Discussion of "Capital Regulation, Liquidity Requirements and Taxation in a Dynamic Model of Banking"

Kai Du (Yale School of Management)

Conference on Capital Requirements for Financial Firms
Federal Reserve Bank of Cleveland

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1 Overview

2 Model

3 Other Perspectives

Overview

- First dynamic model of banking with a joint assessment of regulatory policies
  - Incorporates capital regulation, liquidity requirements, and taxation in a descriptive way
  - Provides efficiency implications based on welfare metrics

Overview

- Capital regulation
- Liquidity requirements
- Taxation

Bank's problem

$$\max_{(L',B')\in\Gamma(D')} \left\{ e(x,L',B') + \beta\mathbb{E}\left[E(x')\right] \right\}$$

Value metrics

Main Insights

- An inverted-U-shaped relationship between bank lending, efficiency, welfare and the stringency of capital requirements
- Liquidity requirements reduces bank lending, efficiency and social value
- Impact of taxation

Autarky

$$\tilde{R} = \begin{cases} R_H & 1-p \\ R_L & p \end{cases}$$

$$U(c_1, c_2) = \begin{cases} u(c_1) & \pi \\ u(c_2) & 1-\pi \end{cases}$$

Investment	t=0	t=1	t=2
Storage tech.	-1	+1	
		-1	+1
Long-term loan	-1		$\tilde{R} = \begin{cases} R_H & 1-p \\ R_L & p \end{cases}$

A “static” bank (Diamond Dybvig 1983)

$$\tilde{R} = \begin{cases} R_H & 1-p \\ R_L & p \end{cases}$$

Assets	Liabilities
Cash; Loans	Deposits

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Investment	t=0	t=1	t=2
Storage tech.	-1	+1	
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A “dynamic” bank (De Nicolo et al.)

Zt

Assets	Liabilities
Loans *Lt* Bonds *Bt*	Deposits *Dt* Capital *Kt*

Dt

$$E(x) = \max\left\{0, \max_{(L',B')\in\Gamma(D')} \left\{e(x, L', B') + \beta\mathbb{E}\left[E(x')\right]\right\}\right\}$$

State variables: x=(L, B, D, Z, D')

Diamond-Dybvig Model and Its Dynamic Version

- Two key features of Diamond-Dybvig model
  - Risk sharing among heterogenous agents
  - Maturity transformation
- The first feature is usually lost in dynamic banking models

Comments

- Rich enough to capture interesting phenomena
- Generates important, intuitive, and unexpected results
- Positioning

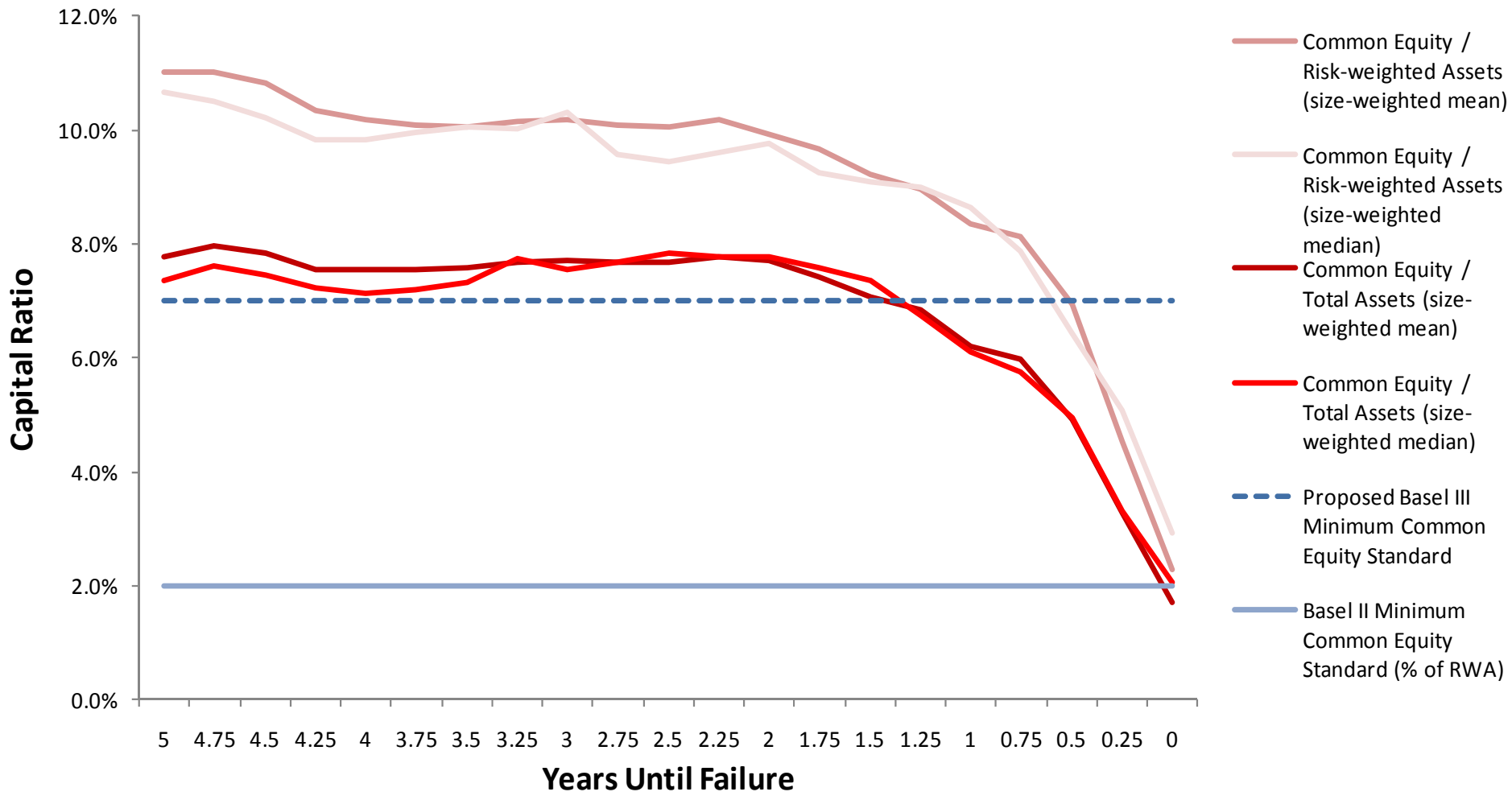
Suggestions

- Unify capital constraint and liquidity constraint?
- Spin off the discussion of taxation
- Highlight empirical predictions in a *dynamic* setting

Potential Connections to Empirical Findings

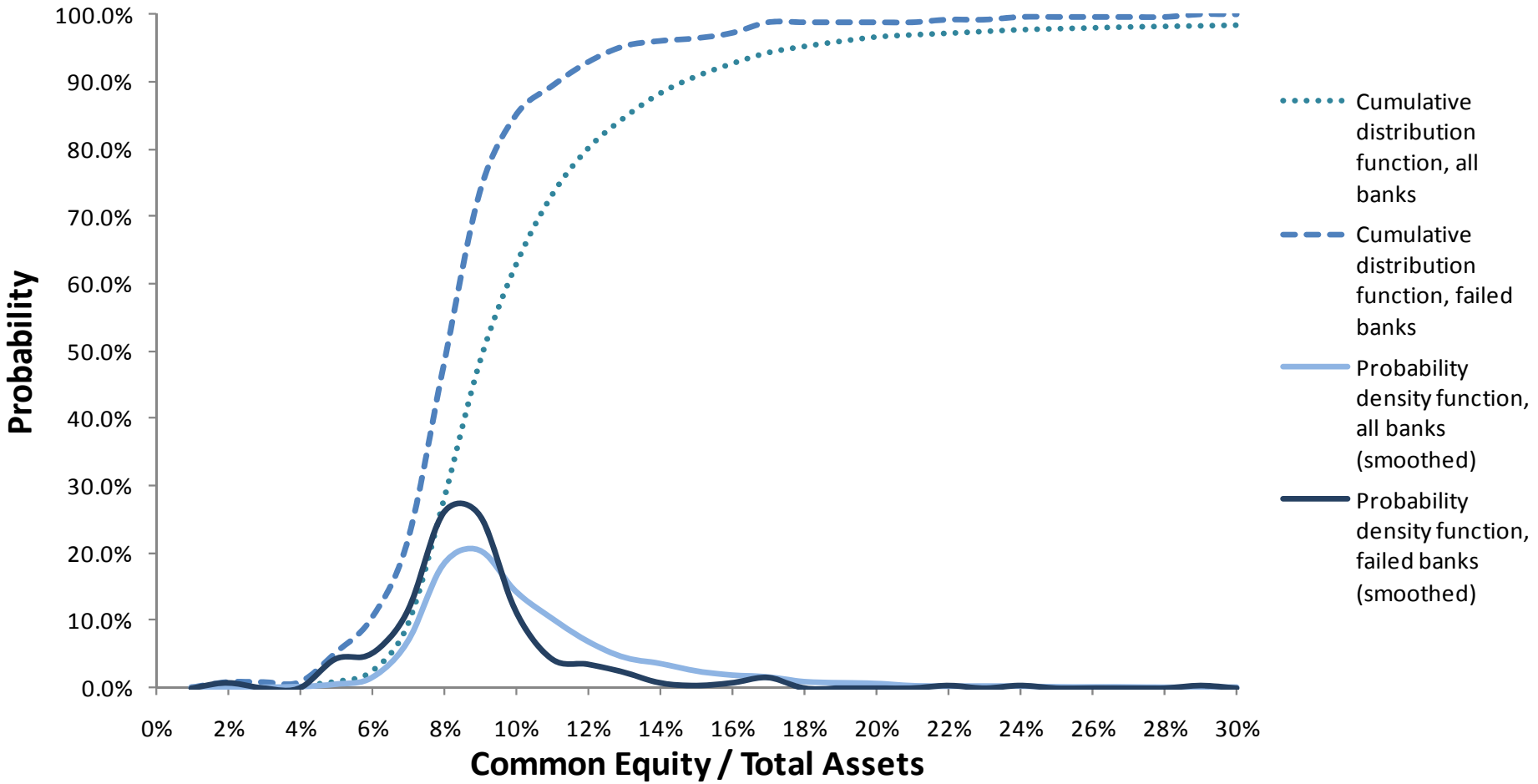
- Banks that satisfy regulatory requirements suddenly fail
- The cross-section of capital adequacy at failing banks
- The way how capital ratios predict insolvency

Fact: Failing banks hold more capital than required



Source: Gorton, Lewellen, and Metrick (2012): "Bank Capital and Survival during the Financial Crisis", uncirculated mimeo.

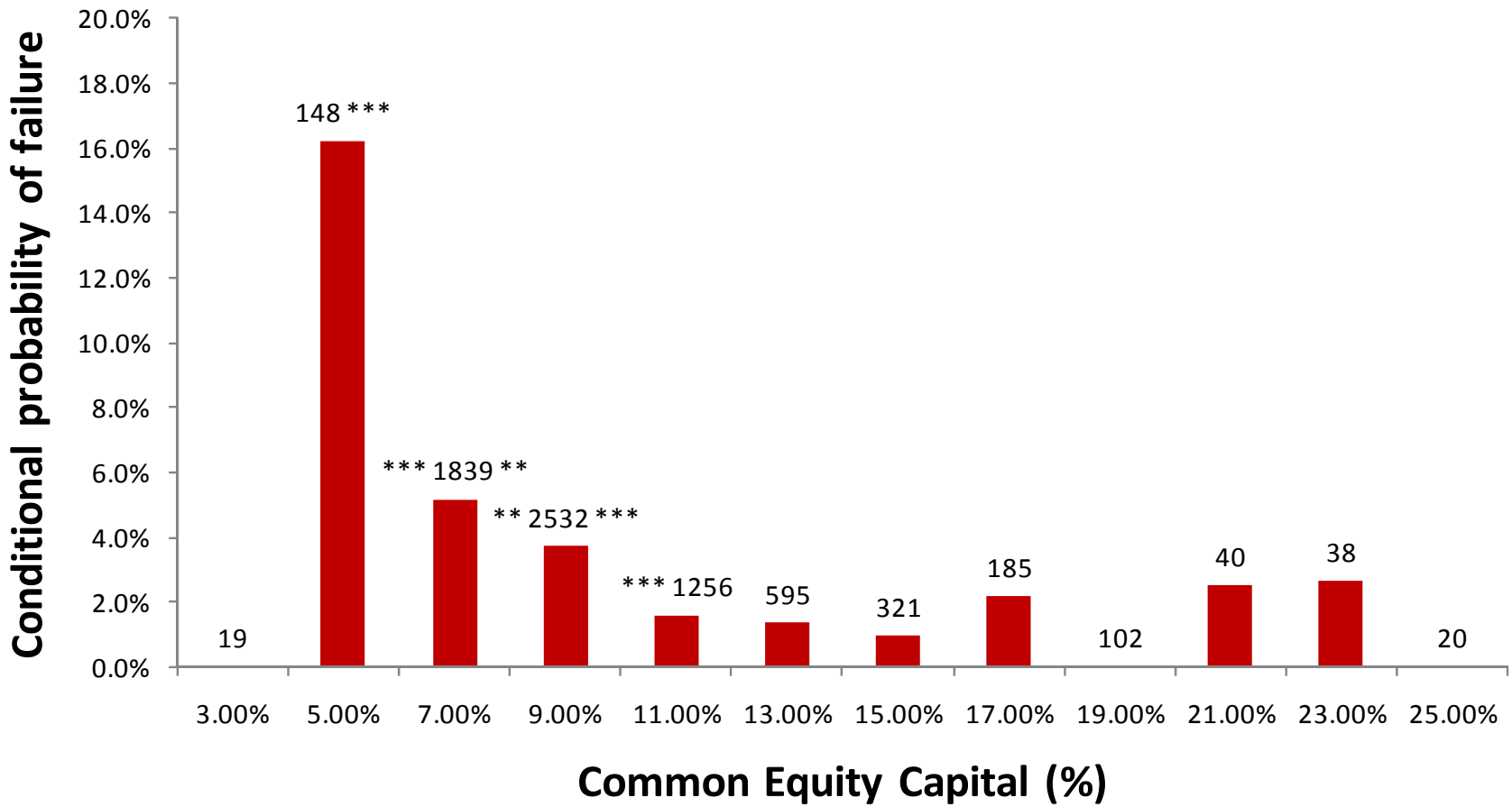
Distribution of common equity at failed banks (08-10)



Source: Gorton, Lewellen, and Metrick (2012): "Bank Capital and Survival during the Financial Crisis", uncirculated mimeo.

Probability of bank failure conditional on capital levels

(Dec 2007 to predict failures during 2008-2010)



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Policy Instruments

- Specific policy instruments
  - Capital requirements
  - Taxation
  - Bailouts/implicit guarantees? (Admati et al.)
- Is a more general representation of policy instruments possible?

Rationale for Capital Regulation: Other Perspectives

- Allen and Gale (2007): no rationale for capital regulation in a world where investors trade Arrow securities
- Farhi, Golosov and Tsyvinski (2009): liquidity regulation improves risk sharing when agents misrepresent their types and engage in trades on private markets
- A new dynamic public finance perspective: what if tax (regulatory) instruments are not exogenously specified in a banking setting?

Accounting Matters

- "Bank regulations are typically based on accounting norms" (De Nicolò et al.)
- Take, loan loss provision, for example
  - Informational role (e.g., Jacklin and Bhattacharya 1988)
  - Regulatory/allocative role: tier 2 capital

The Provisioning Conundrum

- Regulators: counter-cyclical loan loss reserve
  - Benston and Wall (2005): "bank supervisors are excessively conservative... [and they] are concerned about banks being inadequately capitalized and possibly failing"
  - "Basel III reform package... includes efforts to reduce the cyclicality of minimum requirements, more forward-looking loan-loss provisioning, a capital conservation buffer and a counter-cyclical capital buffer." - *Risk*, Nov 2010
- Accountants: informational role
  - Benston and Wall (2005): "accounting authorities' concern is for general-purpose users of financial statements, especially investors"
  - Insist that any new model should only reflect the financial position of a bank at a single point in time and should not be skewed to build up wider provisions for use during a downturn

Thank you!