

# Deep Dive: DFAST 2022 Stress Test Scenarios

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On Feb. 10, 2022, the Federal Reserve released the two scenarios (baseline and severely adverse), as well as the Global Market Shock (GMS) add-on component applicable to organizations with large trading operations, which it will use to calculate the stress capital buffer for the 34 banks subject to the stress testing regime. The severely adverse scenario is designed to test firms' resilience in a severe economic downturn. Because each firm's stress capital buffer—below which a firm's ability to make capital distributions becomes restricted—is determined based on the decline of its common equity tier 1 (CET1) capital ratio under the severely adverse scenario, a larger reduction in its capital ratio results in higher capital requirements.

This year's stress tests include on a start-to-stress basis:

- A 5¾ percentage point increase in the unemployment rate.
- A 3½ percent fall in real GDP.
- A 4¾ percentage point increase in corporate BBB spreads.
- A 28½ percent decline in house prices.
- A nearly 40 percent drop in commercial real estate prices.
- A 55 percent drop in the stock market.
- A 7-percentage-point decline in the inflation rate.

The 2022 stress scenario is modestly more severe relative to last year's and includes an increase in the unemployment rate that is 1¾ percentage points higher than DFAST 2021. Despite the increase in the severity of the 2022 stress scenario, we project that the severely adverse scenario will result in about the same reduction in projected bank capital ratios, in aggregate, as it did in DFAST 2021 and DFAST 2020 (see Exhibit 4).<sup>1</sup> Aggregate loan losses in the severely adverse scenario are higher because of a more severe scenario relative to last year's. In addition, we expect aggregate provisions to increase more than in last year's stress test, due to the overall decline in bank allowances for credit losses during 2021. Offsetting the increase in projected provisions, aggregate pre-provision net revenue (PPNR) is expected to increase, mainly because of stronger noninterest income. That being said, some of the GMS risk factors (e.g., Treasury rates, S&P 500, and MBS spreads) are more severe relative to DFAST 2021, and those are not factored in our estimates. In addition, some banks that are in a biannual stress testing cycle may see larger changes in capital requirements because of a heightened stress assumption for commercial real estate markets.

Other elements of the capital regime are likely to increase capital requirements over the next year. GSIB surcharges (the additional capital requirements placed on global systemically important banks) [will continue to increase](#) along with the overall expansion of the economy, because the GSIB surcharge calculation does not periodically adjust for inflation and economic growth. In addition, the forthcoming U.S. implementation of the Basel international capital standards could [further increase](#) bank capital requirements.

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<sup>1</sup> Note that there is one more bank participating in DFAST 2022, Charles Schwab Corporation, which is not included in our analysis to ensure a consistent sample throughout.

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**THE 2022 STRESS SCENARIO IS MODESTLY MORE SEVERE RELATIVE TO LAST YEAR'S . . .**

Similar to 2021’s severely adverse scenario, the 2022 scenario includes a severe global recession accompanied by a severe downturn in commercial real estate (offices, hotels in urban locations or locations that tend to attract business travelers, shopping malls, and strip malls) and additional stress on corporate borrowers’ balance sheets. The projected decline in commercial real estate markets appears intended to combine a severe economic downturn with a continuation of remote work. In addition, in accordance with the Federal Reserve’s scenario design policy, which requires unemployment to reach at least 10 percent, the 2022 severely adverse scenario includes an increase in the unemployment rate that is 1¾ percentage points higher than DFAST 2021. One interesting difference in this year’s scenario is the significantly higher jumping-off point for the inflation rate of 8.20 percent, compared with a jumping-off point of 2.40 percent in DFAST 2021. However, our top-down models do not include the inflation rate as a driver of losses or PPNR projections.

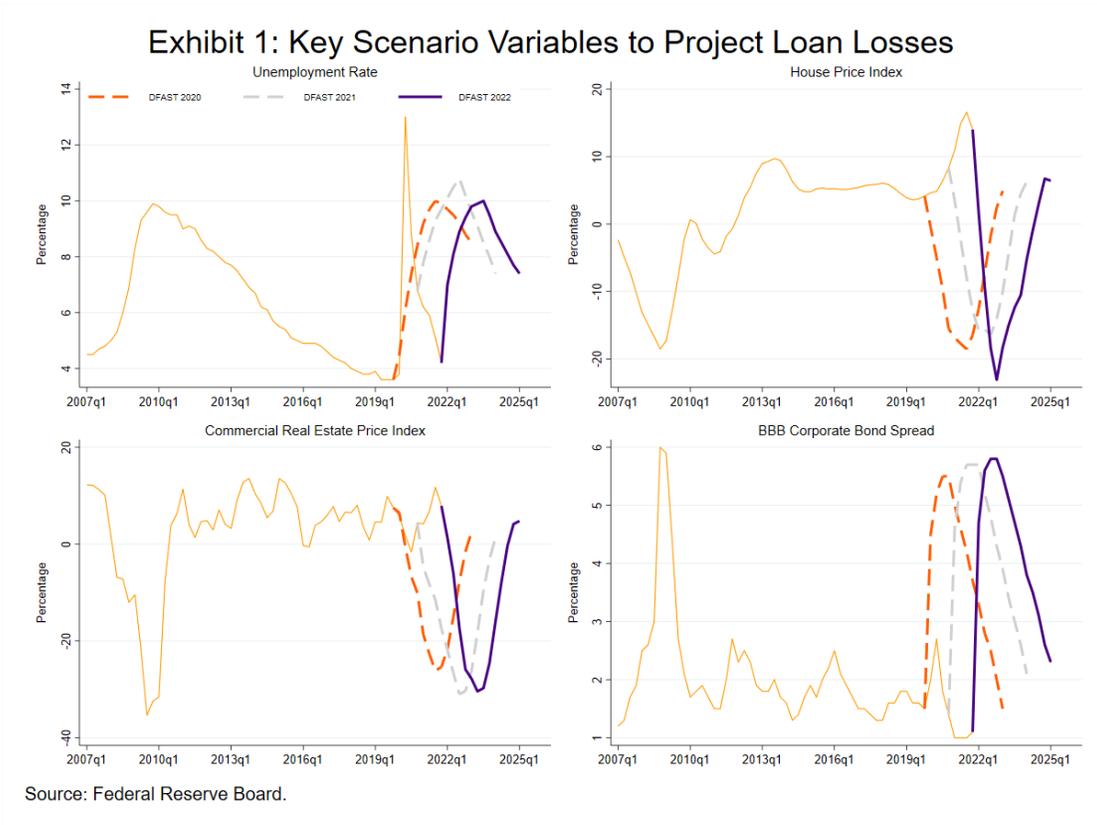


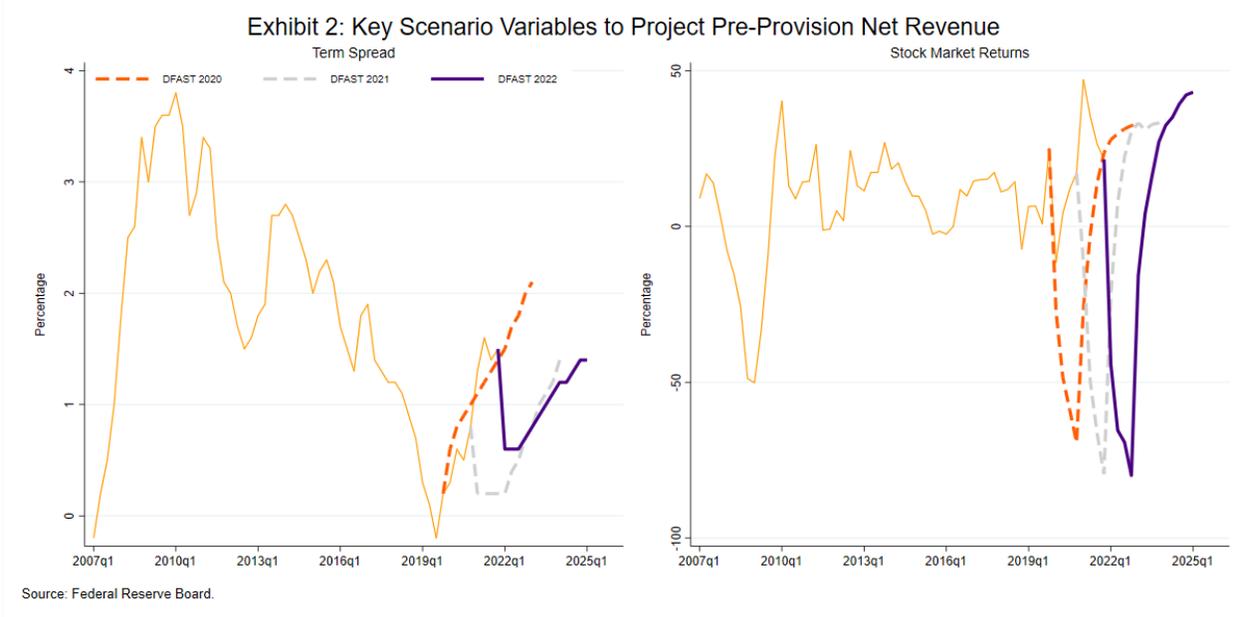
Exhibit 1 shows four important macroeconomic variables that tend to drive projected loan losses: the unemployment rate, the BBB spread, the CRE price index, and the house price index (HPI).<sup>2</sup>

As shown in the top left panel of Exhibit 1, the increase in the unemployment rate under stress is larger in the 2022 severely adverse scenario than the 2021 scenario, but smaller than in the 2020 scenario. That said, the peak unemployment rate reached 10.8 percent in the 2021 scenario, exceeding the peak level of the unemployment rate in the 2022 scenario. The panel on the right shows a path for the HPI that is more severe in the 2022 severely adverse scenario relative to the paths in the 2020 and 2021 scenarios. Therefore, we expect residential real estate

<sup>2</sup> In BPI’s loan loss models, the unemployment rate has more predictive power than real GDP growth. For the purposes of stress test projections, the two variables are therefore close substitutes. That being said, the path of real GDP growth appears less severe than the unemployment rate, so by using the latter we may be overestimating banks’ loan losses.

loan losses to increase. The peak YoY decline in the HPI is -23.1 percent in the 2022 severely adverse scenario, compared with -16.4 percent in the 2021 scenario and -18.6 percent in the June 2020 scenario.

The path of the CRE price index is depicted in the bottom left panel of Exhibit 1. The peak YoY decline is -30.4 percent in 2022, compared with -31.0 percent in 2021. The peak YoY decline in CRE prices was -26.2 percent in the June 2020 stress tests. CRE prices therefore will experience larger declines this year relative to 2020, but the decrease in CRE prices is slightly less severe relative to the 2021 scenario. As shown in the bottom right panel, the BBB spread widens from 1.1 to 5.8 percentage points and stays elevated for nearly a year in the June 2021 scenario. The peak BBB spread was 5.7 percentage points in the 2021 severely adverse scenario and 5.5 percentage points in the June 2020 scenario. The start-to-stress change in the BBB spread is also a bit higher in 2022's scenario.



The key macroeconomic variables that drive projected pre-provision net revenue are the term spread and stock market returns (Exhibit 2).<sup>3</sup> The higher term spread in this year's severely adverse scenario relative to last year's creates less of a headwind for bank profitability, as we discuss in the next section. Equity prices fall 55 percent, the same as in the 2021 scenario.

**LOAN LOSSES AND PROVISIONS ARE PROJECTED TO INCREASE . . .**

Simply looking at the trajectories of the macroeconomic variables over the stress horizon gives an incomplete picture of the impact these scenarios have on bank performance. Top-down time-series models help solve this problem by relating a subset of the variables included in the supervisory scenarios to industry-level bank performance measures. So we use BPI's own top-down models to estimate the impact of the severely adverse scenario on the projections of aggregate loan losses and PPNR under the supervisory stress tests.

Overall, we expect the projections of loan losses under the 2022 stress scenarios to be modestly higher relative to DFAST 2021 and DFAST 2020. Total loan losses are projected to reach \$367 billion for the 23 firms that participated across all three stress tests (Table 1).

<sup>3</sup> Our models also include real GDP growth and the change in market volatility.

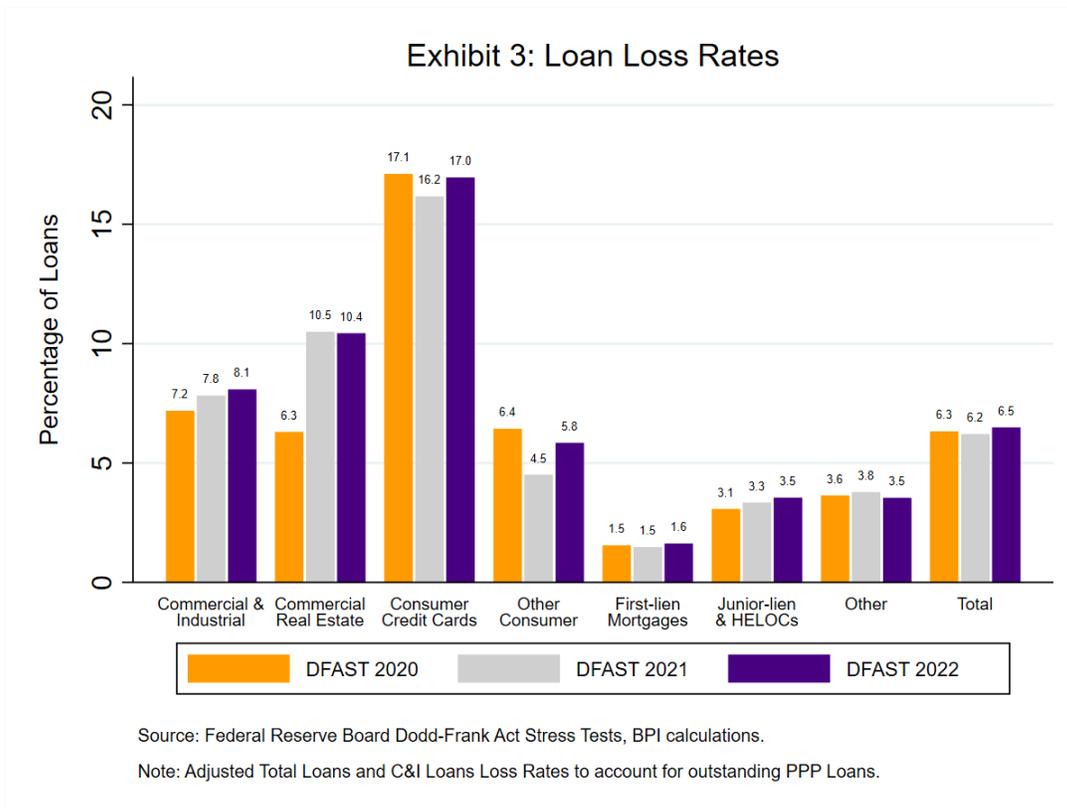
**Table 1: Projected Loan Losses (2022:Q1–2024:Q1)**

<b>Loan Type</b>	<b>Projected DFAST 2022</b>	<b>DFAST 2021</b>	<b>DFAST 2020</b>
Commercial and Industrial	94.4	91.7	92.8
Commercial Real Estate	70.1	66.8	38.5
First-lien Mortgages	19.1	16.7	17.2
Junior Liens and HELOCs	5.1	5.3	5.7
Credit Cards	92.2	91.1	118.2
Other Consumer	26.3	24.1	29.3
Other Loans	60.2	57.0	49.3
<b>Total Losses</b>	<b>367.2</b>	<b>353.0</b>	<b>351.0</b>
<b>Provisions</b>	<b>359.3</b>	<b>294.1</b>	<b>394.9</b>

Note: All values are in billions of U.S. dollars. Projections include only the 23 banks that participated in both the 2020 and 2021 stress tests, to ensure comparability.

Similarly, we project loan loss rates will increase slightly relative to DFAST 2021, as shown in Exhibit 3. The loss rate for C&I loans is projected to increase 30 basis points as a result of the larger increase in the unemployment rate and the more severe path for BBB spreads. The loss rate for CRE loans is little changed relative to DFAST 2021, but much higher than DFAST 2020. We are also projecting a somewhat modest increase in the loss rate for mortgage loans, credit card loans, and other consumer loans.

The last row in Table 1 shows projected provisions increasing approximately \$65 billion cumulatively over the nine quarters of the stress planning horizon relative to DFAST 2021. Projected provisions rise because of the increase in loan losses and the decrease in the allowance for credit losses that occurred throughout 2021 due to the year’s improved economic outlook.



### OFFSETTING THE INCREASE IN PROVISIONS IS A PROJECTED INCREASE IN PPNR . . .

Overall, PPNR is projected to increase relative to 2021’s stress test (Table 2). In aggregate, the 23 firms that participated in all three stress tests are projected to generate \$329.9 billion over the nine quarters of the planning horizon.

**Table 2: Projected Pre-Provision Net Revenue (2022:Q1–2024:Q1)**

PPNR Subcomponents	Projected DFAST 2022	DFAST 2021	DFAST 2020
Net Interest Income	644.0	644.0	678.4
Noninterest Income	793.8	745.1	670.4
Noninterest Expense	1107.9	1091.0	994.8
Pre-Provision Net Revenue	<b>329.9</b>	<b>298.4</b>	<b>353.8</b>

Note: All values are in billions of U.S. dollars. Projections include only the 23 banks that participated in both the 2020 and 2021 stress tests, to ensure comparability.

The lower path of the term spread continues to put downward pressure on net interest income. This is offset by stronger projections of noninterest income, which reflect recent performance and carry over the stress planning horizon, given the autoregressive nature of supervisory models. Noninterest expense projections mostly remain

elevated, driven by growth in bank balance sheets during the COVID event. The expansion of bank balance sheets also explains a portion of the increase in noninterest income projections.

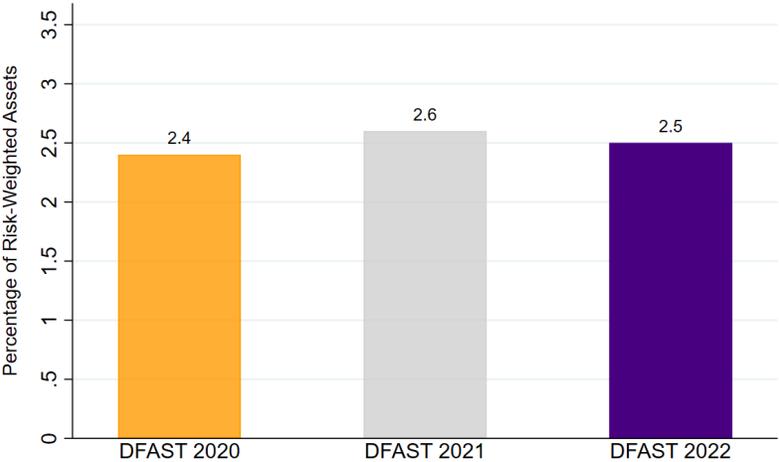
### THE PROJECTED PEAK DECLINE IN CAPITAL RATIOS IS ABOUT UNCHANGED RELATIVE TO 2021'S STRESS TESTS

Our analysis uses the projections described above to approximate the impact of the severely adverse scenario on the peak decline in each bank's CET1 capital ratio under the supervisory stress test. In generating these estimates, we assume that other important components of the stress tests, such as trading and counterparty losses, operational-risk losses, and changes in accumulated other comprehensive income, remain the same as those reported in the 2021 results (and 2020 results for the banks that did not participate in last year's stress tests).

Of these three elements, trading and counterparty losses are probably most volatile across stress tests. This is largely because the set of hypothetical shocks to risk factors differs from the 2021 severely adverse scenario, and banks' trading exposure also changes. More precisely, some of the GMS to selected risk factors (Treasury rates, S&P 500, and MBS spreads in the to-be-announced market) are slightly more severe relative to DFAST 2021, and those are not factored into our estimates. In addition, losses associated with operational risk events increased about \$16 billion between the June 2020 and 2021 stress tests. These losses were likely due to increases in bank size during 2020 and could increase further in the 2022 stress test, since bank balance sheets expanded during 2021. If the losses do increase, our projections of capital ratio declines will be understated.

In addition, our analysis uses third-quarter 2021 data as a starting point since regulatory data for the fourth quarter of 2021 are not yet available. The results the Federal Reserve will publish in June of 2022 will be based on data for the fourth quarter of 2021. There could be some effect on our results. For example, allowances for credit losses declined further in the fourth quarter of last year and that results in higher provisions under the stress tests, all else the same.

Exhibit 4: Projected Peak Decline in Aggregate CET1 Capital Ratio



Source: Federal Reserve Board Dodd-Frank Act Stress Tests, BPI calculations.  
Note: The June 2020 and June 2022 peak decline includes 33 banks, while June 2021 includes 23 banks.

As shown in Exhibit 4, under those assumptions, the aggregate CET1 capital ratio falls from a value of 12.5 percent in the third quarter of 2021 to a projected minimum of 10 percent under the 2022 severely adverse scenario (i.e., a 2.5-percentage point decline as shown in the purple bar) for the 33 banks. The decline in the aggregate CET1 ratio in the 2021 stress tests was 2.6 percentage points for the 23 banks that participated in DFAST 2021. This decline

was slightly larger than the 2.4-percent decline in DFAST 2020, although the exercise included 33 banks. In sum, the aggregate decline in the CET1 capital ratio is projected to decrease 10 basis points relative to 2021 and to increase 10 basis points relative to 2020.

## CONCLUSION

Based on our models, this year's severely adverse scenario is likely to result in little change in capital requirements of large U.S. banks at the aggregate level. Given that the heightened stress in CRE markets is maintained relative to DFAST 2021, we expect banks that have CRE exposures and that did not participate in 2021's stress tests to see an increase in capital requirements.