



Discussion

Assessing Risk and Resilience in the Financial System

Second Annual ECB Macprudential Policy and Research Conference

Nellie Liang

Miriam K. Carliner Scholar in Economic Studies, Brookings Institution

May 11, 2017





To Promote Durability of Regulatory Stress Testing

- Achieve safety and soundness (but can't prevent banks from ever failing again)
- Prevent many banks from failing at the same time from non-diversifiable macro risks
- Regulators need to be transparent so that banks can take actions to reduce their risks and become less systemic if they want
- Regulators need to be consistent with objectives of regulatory bank capital requirements that have been agreed upon by authorities



Flood et al “Applied Reverse Stress Testing”

- Method to identify scenarios most stressful to a bank, tailored to its portfolio
 - In contrast to Pritsker (2017) to identify scenarios for joint distress
- Use 10 risk factors from DFAST/CCAR and four target variables
 - Risk factors ARMA (1,1), generate 200,000 10-dimensional scenarios
 - Target variables OLS on lag and 10 risk factors
- Combine scenarios with target variable sensitivities, rank 200,000 by stress, use the median of the 500 most stressful
- Sample 28 BHCs, 2000:Q1 to 2012:Q4
- Show the reverse stress scenario varies a lot across firms
- Show the magnitude of the difference in losses between the reverse stress scenarios and the “common” scenario (the mean across BHCs of the reverse scenarios) is big



Comment #1: Useful for supervisory assessments

- Method identifies which risk factors individual BHCs are most sensitive to
 - Some firms are more sensitive to unemployment and some to interest rates
- Supervisors could use as an independent check on whether BHCs are doing a good job assessing their own sensitivities
 - As part of CCAR, BHCs are required to tailor their scenarios and supervisors could use this method to determine if they are doing it well
 - BHCs can also use this method
- Supervisors could use as a measure of confidence about DFAST/CCAR results
 - If reverse stress results were much larger than from a common scenario, then confidence would be low for safety and soundness, warranting other supervisory work



Comment #2: Reverse scenarios may not be actionable

- There are multiple reverse stress scenarios for each firm, because they differ depending on the target variable. That is, the reverse stress scenario for net chargeoffs is different from the stress scenario for net interest income.
- How to explain statistically-derived multiple scenarios to BHC management?
- What should the BHC do to better manage its risks? What if actions to reduce risks to net chargeoffs increase risks to net income?
- Can the paper find a single scenario per firm?



Comment #3: Reverse stresses may lag, overstate losses

- Method does not directly capture balance sheet changes, and net charge-offs are a lagging indicator of risk.
 - For example, if firms were to shift their business models from prime to subprime mortgages, NIMs would rise before higher risk shows up in net charge-offs.
 - A key advantage of forward stress tests is that they rely on loan-level risk characteristics to predict PD and LGD
- Method does not capture geographic variation in unemployment and house prices.
 - In DFAST/CCAR, banks and supervisors incorporate this variation to tailor the scenarios for portfolio idiosyncrasies. Differences may be smaller.



Transition

- Flood et al reverse stress testing focuses on safety and soundness
- ECB Stamp€ focuses on stress tests for macroprudential purposes
 - Starts with EBA stress test
 - Additional features include dynamic balance sheets, contagion to banks, spillovers to other sectors, cross-border linkages, solvency-liquidity nexus, and more



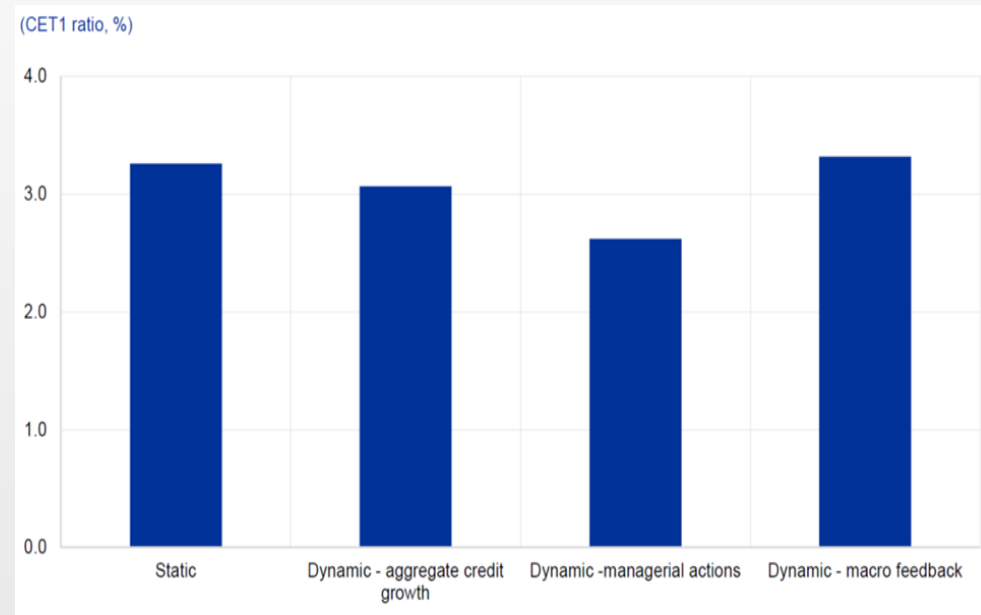
STAMP€ - Dynamic balance sheets

- In EBA EU-wide stress tests, banks do not respond and balance sheets are flat
 - Preserving lending is an important macroprudential feature
- STAMP€ builds on stress tests and models bank balance sheets, using DSGE and GVAR models
- Conclude that dynamic balance sheets would reduce bank capital needs in stress if allowed to deleverage, but then offset with losses from lower GDP
 - In US implementation, likely that deleveraging would raise capital needs

Dynamic managerial actions

- Step 1: Assume in adverse scenario that loan growth slows with GDP
 - Reduce RWA by more than NIM
- Step 2: Use an optimization model to explain how banks deleverage, which assets to sell if a bank falls below the minimum requirement.
- Actions can reduce CET1 ratio losses by $\sim \frac{1}{2}$ ppt.

CET1 ratio losses





Can managerial actions reduce CET1 losses?

- Who will they sell to? In an adverse scenarios, risky assets with uncertain value will sell at a high discount, especially if many banks are selling at the same time. More likely to increase than decrease capital needs.
- Other banks would also need to write down the value of similar assets at a new established market price, even if they did not sell
- Current assumptions suggest macroprudential objective is costly, but unclear
- Would be useful to show sensitivities to alternative assumptions about asset sales in the optimization model (for the third bar)



Interbank networks - Improve stress tests and regulatory capital

- Could incorporate a large common counterparty into scenarios
- Use the model on interbank network effects to evaluate the calibration of the GSIB surcharge for interconnectedness
 - A bank may know who holds its debt, but not the second-tier, indirect, linkages of the network
 - How much additional capital for the GSIB is needed to reduce the negative network effects?
- Would also help with regulatory accountability, that banks should be assessed capital on things that can be measured and adjusted



Measurement supports durability, also need governance

- Much progress with credible measurement of risk and resilience
- Better measurement should allow greater transparency about goals and implementation so banks can manage their risks
- Further enhance legitimacy by aligning with regulatory capital standards
- Challenge: Durability and achievement of goals also depends on governance
 - Peter Conti-Brown: *“Having the right institutional design...isn’t a side show to the real questions of monetary policy and financial regulation. Governance may in fact be the whole show.”*
 - Are prudential regulators, central banks, and political authorities aligned in their objectives?



End