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A Preview of DFAST 2023 Results

Francisco Covas | June 22, 2023

The Federal Reserve recently announced that the 2023 Dodd-Frank Act Stress Test (DFAST) results will be unveiled on June 28. Those results yield a stress capital buffer, or SCB, which is a component of each affected bank's overall capital requirement. We are also hoping to see updates to the Federal Reserve's stress testing methodologies, as well as any potential adjustments to its models.

The analysis of this note aims to predict bank performance in 2023 DFAST, while also highlighting a potential underestimation of bank revenues. This underestimation arises from the lack of modifications to the supervisory stress test models, which should better reflect changes in the composition of bank assets and more recent financial performance.

We project that the key metric of the Fed's stress tests—the trajectory of the aggregate common equity tier 1 (CET1) capital ratio over the projection horizon—**will decline from an initial 12.4 percent to a minimum of 9.2 percent. The 3.2-percentage-point decline in this year's test surpasses the 3.0-percentage-point decrease in DFAST 2022 for the same set of banks**.

The stress test scenario for this year is more severe, featuring a greater increase in the unemployment rate and a larger, faster decline in house prices. The scenario continues to assume a significant drop in commercial real estate prices. Therefore, bank capital requirements are expected to edge up with the update to the stress capital buffer.

Banks using the "advanced approaches," which require the recognition of unrealized gains and losses on their investment securities in regulatory capital, are likely to experience improved performance in the stress tests. The decline in interest rates assumed in the stress test, which typically happens during severe stress, should increase accumulated other comprehensive income, thereby counterbalancing some of the unrealized losses that these banks incurred on their investment securities throughout 2022.

In a departure from previous practices, the Federal Reserve has not released any updates to its stress testing methodologies this year. Since 2019, these updates, usually presented within the Supervisory Stress Test Methodology, were typically published at the end of the first quarter. It remains to be seen whether this year's Fed stress test results disclosure will shed light on any methodology enhancements. As highlighted in our earlier posts (see here and here), supervisory methodologies need to be updated, especially considering the substantial shifts in bank balance sheets during the pandemic and financial performance post-pandemic.[1]

A case-study type analysis in this note demonstrates that an update to the net revenue methodologies to incorporate post-pandemic data could potentially increase the pre-provision net revenue (PPNR) projections by roughly $100 billion. This would reduce the aggregate maximum decline in the CET1 capital ratio of the banks included in this year's test by 40 basis points. Further downward adjustments to operational risk projections to account for changes in the composition of bank assets would increase revenue estimates.

[1] As the Federal Reserve noted in one of the responses to a reconsideration request last year: "the Board has directed Federal Reserve staff to explore possible refinements to the models used to produce the disclosed noninterest expense projections to better reflect the composition of firms' total assets" (p. 6). See https://www.federalreserve.gov/supervisionreg/files/bac-letter-20220804.pdf

Lastly, we hope that this year's absence of the Stress Test Methodology disclosure does not imply a decline in transparency going forward. As shifts occur in bank balance sheets and financial results, and new regulations come into play, it is important that stress testing methodologies are adjusted accordingly. Moreover, it is vital that these changes are communicated clearly to the banks and the broader public in order to understand how the Fed forecasts risks in the banking system under a hypothetical scenario, **which drives capital requirements and ultimately affects borrowing costs for households and businesses**.

Overview of Results

We have updated our findings published in February 2023 and continue to conclude that banks' capital requirements will likely increase due to this year's stress tests. The scenario for this year's stress tests is harsher than last year's, characterized by a steeper climb in the unemployment rate, a more significant decline in real GDP growth and a considerable fall in housing prices. Moreover, we project that PPNR will decrease, mainly because supervisory models persist in overestimating banks' noninterest expenses, despite modest improvements in the projections of net interest income.

Offsetting some of the increased severity, banks using advanced approaches will see an increase in the fair value of their available-for-sale securities, mitigating some of the declines in regulatory capital under stress. Furthermore, some of the global market shock (GMS) risk factors, such as Treasury rates, S&P 500 and mortgage-backed securities spreads, are less severe compared with the previous year. This should lead to reduced trading and counterparty losses for banks with substantial trading, processing or custodial operations.

Loan Losses and Provisions Are Projected to Be Higher

Our analysis of the 2023 severely adverse scenario, which is applied to banks' balance sheet data as of the fourth quarter of 2022, predicts a $53 billion increase in loan losses. This prediction would raise total loan losses from $381 billion in DFAST 2022 to an estimated $434 billion in DFAST 2023, as shown in Exhibit 1.

The surge in the loan loss amount can be partially attributed to the increase in loan balances throughout 2022, which could be the result of natural growth in loan portfolios or acquisitions of loan balances from other banks. Loan balances for the 23 banks participating in this year's stress tests have swelled by more than 5 percent. Despite this, we still foresee an increase in the loan loss rate of 50 basis points, from 5.9 percent to 6.4 percent.

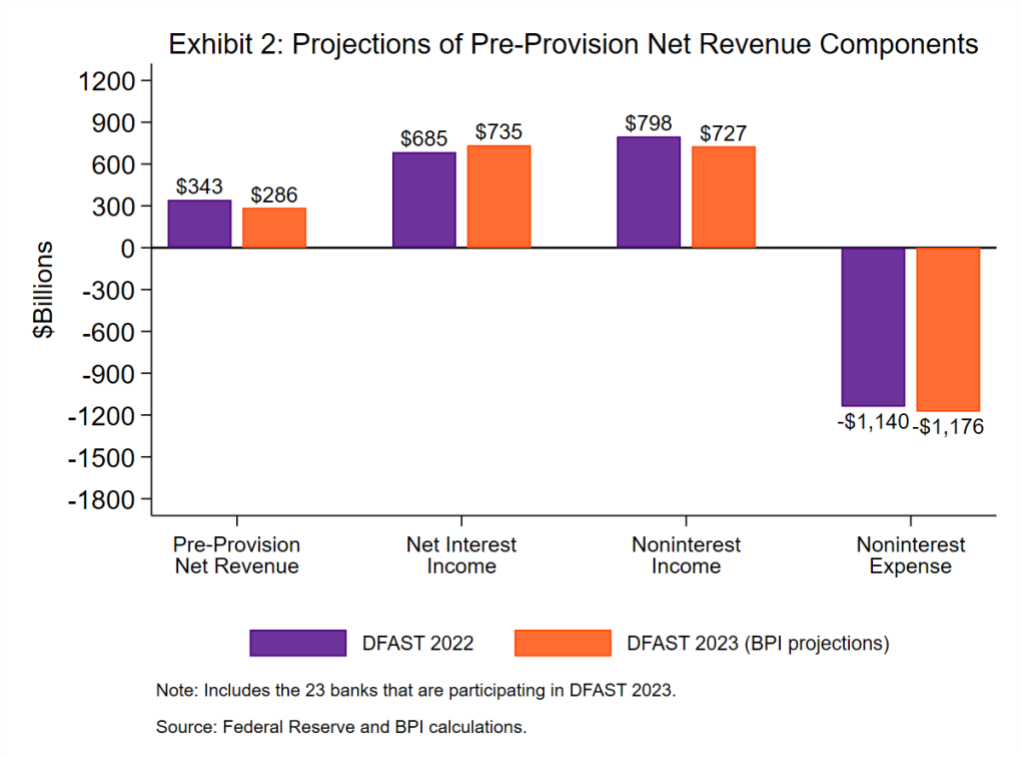
Throughout 2022, banks' allowances for credit losses rose only slightly. Consequently, the relationship between loan losses and provisions that banks would set aside during the projection horizon closely aligns with the findings from the previous year's stress tests. This alignment leads to provisions that closely mirror their corresponding loan losses (Exhibit 1).

At the portfolio level, we expect to see a notable increase in losses for residential real estate loans. This projection is driven by a sharp decline in house prices, a major factor in this year's scenario. We are also projecting greater losses for commercial and industrial loans as well as credit card loans. (For more detailed information, please see our prior post.)

In terms of banks subject to the global market shock, we are assuming that this year's trading and counterparty losses will be 10 percent lower compared with DFAST 2022. This assumption is based on the typical composition of banks' trading portfolios, which often hold long positions in equity and credit. The spot shock to equities this year is less severe than what was seen in last year's stress tests. In addition, shocks to investment-grade and high-yield securities have been less severe compared with the global market shock scenario in DFAST 2022.

PPNR Is Projected to Be Lower

In February, we stated that projections for PPNR would vary, depending largely on whether the Federal Reserve would adjust the model coefficients to reflect the post-COVID changes in bank balance sheets. For the past three years, the Fed has consistently released updates to these coefficients in early March. However, in 2023, the Fed has not made public modifications to either the coefficients or the models themselves.



Note: Includes the 23 banks that are participating in DFAST 2023.

Source: Federal Reserve and BPI calculations.

Since there are no model updates, we project a $57 billion decrease in PPNR compared with last year's test (Exhibit 2). PPNR projections are weakly sensitive to changes in the path of variables in the severely adverse scenario. The

bulk of changes to PPNR projections are driven by the series' past performance. For instance, if non-interest income revenues were weaker in the previous year, this behavior is likely to persist to some extent over the projection horizon, and this generally dominates the effect of changes in scenario variables in the forecasts. A significant exception is net interest income, which is also strongly dependent on the trajectory of interest rate variables in the scenario.

At the subcomponent level, we predict that both noninterest income and noninterest expenses will contribute to a decrease in PPNR. Meanwhile, we anticipate a modest increase in net interest income, although it would be insufficient to offset the decline in noninterest income and the rise in noninterest expenses.

Lower Unrealized Losses on Investment Securities Will Boost Performance of "Advanced Approaches" Banks

Currently, banks categorized as Category I or II institutions under the U.S. tailoring framework (also known as "advanced approaches" banks) are required to incorporate the impacts of unrealized gains and losses on AFS securities into their regulatory capital. Exhibit 3 displays the level of accumulated other comprehensive income for the nine banks in Categories I and II. With the significant rise in interest rates in 2022, unrealized losses on AFS securities also increased. In this year's stress scenario, as the economy plunges into a severe recession, interest rates significantly decrease (which is typically what has happened in prior recessions). Consequently, advanced approaches banks are expected to benefit from the decrease in unrealized losses through other comprehensive income (OCI) on their investment securities, as shown in the shaded area of Exhibit 3. We project a $65 billion increase in CET1 capital for these nine banks during the severely adverse scenario in 2023.

Exhibit 3: Projections of Accumulated Other Comprehensive Income

Note: Includes the 9 advanced approaches banks.

Source: Federal Reserve and BPI calculations.

Capital Requirements Are Increasing, on Average

Banks are projected to experience an increase in the maximum decline of their CET1 capital ratios over the projection horizon, on average (Exhibit 4). Compared with last year, the aggregate CET1 capital ratio is forecasted to drop by 3.2 percentage points. This is approximately 20 basis points greater than the decline projected in the previous year. This shift can primarily be attributed to two key factors: higher loan losses, and the dip in PPNR.

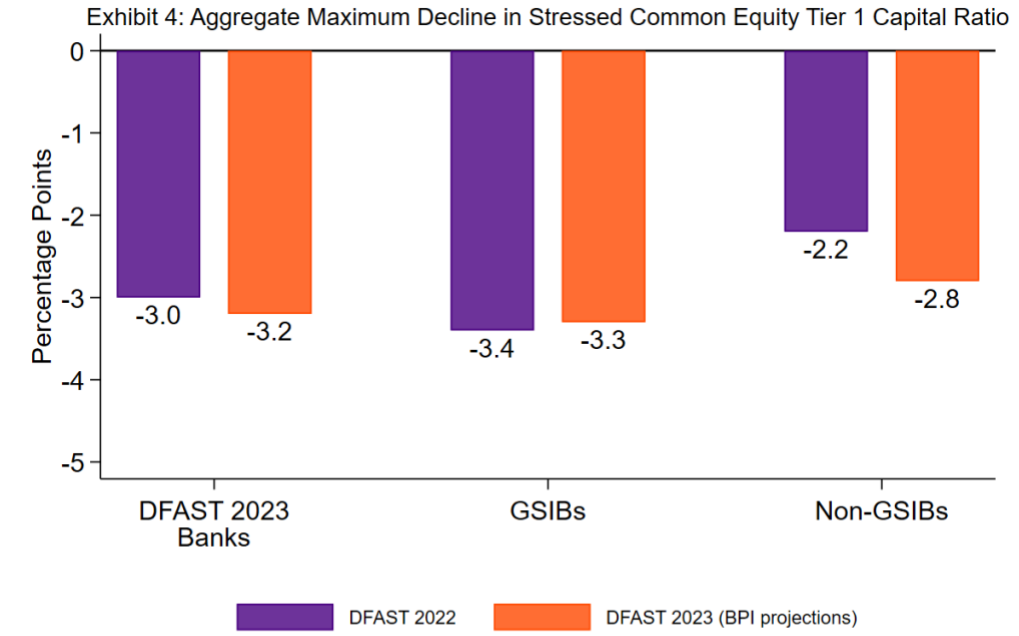


Exhibit 4 also shows a higher projected decrease in the aggregate CET1 capital ratio for banks not required to incorporate unrealized gains and losses on AFS securities into regulatory capital.[2] These banks are projected to face a more substantial decrease in their CET1 capital ratios relative to last year's results—a decline of 2.8 percentage points. In contrast, improvement in AOCI will result in a lower decline in the aggregate CET1 capital ratio of GSIBs.

Updates to the Supervisory Stress Test Methodologies Are Needed

Notably, the increases in the stress capital buffer of several banks in the 2022 and 2021 supervisory stress tests were driven in part by changes in the composition of bank assets, namely the growth of banks' holdings of reserve balances and other high-quality liquid assets on the projected noninterest expense, a subcomponent of PPNR. This experience has reinforced concerns that transitory factors unrelated to bank risk, such as the Federal Reserve's quantitative easing, may be unduly influencing the supervisory projections of several important PPNR subcomponents. The lack of adjustments to historical, non-recurring expenses due to mergers can also have an unfair impact on PPNR projections. These issues have been the drivers of several reconsideration requests by banks since the SCB was adopted in 2020. All such requests have been denied without much explanation, other than a statement that the Board directed Fed staff to explore possible refinements to the models.

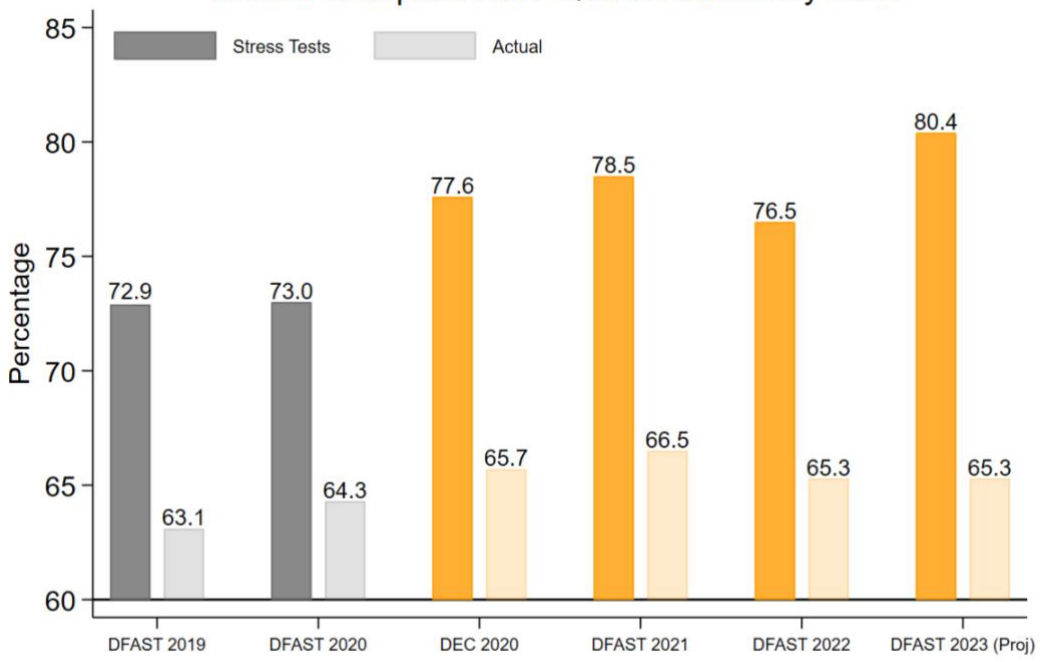
In principle, because both noninterest expense and certain noninterest components are normalized by total assets, asset growth's effect on net revenues could be small (except for non-recurring merger expenses). One way to assess the net effect is to look at the efficiency ratio (that is, noninterest expenses divided by total revenues), widely used by bank investors and research analysts to measure how efficiently a bank is managed. A higher efficiency ratio indicates higher expenses and measures the operating cost the bank incurs to earn $1 of revenue.

[2] There is one firm that is required to include unrealized gains and losses on investment securities in regulatory capital and is not a GSIB, so the decline in the aggregate maximum decline in the stressed CET1 capital ratio on non-GSIBs and non-advanced approaches banks would be even higher.

As shown in Exhibit 5, the supervisory projections for the December 2020, DFAST 2021 and 2022 stress test results show a material increase in the efficiency ratio compared with the pre-COVID stress tests.[3] Although certain supervisory-modeled revenue items are also normalized by total assets, there was a disproportionately higher effect of balance sheet growth on noninterest expense projections under the Federal Reserve's methodology. This jump in projected efficiency ratios is counterintuitive and indicative of a potential model misspecification—in this case, a distortionary effect of normalizing by balance sheet assets, without considering balance sheet composition.

It is also worth noting that the stress tests depict an efficiency ratio exceeding actual bank experience by over 10 percentage points in most years. This substantial difference is largely because the stress tests include operational risk losses, which result in an increase in noninterest expenses.

Exhibit 5: Implied Nine-Quarter Efficiency Ratio

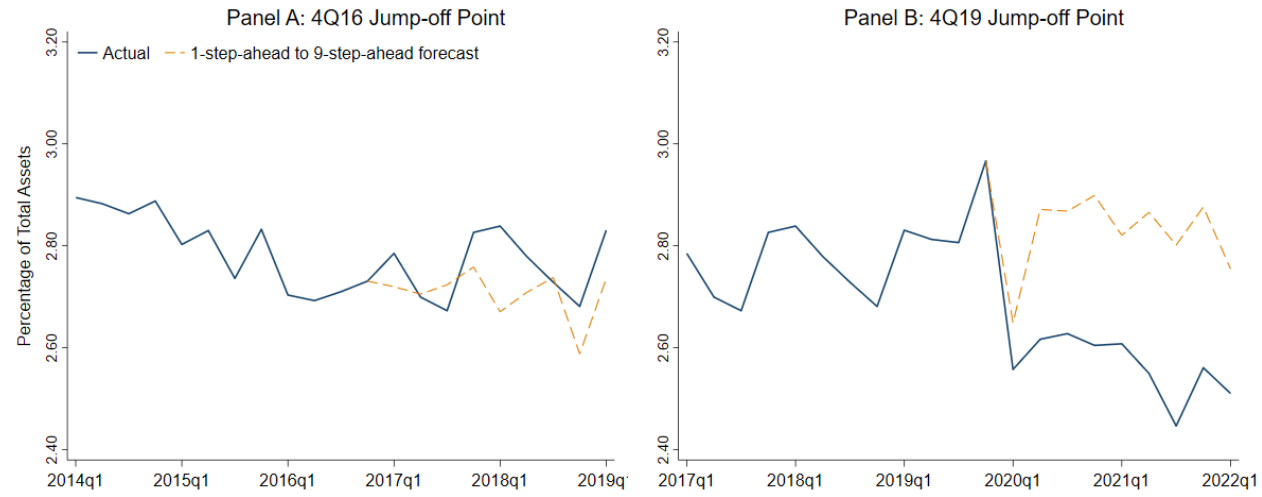


Source: Federal Reserve and BPI Calculations.

Another way of showing the distortion of balance sheet growth on expense projections is to analyze the out-of-sample forecasts over the post-COVID period, using models that attempt to approximate the supervisory methodology for noninterest expenses. The Federal Reserve's stress test methodology document presents a broad description of the revenue models used in the stress tests. Leveraging this information, we constructed models like those used by the Federal Reserve and applied them to generate the out-of-sample forecasts.

[3] The Federal Reserve started disclosing the projections of the subcomponents of PPNR, which are required to calculate the implied efficiency ratio, after the 2019 stress tests (inclusive).

Exhibit 6: Noninterest Expense Projections (Excluding Operational Risk Losses)



Source: Federal Reserve Board, FR Y-9C, Supervisory Stress Test Methodology, BPI staff calculations.

Substantial deterioration in the forecast of noninterest expense post-COVID can be seen in the two charts in Exhibit 6. They plot the 1-step-ahead to 9-step-ahead aggregate forecasts of noninterest expense for all stress-tested banks. Panel A uses the fourth quarter of 2016 as the jump-off point. On average, the model does a good job forecasting the ratio of expenses to assets over the next nine quarters. Panel B sets the fourth quarter of 2019 as the launch point for out-of-sample forecasts. The model does a reasonable job capturing the initial decline in expenses to assets, but it overstates expenses over the rest of the nine-quarter forecasting horizon.[4] This evidence is consistent with the jump in projected efficiency rates and suggests some overstatement of noninterest expenses in the stress tests.

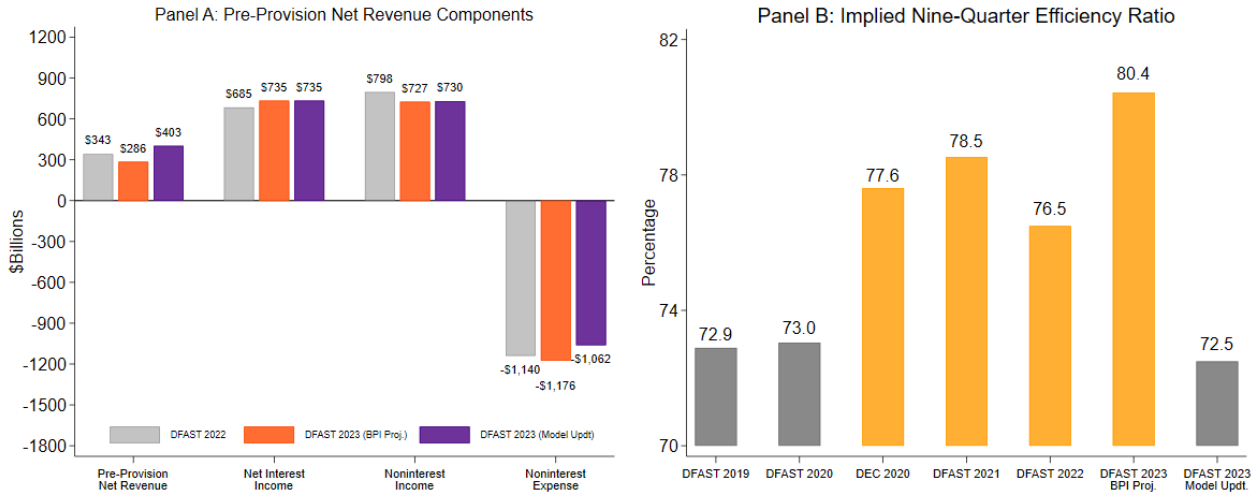
Case Study: Adjusting PPNR Model Coefficients in DFAST 2023

One simple approach to improve the performance of the noninterest expense model would be to update model coefficients using more recent data, such as up until the end of 2021. This allows the Fed ample time to validate the new results before incorporating them into DFAST 2023. Given that some components of noninterest income are also normalized by total assets, we propose updating the projections for this component using more current data as well.

Exhibit 7 presents projections derived from more recent data and updated model coefficients. Panel A shows that updating model coefficients could reduce NIE projections by $114 billion, accompanied by minor changes in noninterest income projections. Panel B, on the other hand, shows a reduction in the implied efficiency ratio from 80.4 percent to 72.5 percent, a figure that better aligns with the pre-COVID experience. Taken together, these results suggest that noninterest expenses are overstated due to the models' dependence on total assets.

[4] Moreover, the model picks up the decline in expenses to assets in the first quarter of 2020 for the wrong reason. The driver of the decline in projected expenses to assets is from negative stock returns; whereas in the data, the decrease in expense to assets was caused by an increase in bank size.

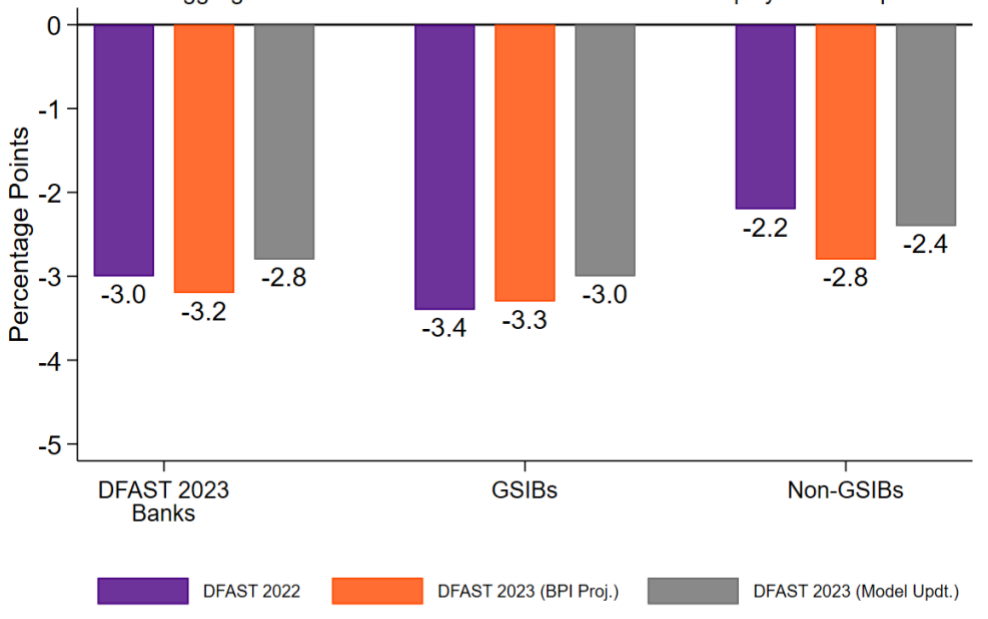
Exhibit 7: PPNR Projections with Model Updates



Source: Federal Reserve Board, FR Y-9C, Supervisory Stress Test Methodology, BPI staff calculations.

With respect to the banks' overall performance in the stress tests, adjusting noninterest expense and noninterest income model coefficients based on more recent data would lead to a 40-basis-point improvement in the aggregate decline of the stressed CET1 capital ratio. For each of the two bank groups analyzed, the improvement is estimated to be 40 basis points for non-GSIBs and 30 basis points for GSIBs (Exhibit 8). The adjustment of model coefficients tends to benefit non-GSIBs more, because they typically experience the lowest point in their CET1 capital ratio later in the planning horizon. Consequently, their performance is slightly superior due to the reduced trajectory of noninterest expenses under stress.

Exhibit 8: Aggregate Maximum Decline in Stressed Common Equity Tier 1 Capital Ratio



Note: Includes the 23 banks that are participating in DFAST 2023.

Source: Federal Reserve and BPI calculations.

Final Thoughts

We expect a slight rise in banks' capital requirements under this year's more severe stress test scenario, coupled with shifts in banks' balance sheets. However, the absence of the Federal Reserve's "Supervisory Stress Test Methodology" update in March 2023 comes as a surprise. This disrupts the customary cycle of annual stress testing methodology updates we have seen each March from 2019 to 2022. As illustrated in the above case study, without substantial revisions to account for changes in the composition of bank assets, the Fed's models will likely keep generating overly high noninterest expenses.

We hope that the lack of model updates this year does not indicate diminishing transparency in revealing enhancements to the Federal Reserve's Stress Test Methodologies models going forward. Stress testing must evolve in tandem with changes in bank balance sheets and financial performance, and the introduction of new regulations. For example, the projected incorporation of the Current Expected Credit Loss (CECL) framework into the Fed stress testing models represents a significant deviation from the current methodology. Consequently, it is important for the Federal Reserve to outline how it plans to integrate CECL into its projections for credit loss allowances.

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