Dynamism and Transparency in Stress Testing

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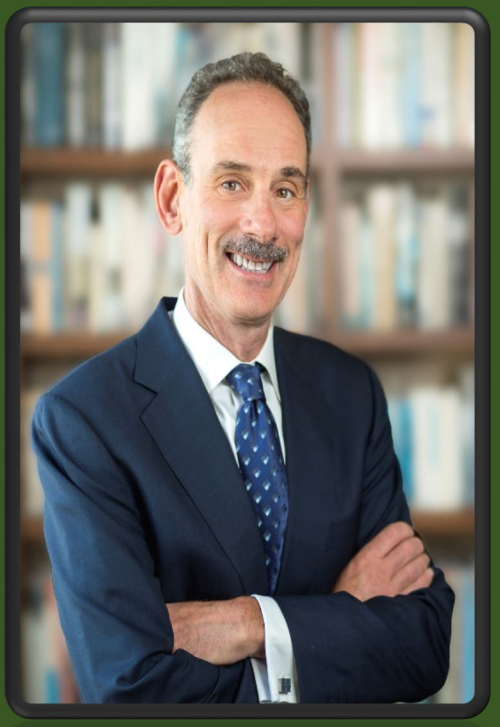

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Transparency and Model Evolution in Stress Testing

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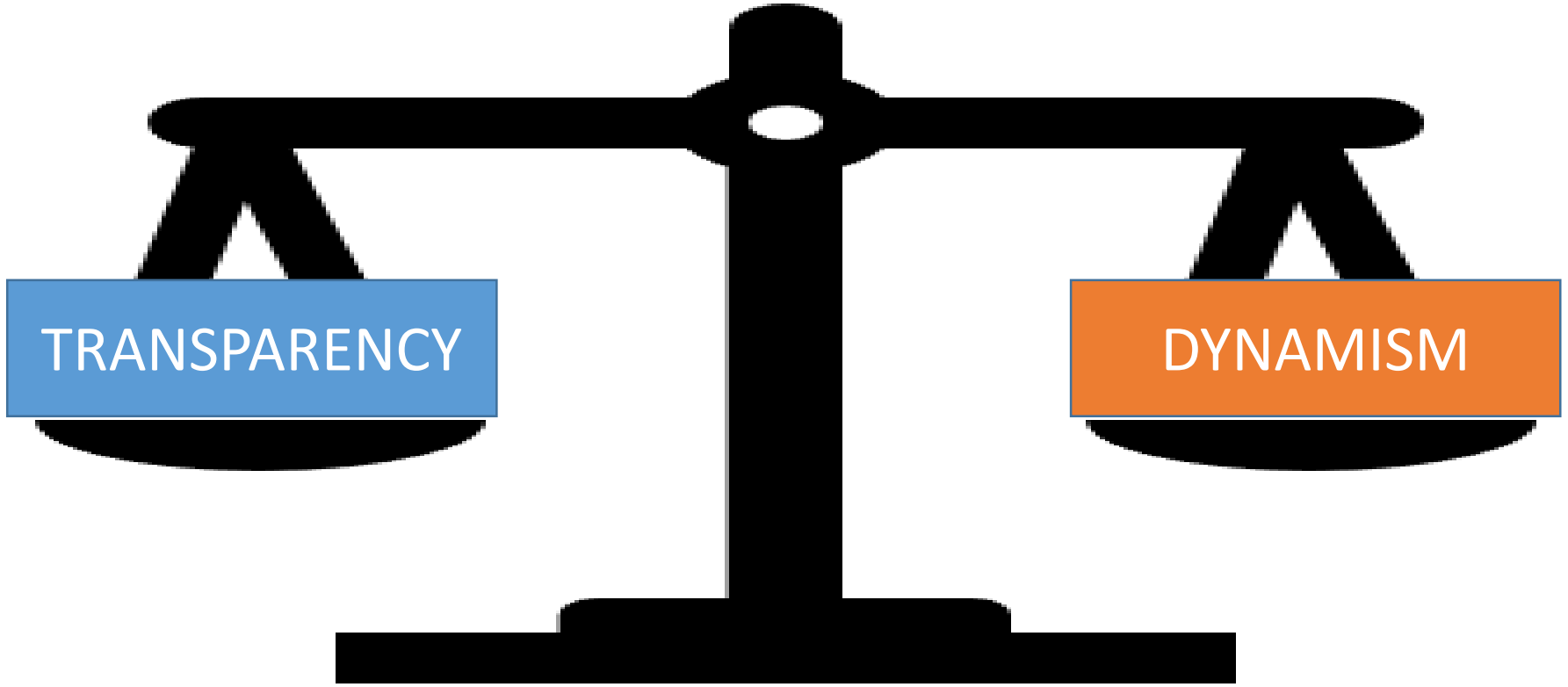
New process for assessing adequate capital

- Pre-crisis:
  - Known proportions of current assets (including OBS)
  - An apparently leisurely pace of rectifying (Pillar 2) capital shortfalls

- DFAST/CCAR:
  - Forward looking(!) risk weights – A^{++}

  - Unknown models (add to uncertainties in capital planning)
  - Rectify deficiencies immediately – in the week between DFAST and CCAR.
  - Generates pressure to reveal how the models work.



BHC would like to know their required capital ratios in advance

Stress tests must change with emerging risks.

Will APA substantially interfere with dynamism?

Background thought

- Required minimum capital ratios have risen.
- Higher cost of funds for CCAR banks than for
  - smaller banks
  - nonbanks (CLOs, others).
- Risks are likely to be re-deployed across the institutional spectrum.
- Ddistinguish between private and social costs of regulatory changes.

Three types of transparency

- About the models
- About the results
- About the scenarios

Then make some suggestions to incorporate new risk types into the model simulations.

Model transparency: BHC benefits

- (Dispute specific risk weights.)

- Improved ability to predict minimum required capital
  - Total required capital is the relevant target …
  - … Fed's allocation of required capital across assets much less important to a BHC with its own, bespoke loss models.

- More uncertainty about actual capital requirement ➔
  - higher precautionary capital
  - less lending by CCAR banks
  - social loss(??)

How large is the social cost of model-based uncertainty?

- Stress test results show that the banks come pretty close to actual requirements.
- In 2019, two out of 18 tested BHC had to cure deficits, equal to ***0.6%*** and ***0.1%*** of RWA
  - Upon learning of a shortfall, BHCs can take a “second bit of the apple”.
  - Some banks can apply, later, for permission to pay out additional funds.

- The “un-made” loans do not <u>necessarily</u> impose a social cost

Limited costs, overall?

Model transparency effects on the regulators

- Accountability and intellectual input for the Fed.
- The OFHEO story
- A statistical version of model monoculture

March 2019 portfolios

- Sample credit card and commercial loan portfolios, along with DFAST estimated losses.
- Large proportion of total projected losses.
- Seems to supply “hints” about model parameters.
- First quantitative information provided about the models.

- Slippery slope.

Results transparency

- I like its level of detail.
- The DFAST and CCAR announcements continue to affect bank equity values (through 2018, at least).
  - Tested banks
  - Non-tested banks

- Perhaps its greatest value will come with problems at a large bank.
  - Simply announcing the problem would exacerbate it.
  - Need to announce a solution simultaneously, as in SCAP.
  - Transparency here imposes discipline on supervisors by discouraging lengthy decision-making, which can exacerbate losses.

Scenario transparency

- Limited number of “macro shock” variables included in loss and other models.
- “Deep recession” scenarios.
- What can the banks learn from knowing the precise scenario early, although after the “as of” date?

- Not opposed to greater scenario transparency
  - Macro-financial shocks
  - Revealed after the “as of” date
  - So long as model parameters remain confidential
  - Unlikely to provide big benefits to the banks.

Stress test revisions

- Add new types of stress (shocks).
- Add one feature to existing stress test process.

New stresses

- Heretofore, shocks to real sector and interest rates.
- Getting stale?
- Broader range of stresses will require
  - parameter shocks (i.e., model revisions)
  - better use of trading data.

PPNR is a rich vein to mine

- In 2018, total PPNR = $492 bn vs. total loan losses = $430 bn.
- PPNR models 24 sub-components
- New stresses
  - How quickly do loan rates rise?
  - How quickly to deposit rates fall?
  - By how much could a change in business model affect computed capital?

Can be imposed through parameter shocks to 24 PPNR equations.

Loan losses

- Test exposures to a large, growing type of risk, which has not yet produced losses
  - The feared losses are not in the data
  - Therefore must shock loan loss equation parameter(s)

Trading information (1/2)

- Unlike the loan loss or PPNR calculations
  - Each bank sends "greeks" to the Fed.
  - The Fed applies the stress scenario asset price shocks.
  - Each bank's trading losses are computed in isolation.

- Exploiting all this information more fully would provide a ***more macro-prudential*** perspective. E.g.:
  - What asset price change has the largest cumulative effect on all tested banks?
  - Are there "crowded trades" that may cause trouble if everyone want to unwind them?

  Define risky situations for purposes of future monitoring.

Trading information (2/2)

- This is a lot to ask.
  - Massive amounts of data.
  - But:
    - Each bank already reports its largest individual exposure.
    - There’s no need to involve the banks.
    - The work can be done over a more relaxed timeline.

A new first step

- DFAST tracks changes in capital from an initial reported level.
- If that level is inaccurate, DFAST will not track a bank's true ability to absorb losses.
  - Massive differences between GAAP and market-valued equity during the crisis.
  - Do some type of mini-AQR at the start of each analysis.
- Best to make it part of the normal process, rather than trying to interject it later.
- How about STARTING CAPITAL

$$= \min (BVEQ, [\gamma MVEQ + (1-\gamma) BVEQ]), (0 \leq \gamma \leq 1)$$

Summary

1. Sharing the model
   - might help banks economize on their capital-holdings
   - threatens the informativeness of the tests and invites sector-wide exposure to common risks.
2. Need a strong commitment to continue full revelation of bank-level results, especially when the news is bad.
3. The stresses have not been too surprising, so there isn't much reason to keep them confidential after the as of date has passed.
4. At least some new stresses will require changing model parameters.
5. I fear a tradeoff between model transparency and dynamism.

6. Think about including some market assessments, somewhere.