

# Discussions

Columbia/BPI Conference on Bank Regulation

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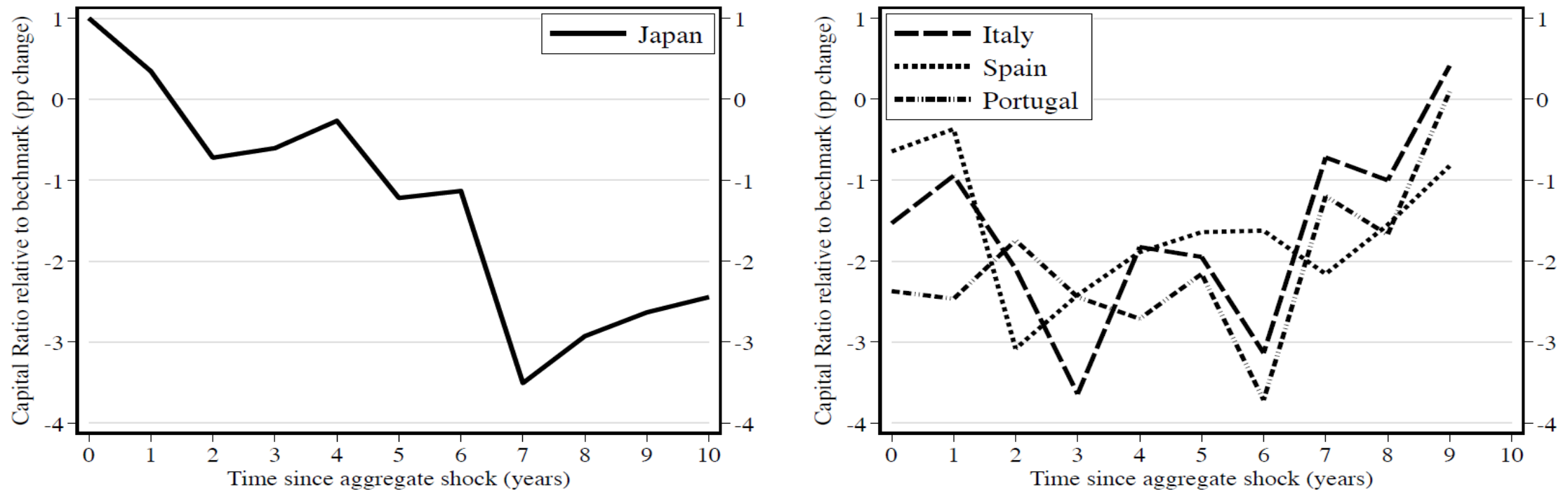
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# If banks become under-capitalized...

- Bank runs (market discipline)
- Regulators may engage in forbearance / bailouts
  - Japan, Europe, many Emerging Market banking crises (“silent panics”)
- In anticipation of forbearance, banks may not recapitalize in a timely manner even in the presence of market discipline
  - Privately optimal vs socially optimal level of bank capital
  - Costs of issuance such as debt-overhang/dilution private, gains partly social
  - Zombie lending, credit misallocation, economic sclerosis, lost decade(s), ...
- (Proactively or reactively) Regulators may respond by recapitalizing the banking system
  - United States, perhaps because it had a spectacular “bank” failure (Lehman Brothers)

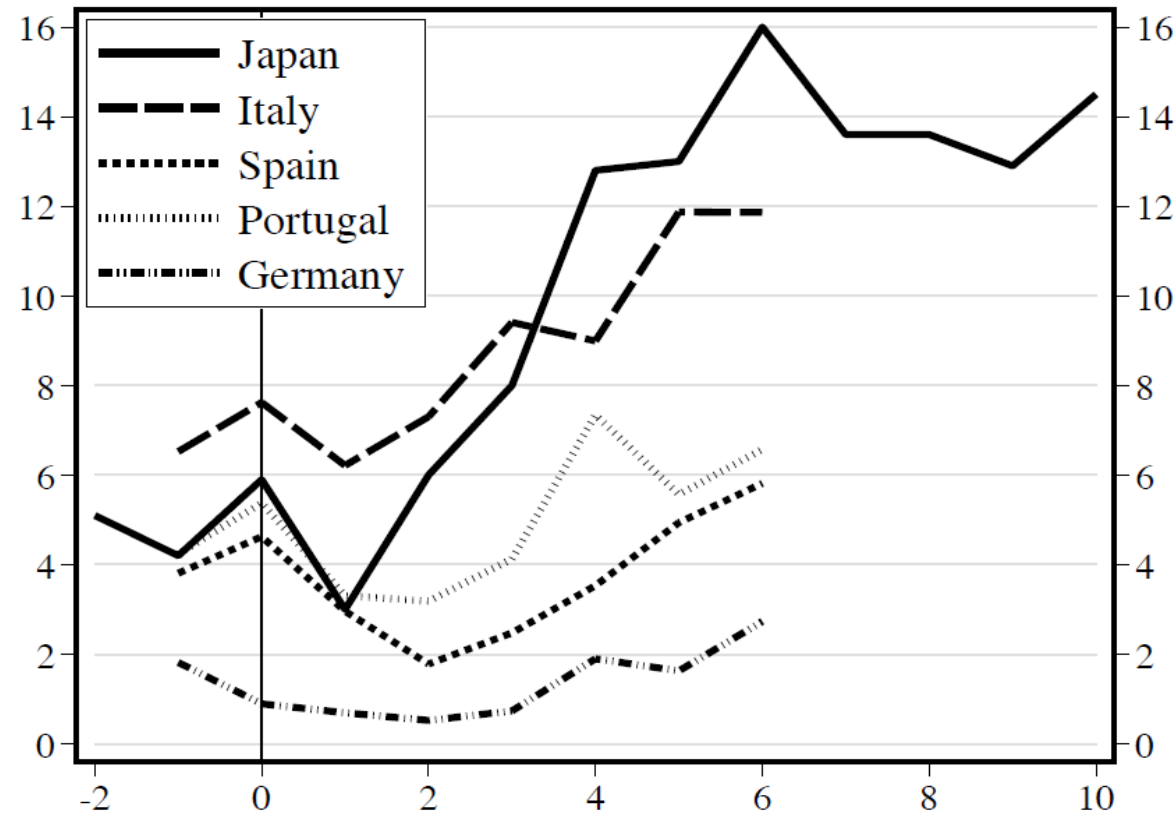
Figure 9: Bank capital in Japan and Europe after the aggregate shock



*Note:* On the y-axis, the figure reports the difference (in percentage points) between the aggregate capital ratio of the banking sector in each country between year  $t$  and the capital ratio of the banking sector in the benchmark for that country. The x-axis reports time (in years) since the aggregate shock. For Japan, the aggregate shock is the burst of the real estate crisis (time  $t = 0$  is 1990), the benchmark is aggregate capital ratio of the Japanese banking sector itself in the pre-shock period (1986–1989), and the capital ratio is measured as core capital over total assets. For Italy, Portugal, and Spain, the aggregate shock is the burst of the European sovereign debt crisis (time  $t = 0$  is 2010), the benchmark is aggregate capital ratio of the banking sector in Germany, and the capital ratio is measured as Tier 1 capital over risk-weighted assets. See Appendix A for information on the data sources.

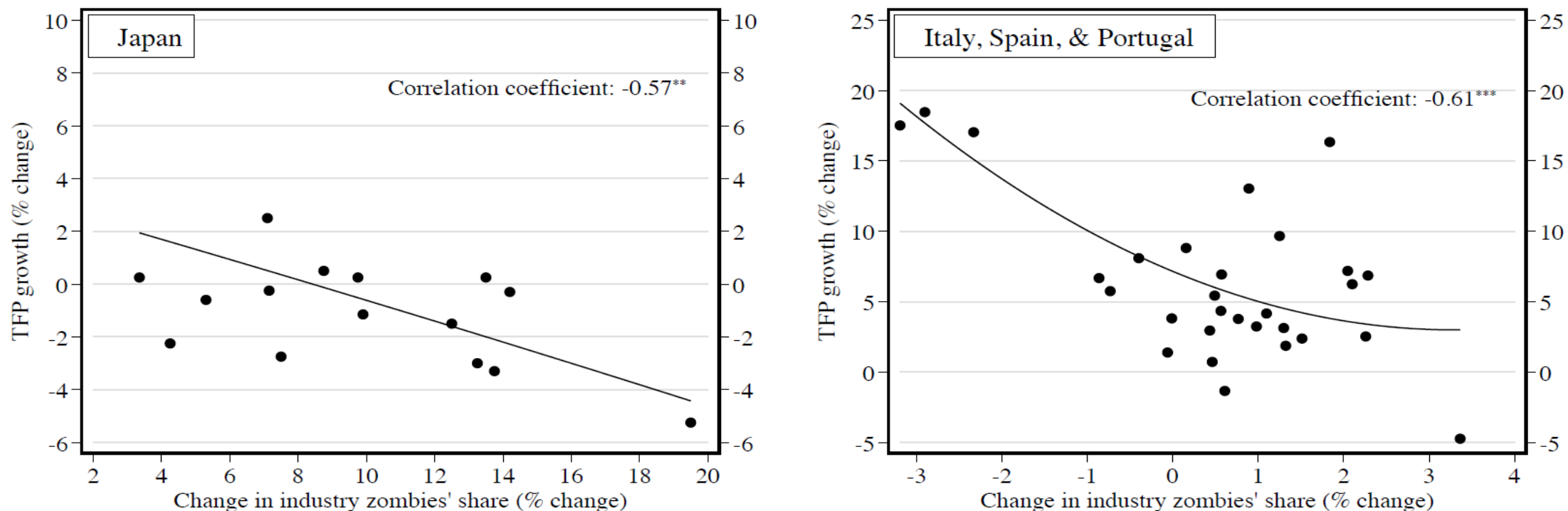
Source: Acharya, Lenzu and Wang “Zombie Lending and Policy Traps”

Figure 1: Share of zombie firms in Japan and Europe before and after the aggregate shock



*Note:* On the y-axis, the figure reports the share of firms classified as zombie firms in Japan, Italy, Spain, and Portugal. The x-axis reports time (in years) since the aggregate shock hit the economy. For Japan, the aggregate shock is the burst of the real estate crisis (time zero is 1990); for Italy, Portugal, and Spain, the aggregate shock is the burst of the European sovereign debt crisis (time zero is 2010). The definition of zombie firm follows the one in [Caballero et al. \(2008\)](#). See Appendix A for information on the data sources.

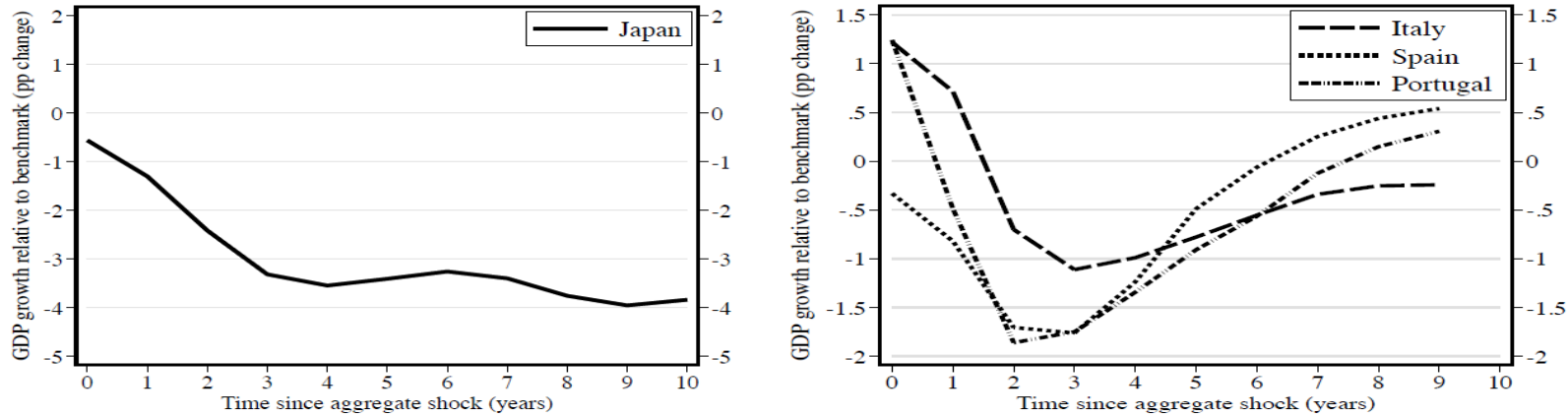
Figure 3: Zombies and productivity growth in Japan and Europe: Industry correlation



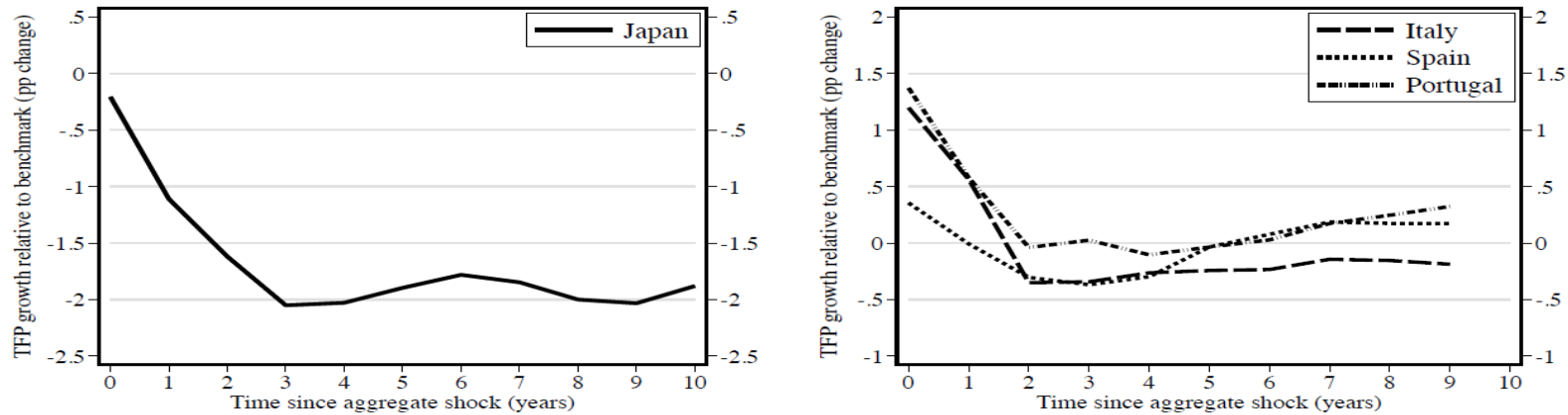
*Note:* On the y-axis is the growth rate (in percent) of TFP of a given industry. The x-axis reports the percentage change in industry share of zombie firms. Each dot is an industry (in the left panel) or an industry-country pair (in the right panel). The line is the best fit quadratic. For Japan, the change in industry share of zombie firms is the difference between average share of zombie firms in the 1981–1992 period and the average share of zombie firms in the 1993–2002 period; the TFP growth rate is the average annual growth rate between 1990 and 2000. For Italy, Spain, and Portugal the change in industry share of zombie firms is the difference between 2012 and 2015; the TFP growth rate is between 2012 and 2016. See Appendix A for information on the data sources.

Figure 6: GDP and aggregate TFP growth of Japan and Europe after the aggregate shock

Panel A: Relative GDP growth



Panel B: Relative aggregate TFP growth



*Note:* On the y-axis, the figures reports the difference (in percentage points) between the annualized growth rate of GDP (panel A) and aggregate TFP (panel B) in each country between  $t = 0$  and  $t$  and the benchmark annualized GDP and TFP growth rate for that country. The x-axis reports time (in years) since the aggregate shock. For Japan, the aggregate shock is the burst of the real estate crisis (time  $t = 0$  is 1990) and the benchmark is the annualized GDP (TFP) growth rate of Japan itself in the pre-shock period (1986–1989). For Italy, Portugal, and Spain, the aggregate shock is the burst of the European sovereign debt crisis (time  $t = 0$  is 2010) and the benchmark is the annualized GDP (TFP) growth rate of Germany between  $t$  and  $t = 0$ . See Appendix A for information on the data sources.

Source: Acharya, Lenzu and Wang “Zombie Lending and Policy Traps”



Table 1: Zombie lending, aggregate outcomes, and bank capital in Japan and Europe

	pp. change between 1986–1989 and 1990–2001	pp. change relative to Germany during 2010–2019		
	<i>Japan</i>	<i>Italy</i>	<i>Spain</i>	<i>Portugal</i>
Share of zombie firms	6.1	7.7	2.4	3.8
Annualized GDP growth	-3.1	-18.1	-11.6	-14.4
Annualized aggregate TFP growth	-6.3	-10.7	-7.7	-7.1
Banking system capitalization	-3.3	-3.5	-3.1	-3.6
Correlation between change in zombies share of an industry and its TFP growth	<i>Japan</i> -57%	<i>Italy, Spain, and Portugal</i> -61%		

*Note:* The table reports the following statistics. The change (in percentage points) of the average share of zombie firms after the aggregate shock relative to the average share of zombie firms in the benchmark. The change (in percentage points) in the average capital ratio of the Japanese banking system relative to the average capital ratio in the benchmark. The change (in percentage points) in the annualized growth rate of real GDP growth and aggregate TFP relative to the annualized growth rates of GDP and aggregate TFP in the benchmark. For Japan, the aggregate shock is the burst of the real estate crisis in 1989–1990, the post-shock period is 1990–2001, and the benchmark is Japan itself in the pre-shock period (1986–1989). For Italy, Portugal, and Spain, the aggregate shock is the burst of the European sovereign debt crisis in 2010, the post-shock period is 2010–2019, and the benchmark is Germany in 2010–2019. The table also reports the correlation between the percentage change in an industry share of zombie firms in and the industry TFP growth rate. See Appendix A for additional details and information on the data sources.

Source: Acharya, Lenzu and Wang “Zombie Lending and Policy Traps”

# Why does this matter in thinking about bank capital requirements?

- Post-crisis view is to raise capital requirements to include buffers ahead of time and release them in due course
- Who determines the “release” (of CCyB)?
- If the regulator, is it by discretion or by an objective rule?
- If discretionary, could it signal adverse information about the economy or the financial sector, triggering a crisis?
- If yes, is the release credible?
- If not, might the regulator first attempt forbearance for a short while hoping things will turn around?
- If that fails, will the regulator then recapitalize or conduct a stress tests to determine private capital to be raised by banks to avoid runs?



# “What are banks’ actual capital targets?” by Cyril Couaillier

- Clever and important empirical paper: European banks (now) set explicit target capital ratios, publicly announced and not seen to be just cheap talk
- Key result 1: Change in target moves less than one-for-one with change in capital requirements

$$\text{Target} = p K (1-\alpha) + (1-p) [ K + \text{Stress-Test-Requirement} ]$$

↑ Forbearance      ↑ Recapitalization

$\alpha > 0$  : dampened effect of K, and  $(1-p) S > p \alpha$  : Target > K

- Key result 2: Banks adjust faster from downside than upside to target
  - 2/3<sup>rd</sup> by actual capital, 1/3<sup>rd</sup> by cutting risk-weighted assets (corporate)
- Note: Historically, adjustment in RWA can be a form of zombie lending
  - Lending to housing/mortgage assets, holding GIIPS sovereign bonds

# “Banking Dynamics, Market Discipline and Capital Regulations” (Rios-Rull, Takamura and Terajima)

- Ambitious theoretical exercise: Bank capital and lending decisions in the presence of insured deposits, uninsured/wholesale deposits (market discipline), equity, and capital requirements (minimum, buffer)
- Market discipline beneficial ex ante, but tightens credit ex post...
- So a buffer helps, but quantitatively important only if sufficiently large
  - Heterogeneity: Banks reliant on wholesale finance benefit less (interesting insight)
- Suggestion 1: Allow for the possibility that if bank failures are *en masse*, i.e., greater than a certain percentage of assets, there will be either forbearance or a recapitalization
- Suggestion 2: Allow for the possibility that in case of forbearance, there is credit misallocation
- Question: How should CCyB be relaxed? Contingent on what? How high should it be ex ante to avoid credit misallocation?