than 2 decades
- Risk-based capital adequacy requirements were a comprehensive failure
  - Numerator did not measure capacity for a going concern to bear loss
  - Denominator did not measure risk adequately
  - Ratio was much set much too low to provide a margin of safety
    - Never adequately explained

Experience Has Not Engendered Confidence in Capital Requirements



Source: IMFGFR April, 2009, Chapter 3, p.7

Key Problem: Failure to Assess or Control Risk Relative to Capital

- ✓ Internal risk management & external prudential regulations & supervision failed because underestimated required equity relative to risk
  - – CEOs & boards lacked an effective framework or the willingness to apply the appropriate tools to measure & constrain risk within appropriate limits
    - Indirect evidence: Banks that rewarded risk managers more prior to the crisis not only saw lower crisis-related losses, but lower ex ante volatility

In Addition, Failed to Recapitalize Promptly when Risk was Realized

- ✓ In 2007 several of the world's largest financial institutions – Freddie & Fannie, Citi, UBS, AIG, Merrill Lynch, Lehman Brothers, etc. – amassed huge concentrations of risk assets relative to their equity
  - As they lost equity capital from 2007-2008, they did not replace as much as they lost
  - Remaining equity inadequate to protect from insolvency in August 2008

Wasted Critical Opportunity to Recapitalize before Disaster

- ✓ From August 2007 to September 2008, roughly $450 billion of capital raised by global financial institutions. Capital markets were open
  - Nonetheless many FIs chose not to raise sufficient capital
    - Feared dilution of shareholders and own holdings
    - Hoped time would reverse all problems

Underlying Problem: Distorted Incentives

- ✓ Existing rules encourage understatement of risk. Rely on assessments of
  - Banks & Rating Agencies
  - Both suffer from conflicts of interest that offer benefits for underestimation of risk
- ✓ If not measured properly, can't be managed
  - Lack knowledge (& will) to penalize excessive risk-taking in firm

The Incentive Problem (cont'd)

- ✓ Ex ante understatement and mismanagement of risk & ex post failure to replace lost equity interrelated
  - If believed that would be forced to replace lost equity promptly, greater incentive to measure & manage risk & maintain adequate equity buffer
- ✓ Central challenge: how to change incentives?
  - Basel III answer--increased equity capital & enhanced supervision—no longer plausible

Increased Capital Requirements Unlikely to be Sufficient

- Emphasis on shareholders' equity is long overdue, but the wrong measure
  - Accounting measures tend to lag actual losses
  - Ability to avoid timely recognition of loss encourages understatement of losses, since can avoid dilutive issues of equity
  - After losses occur, incentives for good risk management become even more distorted: temptation to gamble for resurrection

Why Rely of Measures that are Known to Lag?

- Amalgam of book values and fair values provides scope for concealing losses
  - Both bankers & supervisors may prefer to do so
    - Supervisors sometimes surprised, but often prefer to ignore losses as long as possible – to forbear
    - Supervisors subject to substantial political pressures
    - Moreover, subject to judicial or administrative challenge if force an institution to recognize losses
    - Result: delay until losses can be proven beyond any reasonable doubt
    - Example: Citi maintained a Tier 1 ratio of 7% throughout crisis
      - Ratio was 11.8% when market cap ca.1% of accounting value of assets

Moreover, Draconian Increases in Book Equity Would not Solve Problem

- ✓ Wouldn’t provide incentive for timely replacement of lost equity
- ✓ Could raise cost of finance that would lead to contraction in bank lending
  - – A consistent finding in credit crunch literature
  - – Equity is costlier to <u>raise</u> than debt because of
    - Asymmetric information
    - Managerial agency costs
    - Tax savings from debt (private not a public benefit)
- ✓ Perhaps only a transitional problem, but transitions important when economy weak

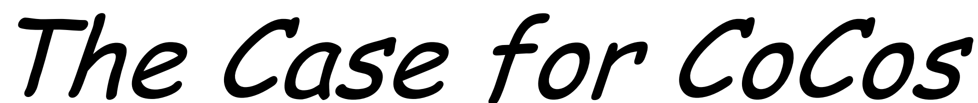
BUT ACCOMPLISHING THE OBJECTIVE PURELY WITH HIGHER EQUITY REQUIREMENT MAY HAVE HIGH COSTS & DOES NOT SOLVE THE PROBLEM OF INADEQUATE CAPITAL RELATIVE TO RISK

Emphasis on Equity has Intensified Quest for

- ✓ Financial instruments that would convert from debt to equity when necessary—e.g. CoCos
- ✓ Unfortunately, little consensus about how security should be designed
  - Amount of issue?
  - Conversion trigger?
  - Amount converted?
  - Price at which bonds exchanged for equity at conversion?

Differences Based on Weight Given to

- ✓ Providing contingent cushion of common equity when CoCo is trigger – "bail-in" objective
- ✓ Providing a credible signal of default risk in yield spread prior to conversion – "signaling" objective
- ✓ Incentivizing voluntary, pre-emptive & timely issuance of equity to avoid highly dilutive conversion – "equity issuance & risk management objective"



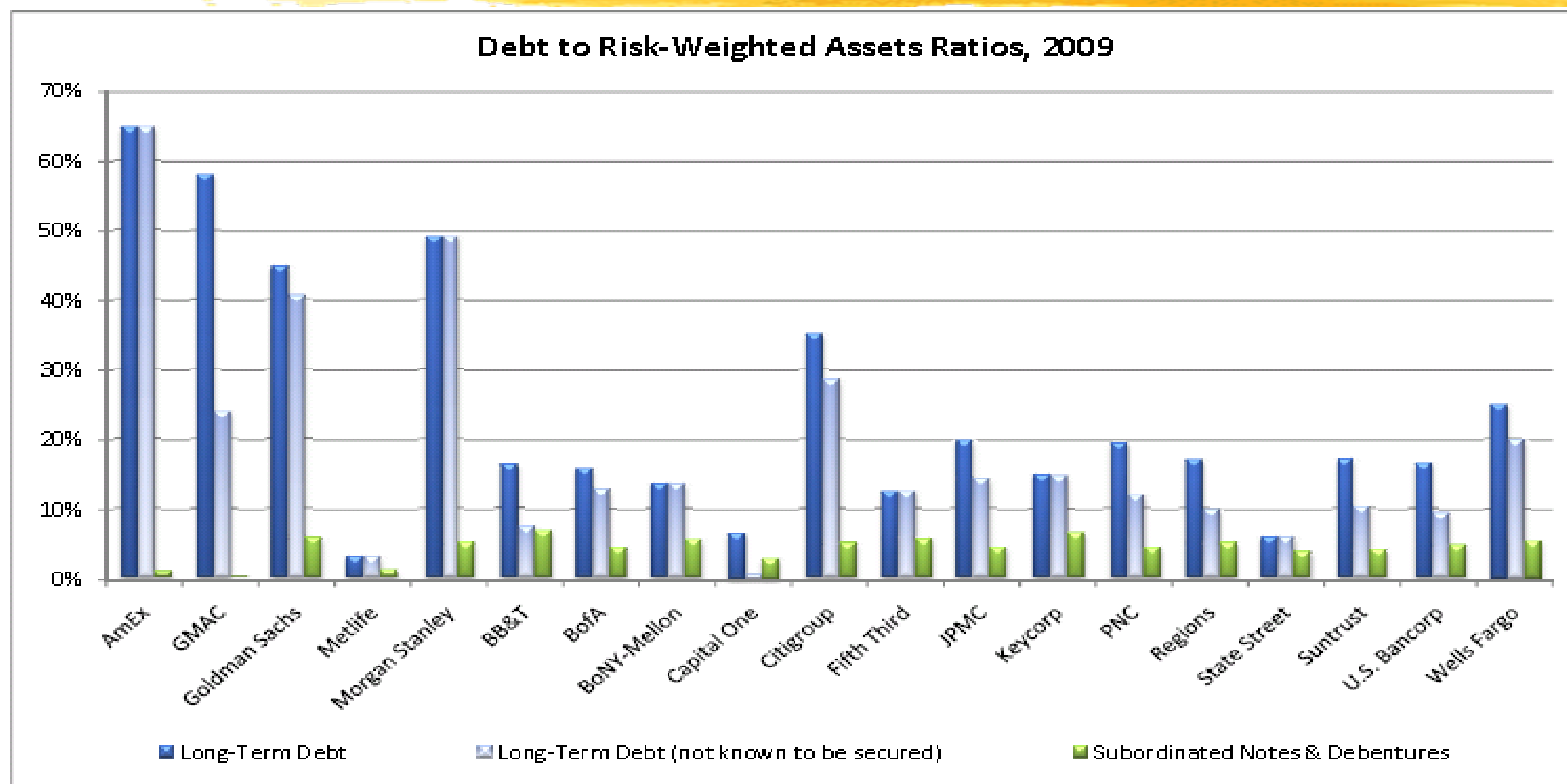
✓ For CoCos to be most effective, must meet 4 criteria

1. Require a substantial amount of CoCos relative to common equity
2. Conversion based on a market value trigger, defined using a moving average of a “quasi market value of equity ratio (QMVER)
3. Convert all CoCos if hit conversion trigger
4. Make conversion ratio dilutive of pre-existing shareholders

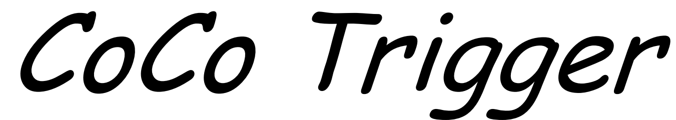
Incentive to issue equity pre-emptively depends on size of CoCo issue

- ✓ The required issue of CoCos should be roughly equal to the Tier 1 capital requirement
- ✓ All CoCos should be converted when trigger hit
- ✓ Conversion price should be favorable to holders of CoCos
- ✓ Conversion would be a CEO's nightmare
  - Furious existing shareholders
  - Angry newly-converted shareholders

Is this amount of debt reasonable?



Data produced by Flannery (2009) suggests that it is, provided debt holders can be assured conversion is unlikely.



- Desirable attributes of the ideal trigger for conversion
  - Accurate
  - Timely & comprehensive in its valuation of the firm
  - Implemented in a predictable way so that CoCo holders can price risk at offering
    - Ratings agencies insist on this feature
    - Many institutions can only hold rated debt

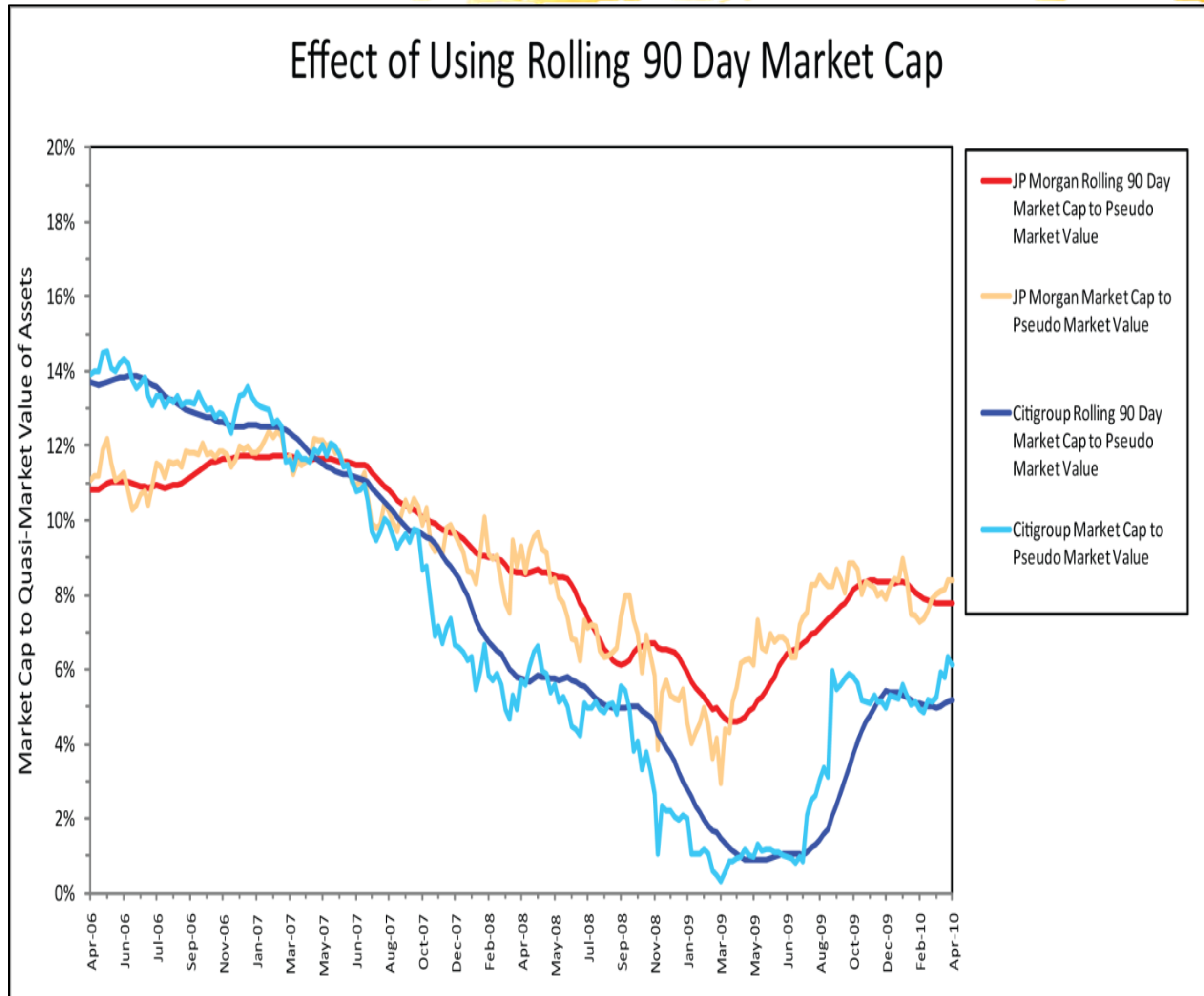
Book values of equity not appropriate

- ✓ Subject to manipulation
- ✓ Inevitably a lagging indicator of decline
- ✓ Permits supervisors and regulators to forbear
  - Leads to protracted delays in recognizing & dealing with problems
- ✓ Employing CoCos should reinforce regulatory discipline with market discipline

What market values are appropriate?

- 2 obvious candidates
  - CDS spreads
    - Relatively shallow markets, subject to manipulation
    - Pricing of risk is not constant over business cycle
  - Stock prices
    - Have proven to be good predictors of failure in past – e.g. Enron & Lehman
    - The comprehensive measure of market value
    - But highly volatile
      - Thus need to smooth transitory fluctuations
      - Suggest 90-day moving average to reduce noise in signal

90-day Moving Average Helps Separate Noise from Trend



Proposed Market-based Trigger

- ✓ Quasi Market Value of Equity Ratio (QMVER)
  - – 90-day moving average of ratio of
    - Market value of equity relative to
    - Market value of equity plus face value of debt
- ✓ Would meet criteria of
  - – Accuracy
  - – Timeliness
  - – Comprehensiveness
  - – And predictability

WILL FOCUS MANAGERIAL ATTENTION ON

IMPROVED RISK MEASUREMENT & MANAGEMENT

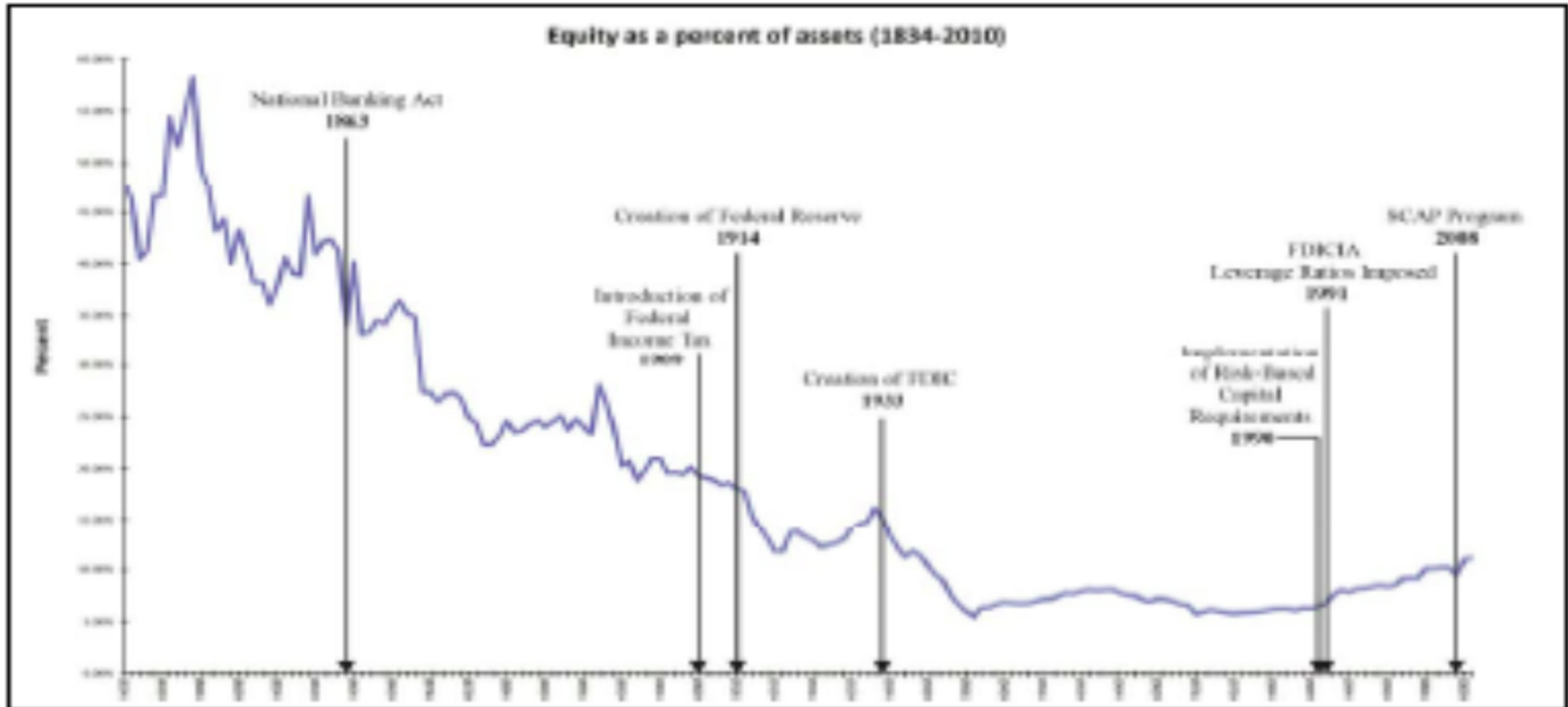
RECAPITALIZATION BEFORE CONVERSION IS TRIGGERED

IF SUCCESSFUL

CoCoS WILL RARELY BE TRIGGERED

OVER TIME, THE INDUSTRY HAS CHOSEN A NUMBER OF DIFFERENT RATIOS, BUT CLEARLY DECLINE WITH TAX INCREASES & INTRODUCTION OF VARIOUS COMPONENTS OF SAFETY NET

Optimal equity-to-asset ratio hopelessly obscured by safety net



But tendency of industries to cluster around <u>some</u> ratio suggests an optimum would exist without safety net

Profitability and leverage

Medians across years and institutions

	Return on assets[1]				Return on equity[2]				Leverage[3]			
	95–09	95–00	01–07	08–09	95–09	95–00	01–07	08–09	95–09	95–00	01–07	08–09
Banks	0.6	0.7	0.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	17.4
Non-bank financials	[illegible]	1.0	1.0	0.5	11.2	12.3	11.4	6.4	12.1	12.5	12.1	10.8
Non-financials	3.2	3.0	3.4	2.8	11.7	10.9	12.8	8.8	3.0	3.0	3.0	2.9
Energy	5.5	3.5	8.1	5.2	14.2	10.8	18.6	10.1	2.4	2.5	2.3	2.2
Materials	4.3	4.3	4.7	3.2	10.6	8.8	13.1	8.5	2.5	2.4	2.5	2.7
Industrials	[illegible]	[illegible]	[illegible]	[illegible]	10.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Consumer discretionary	2.2	2.1	2.6	1.1	9.1	[illegible]	10.4	4.2	[illegible]	4.0	[illegible]	[illegible]
Consumer staples	5.4	5.2	5.7	5.1	[illegible]	12.4	[illegible]	11.7	2.5	2.4	2.5	[illegible]
Health care	8.1	8.0	8.3	6.5	18.2	18.8	18.5	15.3	2.3	2.3	2.3	2.3
Information technology	5.1	5.1	5.0	5.6	12.8	15.1	12.8	10.3	2.2	2.2	2.1	2.0
Telecom services	3.2	3.6	2.9	2.9	9.5	10.9	9.4	6.4	2.6	2.7	2.6	2.7
Utilities	2.7	2.5	2.7	2.7	10.8	9.3	11.0	11.9	4.1	3.7	4.4	4.0

[1] Net income over total assets, in per cent. [2] Net income over total shareholder funds, in per cent. [3] Total assets over total shareholder funds.

Source: Bloomberg.

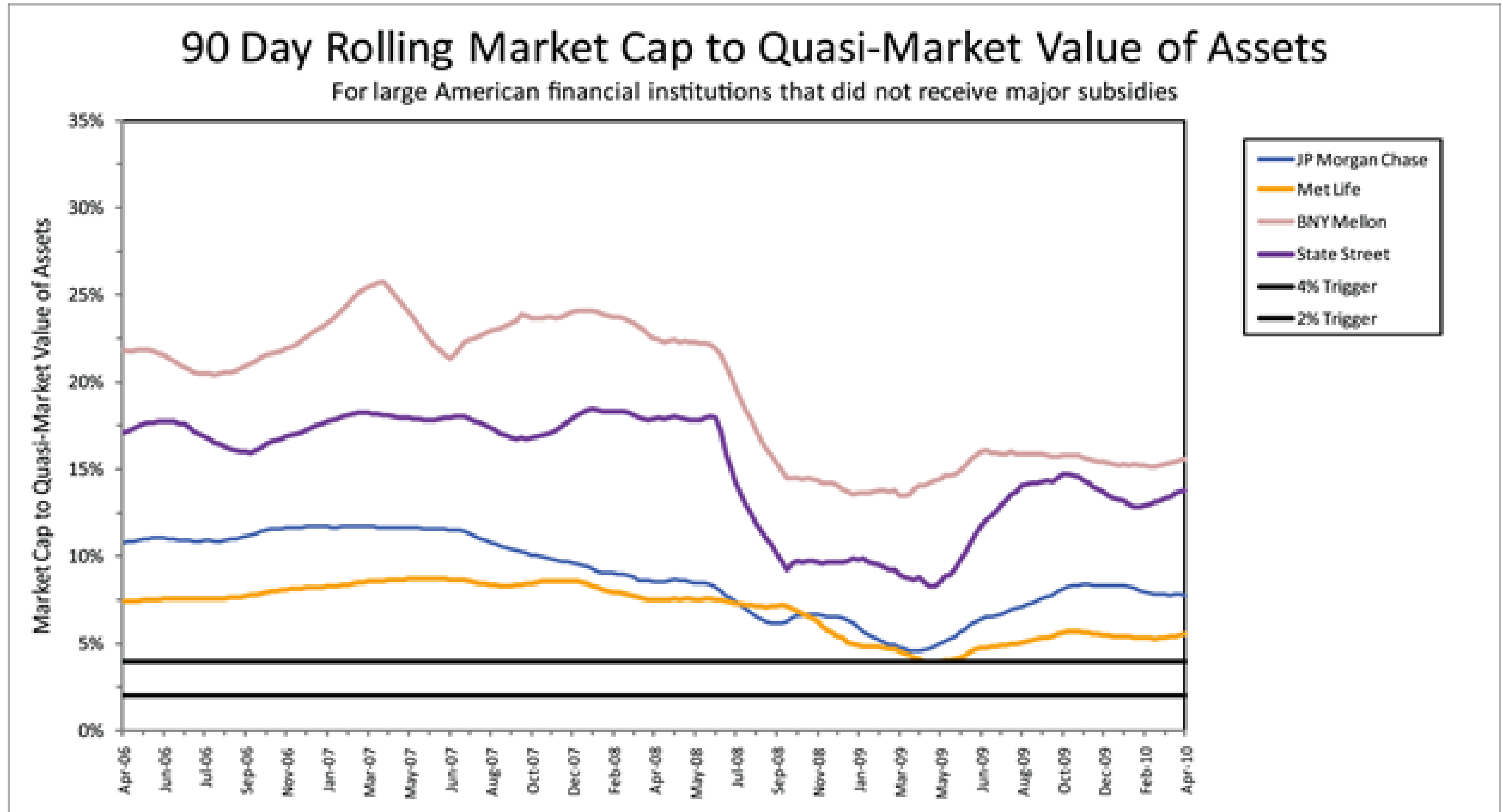
Properly Designed CoCos Provide an Incentive for Banks to Choose the Appropriate Optimum

- ✓ Regulators have difficulty determining the appropriate amount of equity for a bank
  - Moreover that amount changes over time as risks change
- ✓ Properly-designed CoCos create incentives for banks to issue equity to maintain the right amount of capital (equity + CoCos) relative to risk
  - Not only encourage prompt replacement
  - But also to respond to increased risk with higher capital

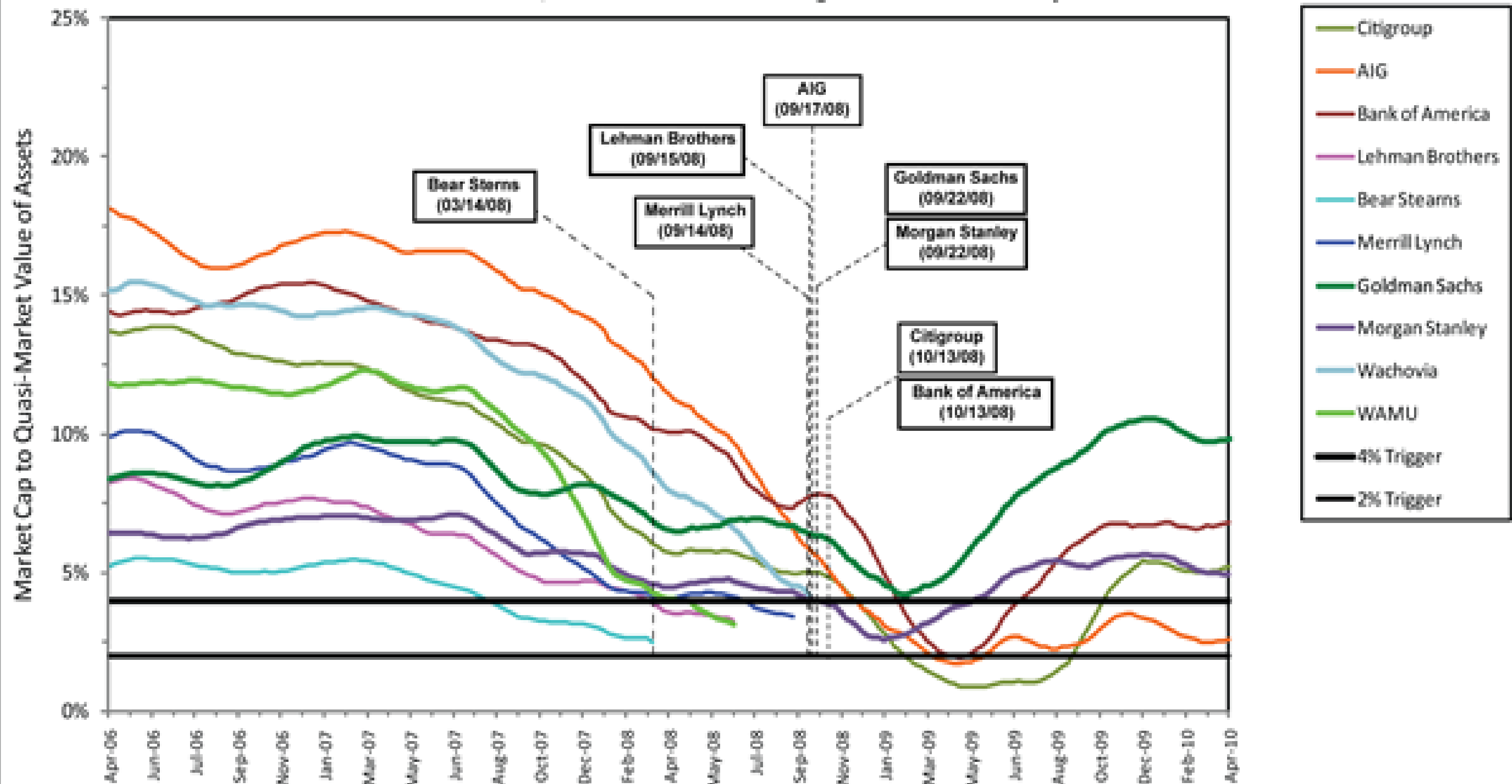
The following data <u>do not</u>, of course, reflect the crucial incentive effect on managers who should be highly motivated to anticipate & avoid conversion

Assumption: Conversion at 4% QMVER

Would have distinguished 4 that made it

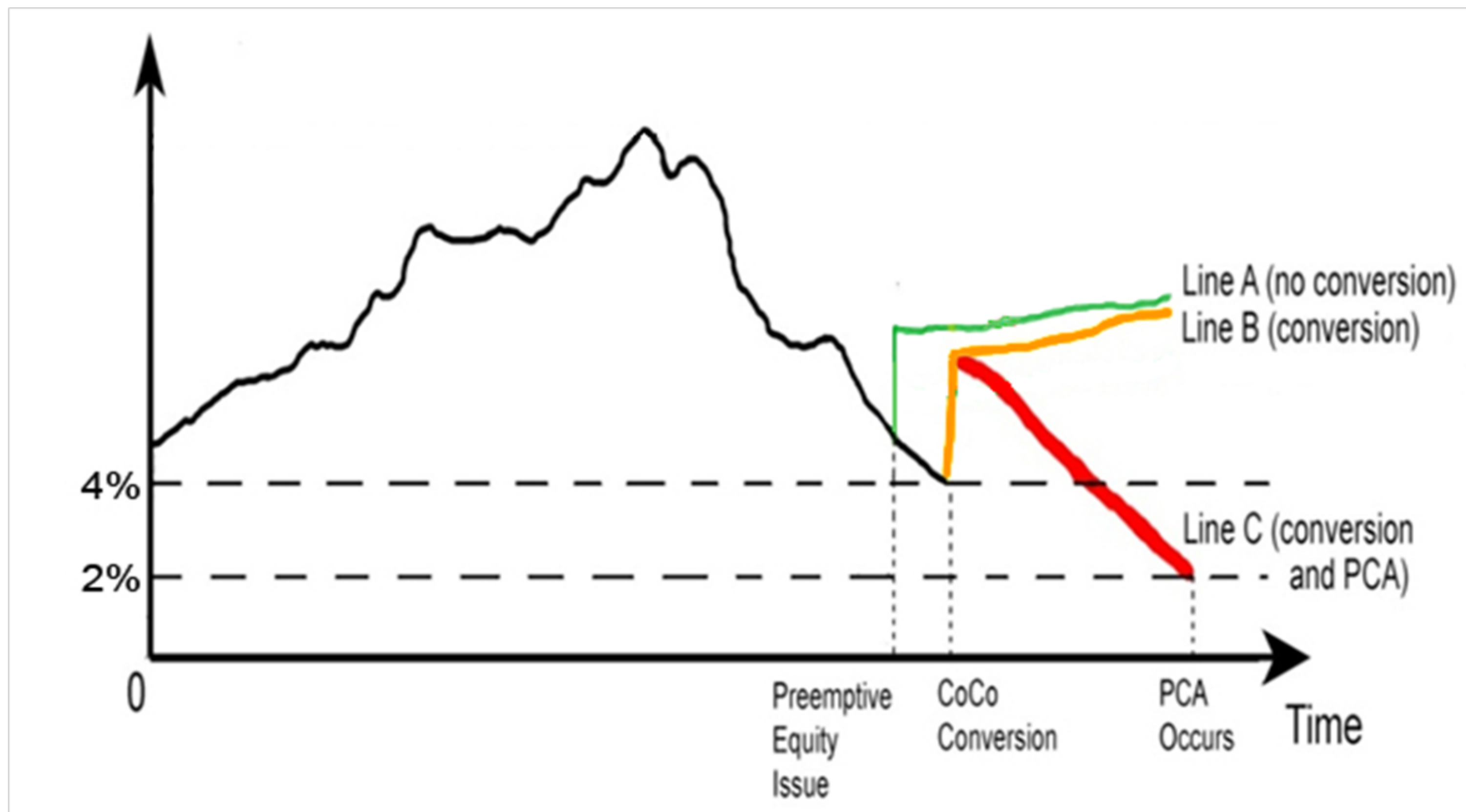


From 10 that did not



How a QMVER Trigger Might Work More Generally?

Figure 2



Conversion will Help, but it is not necessarily a cure all

- ✓ Will reduce cash outflows that would otherwise have had to be paid to holders of CoCos
  - – May provide time to enable some SIFIs to restructure and recapitalize
  - – May increase pressure to replace incompetent management
  - – But inevitably some SIFIs will not make it and their weighted average market value will drop to the trigger point again
- ✓ At this point Prompt Corrective Action Measures should set in

But PCA triggers should be restated as QMVER

- ✓ If market cap falls by another 20%, then "Significantly Undercapitalized"
  - Subject to all of the above sanctions plus…
  - An order to implement recapitalization plan
  - Restrictions on inter-affiliate transactions
  - Restrict deposit interest rates
  - Restrict pay of senior executives
- ✓ If hit regulatory insolvency ratio – which must be significantly above 0 economic net worth, then implement unwind plan

Some failures are inevitable

- **But a properly designed CoCo requirement will**
  - Give management and shareholders a much greater incentive to restructure before it is too late
  - Will enable well-managed banks to satisfy higher capital buffers and still take advantage of the tax shield
  - Will alert supervisors to looming problems before a crisis so that there will be fewer panicky resolutions over sleepless weekends