Effects of Stress Tests

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Understanding the Effects of the U.S. Stress Tests

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Brookings Institution

Prepared for the Federal Reserve System Conference
Stress Testing: A Discussion and Review
July 9, 2019
Approach

• Challenge for the paper is to separate the effects of stress tests from effects of regulatory changes

• Frame our questions to focus on features of the stress tests that distinguish them from higher regulatory capital requirements
  • More forward-looking and based on tail risks
  • May affect banks’ risk management practices in different ways

• Analysis of public data, discussions with experts, and review of empirical research
Questions

• Have the stress tests helped to counter potential procyclicality of bank capital?

• Have the stress tests improved risk management and capital planning at tested institutions?

• Have the stress tests affected the cost and availability of credit from the largest banks?

➢ Caveat – Have not had an economic downturn
Stress test capital requirements

- Stress test program designed to make capital requirements less static and to help counter procyclicality

- Two features:
  - Macro scenarios can be more stressful when times are good and can include new risks
  - Require banks to pre-fund shareholder payouts
    - CCAR - Proposed dividends and share repurchases
    - DFAST – Assume dividends at past rate
Capital buffer is starting capital minus minimum capital for domestic BHCs. Source: Public DFAST and CCAR disclosures.
Unemployment Rate in Supervisory Scenarios

Source: Public DFAST stress test disclosures.

US BBB Corp Yield in Supervisory Scenarios

Source: Public DFAST stress test disclosures.
Estimated net losses = Capital buffer - estimated dividends (to min quarter)
Estimated dividends to minimum quarter

Estimated from DFAST capital buffer assuming minimum capital ratio is reached at 5 quarters. Source. FR Y-9C and public DFAST disclosures

Estimated from DFAST capital buffer assuming minimum capital ratio is reached at 8 quarters. Source. FR Y-9C and public DFAST disclosures
Share repurchases rising sharply

Annual, not adjusted to number of quarters to minimum. Source: FR Y-9C and 10-k reports.

Annual, not adjusted to number of quarters to minimum. Source FR Y-9C and 10-k reports.
DFAST and CCAR capital buffers declined in 2019

Stress Test Capital Buffer (Decline in Common Equity Ratio)

Percent of RWA


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Two periods: Stress tests through a recession

• How much would capital decline in the first year?
  \((\text{Net Losses} + \text{DV}s + \text{RPs})\) for year with no RPs after mid-year

  • Non-GSIB \(= 11.9\) (start)
    \(- (1.0 + 0.5 + 0.6) = 9.8\) percent

  • GSIB \(= 12.3\) (start)
    \(- (2.2 + 0.6 + 0.7) = 8.8\) percent
Two periods: What happens in the next CCAR?

- New scenario, assume no RPs and no DV increase
- What is the max stress test capital buffer (excluding dividends) to remain above minimum requirement 4.5%?
  - Non-GSIB 4.3 percent [range 1 to 2 percent]
  - GSIB 3.6 percent [range 3.3 to 5.5 percent]
- Can vary assumptions in this simple example

Average Non-GSIB is almost certain to be above the minimum, but the average GSIB is closer to the constraint
Two periods highlight sources of risks to lending

• Two aspects contribute to risk
• Severity of scenarios – could reduce though limited by investors’ views of risks once a recession is underway
• Starting capital ratios -- could require higher starting capital for banks with larger expected Net losses and higher dividends
  • Prefunding share repurchases has been a significant loss absorber
  • Could raise minimum by the GSIB charge
  • Could raise the countercyclical capital buffer
    • Differs from the GSIB charge because release would make it less likely to trigger constraints on distributions
Have the stress tests helped to counter potential procyclicality of bank capital?

• *Yes, though more from the requirement to pre-fund shareholder payouts than the macroeconomic scenarios*

  • Estimated net losses did not decline for GSIBs and increased for non-GSIBs from 2014-18
  • But estimated net losses declined for both groups in 2019
  • Shareholder payouts through 2018 increased sharply
Have the stress tests improved risk management and capital planning at tested institutions?

- Yes, absolutely, driven importantly by the public qualitative assessment
- Based on interviews
- Very broad agreement of improvements
  - Better data
  - Better risk identification and measurement
  - Stronger governance and link between risk and capital planning
- Less agreement on whether public assessment is still needed, and expect some backsliding
- Need an objective measure of risk management
  - Disclosure would provide discipline to both banks and supervisors
Capital plans more conservative: Dividend payout lower

Mean Total Payouts/RWA, 2003-2018

Mean Dividends/Total payouts, 2003-2018

Source: FR Y-9C.
Have the stress tests affected the cost and availability of credit from the largest banks?

• Difficult to isolate effects of stress tests
• Credit from the stress-tested banks is reduced but total credit may not be
  • Higher loan spreads, reduced credit, and less risky loans from banks with larger stress test capital buffers
  • Studies that use loan-level data and can control for demand at the borrower or local market level
  • Large business borrowers have alternatives
  • Small businesses have fewer alternatives, but market-level data suggest that credit growth is not related to stress test exposures as smaller banks and nonbanks have increased their share

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Bank credit from the tested banks is reduced
... *but may be a feature not a bug*

- Credit growth was rapid before the crisis
- Higher default rates for non-local-market loans
- Reforms intended to reduce some credit growth in exchange for lower probability of failure of the largest banks with the greatest externalities
- None have done a welfare analysis of reduced credit provision by stress-tested banks
- Studies have looked at transition effects and long-run effects may be lower
Questions and our answers

1. Have the stress tests helped to counter potential procyclicality of bank capital to support lending?
   • Yes, which should help support lending in the next recession, though more from the requirement to pre-fund shareholder payouts than the macroeconomic scenarios

2. Have the stress tests improved risk management and capital planning at tested institutions?
   • Yes, absolutely, driven importantly by the public qualitative assessment

3. Have the stress tests affected the cost and availability of credit from the largest banks?
   • Yes, but this may be a feature rather than a bug

✓ Caveat – Have not had an economic downturn
More questions for stress test effects

• Have banks’ business models become more similar as a result of stress tests? Are they ignoring risks not specified in the stress tests?

• Are there costs from the variation in capital requirements from stress tests, above the variation that reflects actual uncertainty about economic and financial conditions?

• Will stress-tested banks be able to support the economy through lending in the next severe downturn? What would be the effects of actual and proposed changes in the stress test program?
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<table>
<thead>
<tr>
<th>Sector</th>
<th>GICS Code</th>
<th>Industry Group</th>
<th>Relative Fair Value Shock (%)</th>
<th>United States</th>
<th>Non-US</th>
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<td>Equity</td>
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1 & 2 Star Represents A Major Portion Of The Market

Number Of Units By Star Rating

- 1 & 2 Star: 22.3% (3,393,118 units)
- 3 Star: 36.2% (5,501,144 units)
- 4 & 5 Star: 41.5% (6,310,441 units)

Source: CoStar Group
As of August 2018
Unit Deliveries by Class (Q-4 2001 to Q-4 2018)

1 RSMeans data. Chart source: CoStar Analytics, as of Q-4 2018; Bridge Investment Group Research
Apartment Vacancy by Class (Q1-2000 to Q3-2018)\(^1\)

Sources: \(^1\) CoStar Analytics. \(^2\) CohnReznick LLP Report, 2012. \(^3\) National Apartment Association (NAA).
Fannie Mae’s multifamily portfolio has shown stability through stress periods

Fannie Mae Serious Delinquencies

Single Family

Multifamily

Note: Single Family = 90 days past due; Multifamily = 60 days past due

Figure 3: Historical Bank Delinquency Rates

%  
5  
4  
3  
2  
1  
0  

Multifamily  Nonfarm Nonresidential  Construction & Land Development (ex 1-4 family homes)


Source: CBRE Research, FDIC, Q1 2019. 30+ days delinquent. Multifamily and nonfarm nonresidential are for existing assets only. Construction & land development mortgages include all commercial and multifamily developments; 1-4 family homes are removed from this data set.
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