



Federal Reserve Board Versus Minneapolis Fed: Whose Stress Test Should We Believe?

Francisco Covas | August 31, 2020

On June 25, the Federal Reserve Board (Board) released the results of its most recent bank stress tests. The report showed that under the “severely adverse” scenario, the aggregate capital of 21 domestic banks tested fell approximately \$207 billion over the projection horizon (from \$1,050 billion to \$844 billion) and that all the banks passed the test – that is, all their capital ratios remained above minimum regulatory requirements. Last week, the Federal Reserve Bank of Minneapolis released a [“COVID-19 stress test tool”](#) website that allows the public to simulate a stress test for the same set of domestic banks. When the user stresses the banks against the same “severely adverse” scenario that the Board used in its stress test, the Minneapolis Fed simulation website shows that the capital level of banks falls \$381 billion (an additional \$174 billion) and that the capital levels of seven of the banks end up below what the tool calls “capital threshold.” (The original report described it as a “regulatory requirement,” but this has since been adjusted.)

The Minneapolis Fed states as the goal of its stress test tool that “. . . the public will now have the transparency into the health of the largest banks they need to judge their condition.” But the Minneapolis tool offers much less transparency (in fact, almost zero) compared with the Board.¹ This post reviews some of the key differences between the Minneapolis tool’s results and those provided by the Board and offers the following three important observations:

1. Capital depletion using the Minneapolis tool under the severely adverse scenario is nearly twice the decline reported in Dodd-Frank Act Stress Tests (DFAST) 2020. The likely cause is that the Minneapolis tool is based on a simple statistical model that uses only public information. The Board’s projections are based on more detailed models and extensive confidential supervisory data.²
2. The Minneapolis tool uses macroeconomic scenarios that are highly implausible when compared to current economic conditions even considering the material uncertainty around the economic outlook. For example, two of its three COVID-19 recession scenarios assume the unemployment rate would reach a peak of 21 and 29 percent in the third quarter of 2020.
3. The stress test tool confuses regulatory buffer requirements and minimum capital requirements. Bank regulators created buffers with the goal of banks using them to support lending in a crisis or in a downturn, and the Board has encouraged their use in the current crisis. While falling below a buffer requirement comes with restrictions on capital distributions and bonus payments, it is categorically different from falling below minimum capital requirements, which is treated as evidence of a likely default and comes with stringent remedial measures. The Minneapolis tool assumes these two requirements are equivalent and treats buffer usage as evidence of a bank being dangerously close to default.

The Minneapolis tool significantly overstates net losses...

First, the tool’s projections significantly overstate common equity tier 1 (CET1) capital depletion under the Federal Reserve’s 2020 severely adverse scenario. The stress test tool relies on a set of top-down models developed by [Hirtle et al \(2016\)](#) estimated using publicly available data. Top-down models are easy to run and understand. In addition, when calibrated appropriately, they can provide a useful estimate of the likely impact of a given macroeconomic scenario on the U.S. banking system.³

However, the projections of top-down models are very sensitive to a variety of model assumptions, so it is important to ensure that they are appropriately back-tested.⁴ In addition, while top-down models can generate accurate projections for aggregate net income and capital, those models have not been designed to make reliable firm-level projections. By contrast, supervisory models are designed to maximize the accuracy of bank-specific projections. For this reason, they are based on much more detailed models and rely on loan-level exposures for each bank and other confidential supervisory data.

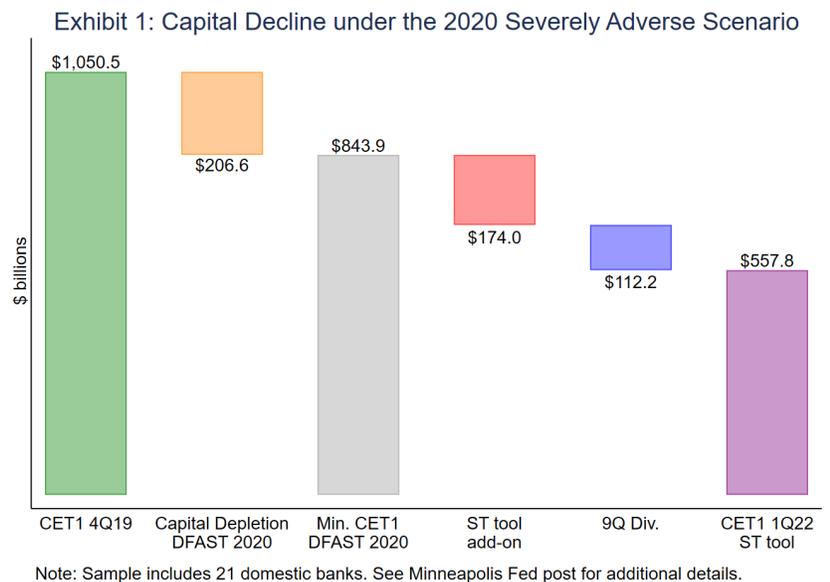


Exhibit 1 shows that under the 2020 severely adverse scenario, the Minneapolis tool almost doubles the capital decline compared to the Board’s assessment. The 21 domestic banks included in the stress test tool held \$1,050bn in CET1 capital at the start of the Board’s stress tests (4Q19). According to the Board’s DFAST 2020 results, the projected peak-to-trough change in CET1 capital under the 2020 severely adverse scenario totaled approximately \$207bn across the 21 banks.⁵ By contrast, the Minneapolis tool shows a capital depletion of \$493bn over the nine-quarter planning horizon under the 2020 severely adverse scenario. However, that reduction includes \$112bn in common stock dividends that would be paid over the nine-quarter stress test horizon while the DFAST 2020 results exclude capital distributions to shareholders. Therefore, the comparable CET1 capital decrease under the stress test tool is \$381bn, which excludes shareholder payouts. Compared with the DFAST 2020 results, capital decreases by an additional \$174bn under the stress test tool, an 84 percent increase.

Due to the opacity of the Minneapolis tool, it is difficult to understand why the projected decline in capital

is nearly twice the one based on supervisory models under the severely adverse scenario.⁶ Moreover, the overstatement of capital declines under the 2020 severely adverse scenario would also extend to the capital projections under the various COVID-19 type recessions.

The Minneapolis tool has several highly implausible macroeconomic scenarios...

The COVID-19–based recessions, especially the “severe” and “extreme” U-shaped scenarios available in the tool, are considerably more severe than the most pessimistic projections provided by [professional forecasters](#). For instance, two of the three scenarios included in the Minneapolis tool assume that the unemployment rate would peak at 21 percent and 29 percent in the third quarter of 2020, respectively. Such increases are highly implausible based on current economic conditions.

The more severe the stress scenario is, the bigger the decrease in bank capital under stress will be. Banks do not need to be resilient to all possible macroeconomic outcomes. There is inevitably a level of the unemployment rate above which some banks would become undercapitalized. In addition, there are costs associated with forcing banks to pass a very stringent test during a downturn. Such stress tests would be highly procyclical and incentivize banks to reduce lending to boost their resilience. Those actions would only make the recession worse and increase bank losses further.

For these reasons, the U.S. stress tests have rules about scenario design that help mitigate the procyclicality of the tests. Specifically, according to the Board’s [policy on scenario design](#), the unemployment rate is expected to increase between 3 and 5 percentage points under the severely adverse scenario (or at least to 10 percent), but no more than 4 percentage points when the unemployment rate at the start of the scenario is elevated. Currently, the unemployment rate is at 13 percent; thus, it would be unlikely for the unemployment rate to exceed 17 percent in COVID-19-based severely adverse scenario.

What is important to the public and to policymakers is whether a severe, yet realistic downturn would be enough to impair the ability of U.S. banks to act as financial intermediaries. Assuming unrealistic scenarios related to COVID-19 and calculating the resulting losses using an undisclosed model does not help the public assess the adequacy of bank capital levels.

The stress test tool confuses regulatory capital buffers with minimum requirements

And finally, the stress test tool confuses regulatory buffer requirements and minimum capital requirements. Specifically, the stress test tool also reports the number of banks that would end up below their “capital threshold” (originally, “regulatory requirements,”) over the planning horizon. The definition of capital threshold used by the stress test tool is not the relevant regulatory requirement because it adds the GSIB surcharge requirement to the regulatory minimum requirement. In practice, banks can dip below the requirement that combines the GSIB surcharge and the 4.5 percent minimum capital requirement and remain fully operational. The main difference is that they would be subject to restrictions on shareholder payouts and bonus payments. Therefore, the tool’s definition of the capital threshold contradicts the goal of bank regulators to see banks using their capital buffers as part of their effort to battle the economic weakness caused by the coronavirus (see [here](#)).

Moreover, there is also an inconsistency in the assumption that a bank would continue to pay their planned common stock dividends during the nine-quarter stress horizon, even though the regulatory buffer requirement rules would force them to reduce their dividends. As a result, the stress test tool once again misleads about capital depletion over the planning horizon.

Concluding Thoughts

In summary, this post shows that there is a large discrepancy between the results provided by the Minneapolis tool and the Federal Reserve Board's DFAST 2020 results. Namely, capital declines are considerably overstated in the stress test tool therefore its results need to be interpreted with that in mind. In addition, because the post does not disclose details about the models and projections across the various subcomponents of aggregate net income, all the Minneapolis tool has produced so far is confusion about the resiliency of the U.S. banking sector.⁷

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¹ Which is saying something because the transparency of the Federal Reserve Board's stress tests could be improved significantly, despite the release of additional information by the Board over the past two years. BPI's recommendations on stress testing transparency are available [here](#).

² While outside the scope of this analysis, the banks' own projections are based on significantly more detailed information than the Board's, and more sophisticated models.

³ A good discussion on the role of macro variables in top-down models is available [here](#).

⁴ For example, projections are very sensitive to the transformation of the macroeconomic variables and the span of the sample. Taking the unemployment rate as an example, the size of loan loss projections is very sensitive to whether the unemployment rate enters the regression in levels or in first differences.

⁵ The DFAST 2020 reported bank specific results for 33 firms. We have only included the same 21 domestic banks included in the Minneapolis Fed stress test tool sample.

⁶ Comparing the stress tool results across scenarios also generates some puzzling findings. For example, under the 2020 severely adverse scenario there are "7 firms with projected capital below their individual thresholds". Next, setting the unemployment rate to the "severe U-shaped" scenario and keeping the paths of the remaining macro series unchanged, decreases the number of firms with projected capital levels below their individual threshold. In the severe u-shaped scenario the unemployment rate peaks at 21 percent instead of 10 percent; thus, the decrease in the number of firms with projected capital below their individual thresholds is somewhat of a puzzle.

⁷ Since publishing this blog post, the Minneapolis Fed has published the computer code used to generate the CET1 capital projections under the various scenarios.

