

# Post-Mortem on the 2023 Stress Tests Results

Francisco Covas & Jose Tapia | July 7, 2023

In this post, we make some observations about the stress test results recently released by the Federal Reserve, highlighting significant limitations of these supervisory projections. These limitations contribute to excessive volatility in bank-level results, leading to increased instability in banks' capital requirements and hindering their capacity to efficiently manage their capital on a year-over-year basis.

In the current stress capital buffer framework, a bank's performance in the stress tests directly affects its ongoing capital requirement. Therefore, the Federal Reserve needs to be significantly more transparent about how it projects stress losses and revenues for banks. This transparency enables banks to make informed and efficient decisions on their balance sheets and capital that consider supervisors' views of risks.

Furthermore, a significant overhaul is needed in the way the Federal Reserve generates projections of pre-provision net revenue (PPNR). The current approach, which heavily relies on a bank's recent performance to determine its performance in stress tests under the severely adverse scenario, undermines the reliability of the results. Moreover, a more robust methodology should be implemented in the projections of certain components of regulatory capital. This would better capture the complexities and unique risk profiles of individual banks, such as the effect of interest rates on unrealized gains and losses on investment securities.

## Overview of the 2023 Stress Results

The stress test scenario for this year was designed to be more severe, featuring a greater increase in the unemployment rate and a larger, faster decline in house prices. In addition, the scenario continued to assume a significant drop in commercial real estate prices. As a result of these more challenging conditions, the expected losses for the same set of banks increased by \$43 billion or 11 percent compared with last year's stress test results.

Apart from the scenario's severity, another crucial factor influencing banks' performance in the stress tests is the PPNR projections. While the aggregate level projections remained relatively unchanged from 2022, there were notable differences among the various cohorts of banks because the Fed's projections include large momentum effects. Last year, banks' net interest income rose as rising rates pushed up yields on assets faster than on liabilities. As a result, the Fed projected that the PPNR of banks with substantial interest income would go up. Conversely, last year, banks experienced a decline in fee income primarily due to a slowdown in investment banking and certain other fee income businesses, such as mortgage refinancing, amidst the rising interest rate environment. The Fed then projected the PPNR of banks with substantial fee revenue would go down. Note that, in both cases, the projections seem to largely ignore that interest rates are assumed to fall in the scenario. Meanwhile, for subsidiaries of foreign banks operating in the U.S. (through intermediate holding companies) the Fed projected significant declines in PPNR, mainly attributed to model updates, which we will discuss in more detail.

Another major driver of improved performance observed in the stress tests was the decrease in unrealized losses on investment securities for the largest banks, which are not subject to the accumulated other comprehensive income (AOCI) filter. In 2022, as interest rates increased, many banks began the stress tests with substantial unrealized losses on their investment securities. Because of the increase in interest rates last year, 2023's scenario involved a more significant decline in interest rates compared with the previous year, which typically happens in a

severe recession. The decline in interest rates in the stress scenario resulted in the largest banks collectively experiencing a notable increase of \$57 billion in unrealized gains on their investment securities.

In addition to the reduction in unrealized losses, this year's stress tests also showed slightly lower losses associated with the global market shock. There was also a 50-percent reduction in other losses, which encompasses changes in the fair value of loans held for sale.

In summary, the stress tests project a maximum decline in the common equity tier 1 (CET1) capital ratio of 2.3 percentage points, a decline about 40 basis points lower than last year's. These findings highlight the impact of the more severe stress test scenario, the variations in PPNR projections among different bank groups, the reduction in unrealized losses on investment securities, and the lower losses associated with the global market shock and other factors.

## Excessive Volatility in Bank-Level Results Remains a Distinctive Feature of Stress Tests

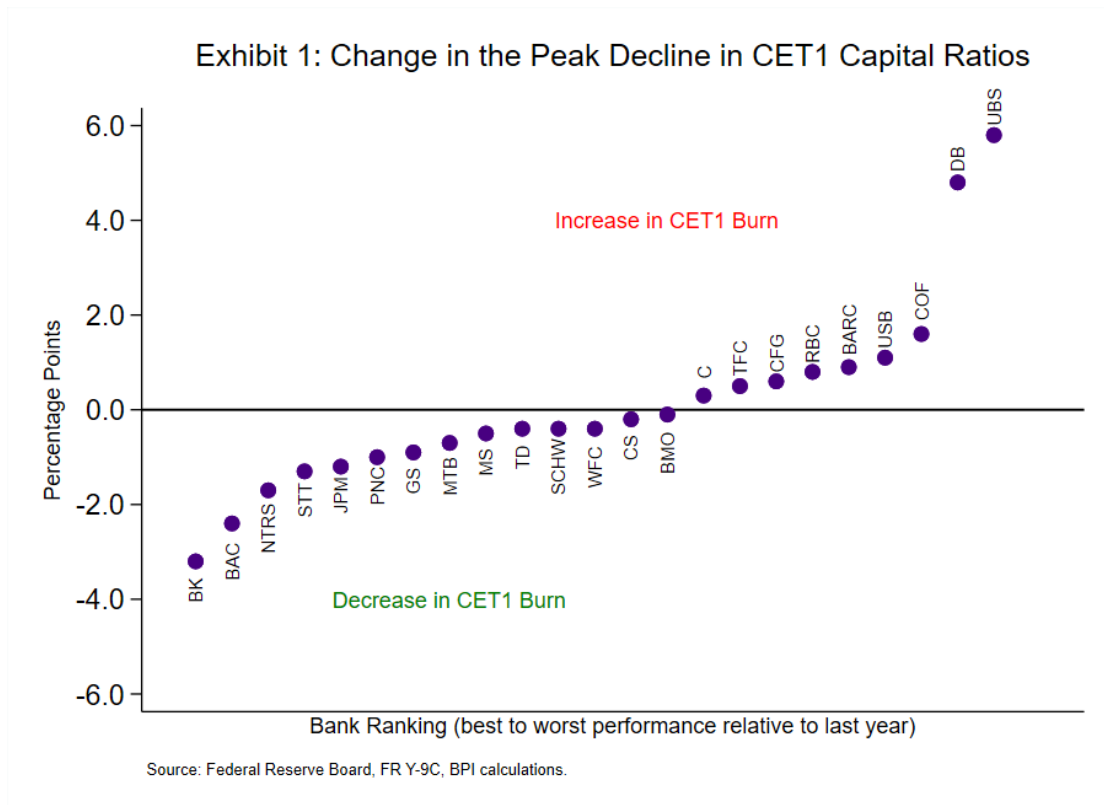
Excessive volatility in bank-level results within supervisory stress tests has become a significant concern among banks. One main reason for excessive volatility is the inherent limitations of the supervisory projections used in stress tests. These projections rely heavily on aggregated models that may not fully capture the intricacies and specific risk profiles of individual banks. As a result, bank-level results can fluctuate dramatically, leading to significant variations in capital requirements from year to year.<sup>1</sup>

The impact of excessive volatility extends beyond mere fluctuations in capital requirements. When bank-level results are highly volatile, financial institutions find it difficult to accurately plan and allocate capital resources. This uncertainty can hinder long-term strategic decision-making, impair capital deployment strategies, and limit pursuit of growth opportunities.

In a comprehensive view of the changes in bank-specific stress test results, Exhibit 1 illustrates the variations in stress test outcomes for each participating bank between the 2023 stress tests and 2022's results. The banks are ranked—that is, ordered from left to right—from best to worst relative performance, based on the projected decline in their CET1 capital ratios. The bank positioned on the far left shows the most substantial improvement in CET1 drawdown compared with the previous year's stress test, while the bank on the far right represents the worst deterioration in projected performance.

---

<sup>1</sup> This is an inherent weakness of the stress tests. In addition to making substantial changes to certain models, the Fed could develop multiple models to project a specific component and average the results across them.



Notably, about half of the banks that participated in this year’s stress tests had performance changes exceeding 1 percentage point in absolute value. Moreover, two banks shown on the right-hand side of Exhibit 1 demonstrated an increase in their capital requirement of 4.8 and 5.8 percentage points, respectively. This highlights the magnitude of changes observed in the capital requirements of certain banks, underscoring the significant impact of the stress test results.

Critically, most of these changes in capital requirements were not being driven by shifts in the risk of the banks’ balance sheets or business models, nor meaningfully by changes in economic outlook. These massive changes in the banks’ capital requirements are the result of quirks of or adjustments to the non-disclosed models the Fed uses to project the banks’ performance.

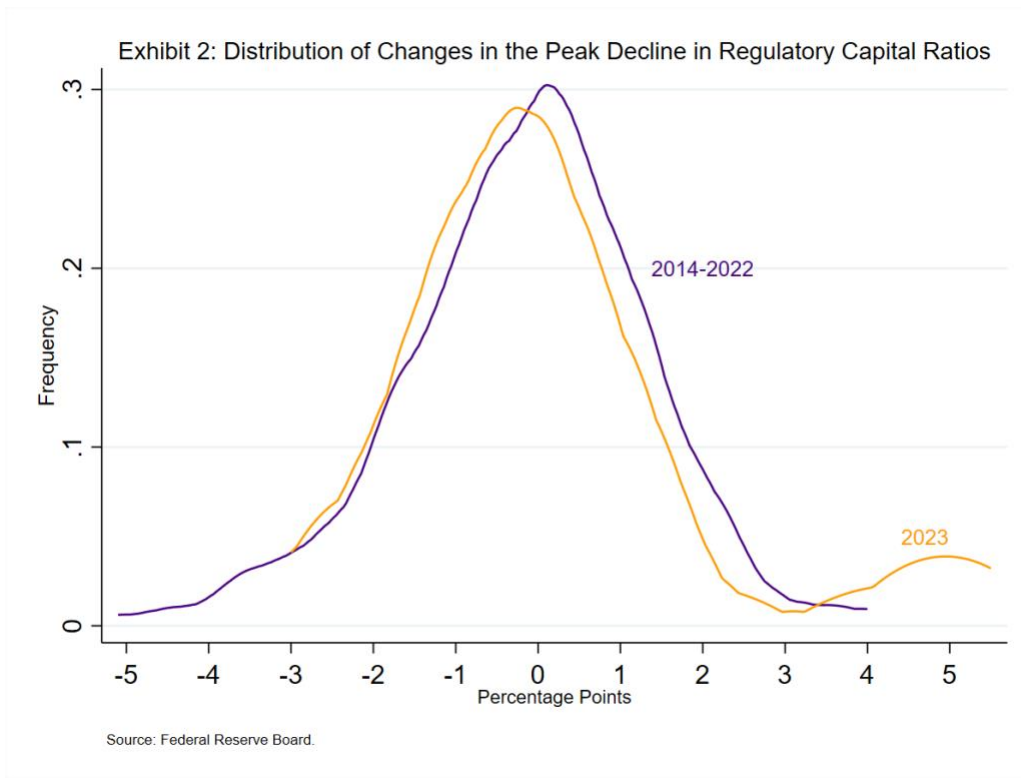


Exhibit 2 reveals that, compared with the stress test results of the past decade, this year’s outcomes were unique, primarily because of the presence of two outlier banks. But even after accounting for these outliers, overall, the level of volatility in bank-level stress test remained elevated and not too different from the average of the prior 10 years.

It is worth noting that, on average, we observed a slightly higher proportion of banks with improved performance relative to the results of the previous year. This improvement can be attributed, at least partly, to a smaller decline in the aggregate capital ratio. One contributing factor would be the unrealized gains on banks’ investment securities.

In the rest of this post, we present more details about some of the factors driving the excess volatility in bank-stress test results, based on the limited information publicly available.

### Five Specific Observations on this Year’s Stress Tests Results:

#### 1. Changes in PPNR models for IHCs led to a greatly material reduction in revenues for those banks.

The Federal Reserve made an important announcement this year, stating that they have initiated the individual modeling of PPNR for IHCs. This step was taken because the Fed now has enough additional time series data for these firms to be modeled individually. The new IHCs were formed in 2016, with six firms becoming subject to supervisory stress tests in 2018. From 2018 to 2022, the projections of PPNR for these six IHCs were derived from the industry’s aggregate performance for each revenue and expense component.

The 2023 stress tests included five out of the six IHCs. Aggregate PPNR for these five firms declined from \$20 billion in the previous year’s stress tests to \$6.5 billion. This decline in PPNR is likely the primary factor for the deteriorating performance of four out of the five IHCs in the 2023 stress tests, especially the two outliers shown in Exhibits 1 and 2.

**2. Supervisory PPNR projections assign disproportionate importance to bank performance in the preceding year.**

There is a significant issue with the performance of supervisory models in terms of variability of supervisory PPNR projections compared with banks’ own projections. One of the key factors contributing to the excessive variability in stress test projections is that Fed models rely heavily on aggregated models that assign disproportionate influence to bank performance in the preceding year. And since the revenue models are based on highly aggregated PPNR components, the variables in the macroeconomic scenarios often play a secondary role in driving the supervisory PPNR projections. Consequently, the projections become highly influenced by the autoregressive terms in those models.

This “momentum” effect is particularly noticeable in the Fed’s projections of net interest income and noninterest income. With the Fed’s decision to increase rates during 2022, banks witnessed a substantial recovery in their net interest margins. This recovery in net interest income is reflected in the Fed’s projections (Table 1). This reveals an increase of about \$50 billion in net interest income projections for the largest banks. By contrast, banks’ own projections, which are more granular and therefore less reliant on recent past performance, predict an increase of \$26 billion.

**Table 1: Projections of Selected PPNR Components**

\$ Billions	Fed Models			Bank Models		
	2022	2023	Change	2022	2023	Change
Net Interest Income	358.1	408.7	50.6	340.3	366.6	26.3
Noninterest Income	440.1	388.6	-51.5	352.6	367.1	14.5

Note: The sample consists of five banks that provide information comparable to the Fed’s own results.  
 Source: Federal Reserve Board and Company-run stress test disclosures.

Similarly, the increase in interest rates had a dampening effect on investment banking and other fee-income businesses (e.g., mortgage refinancing) throughout 2022. The relatively weaker performance of noninterest revenues resulted in a substantial decrease of \$51 billion in the Federal Reserve’s projections for noninterest income. But banks’ own projections, which limit the influence of recent performance on stress projections, show an increase in noninterest income. The significant disparity in noninterest income projections prompted one firm to publicly announce that they would address these discrepancies with the Fed.

The heavy reliance on each bank’s prior-year performance within the Federal Reserve’s projections significantly limits supervisory models. This likely contributed to the substantial fluctuations observed in the stress test results and the disparities between the Fed’s projections and banks’ own models. Although more work in this area is necessary, it cannot move forward without full access to the details of supervisory models.

**3. The Fed’s own projections of unrealized gains/losses on investment securities is more sensitive to changes in interest rates than banks’ own forecasts.**

Unrealized gains and losses on investment securities are recorded in AOCI. Table 2 presents the Federal Reserve’s projections, which indicate an increase in the AOCI balance included in capital, shifting from -\$89.9 billion to -\$38.4 billion. Conversely, banks’ own projections anticipate a more modest improvement in AOCI included in

regulatory capital from –\$89.9 billion to –\$68.6 billion. The disparities in these projections suggest that the Federal Reserve’s estimations likely do not account for banks’ hedging of interest rate risk, resulting in excessive volatility in banks’ capital requirements over time.

**Table 2: Accumulated Other Comprehensive Income Included in Regulatory Capital**

\$ Billions	Actual Balance	Hypothetical Stressed Balance at 3/31/25
Fed Projections	–89.9	–38.4
Banks’ Own Projections		–68.6

Note: The sample consists of five banks that provide information comparable to the Fed's own results.  
 Source: Federal Reserve Board and Company-run stress test disclosures.

This discrepancy prompted one firm to publicly announce that they had begun discussions with the Federal Reserve to address disparities in AOCI projections. Under the current year’s scenario, these variations in projections have yielded better-than-expected results for that bank. However, a scenario involving rising interest rates would lead to the opposite outcome.

**4. There is currently less transparency in the reporting of operational-risk losses.**

The Federal Reserve does not disclose the losses associated with operational risk events at individual banks. However, in previous years, it published information on the aggregate level of operational risk losses included in the projections of noninterest expenses for the same set of banks over consecutive years. For instance, when describing the 2021 results, the Fed stated:

In the aggregate for the 23 firms, operational-risk losses are \$151 billion for DFAST 2021. This amount is slightly higher than the \$136 billion projected for the same set of firms in DFAST 2020.

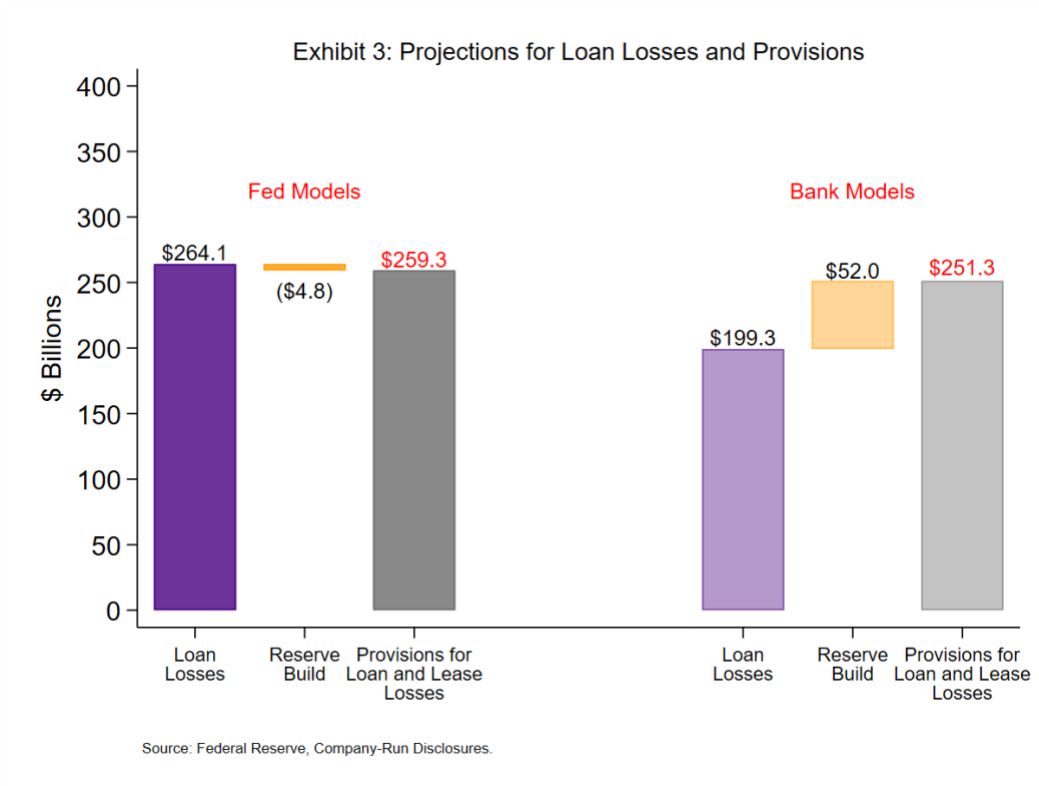
This year, with 23 firms participating in the stress test, the Fed noted:

In the aggregate, operational-risk losses are \$185 billion.

However, the Fed did not present a comparison to the same set of firms in relation to the 2022 stress test results. In the 2022 stress tests, operational-risk losses amounted to \$188 billion across a total of 34 banks.

**5. Banks project lower loan losses than the Fed but also anticipate higher reserve builds.**

Consistent with previous stress testing exercises, the loss projections from the Fed generally surpass the banks’ own projections. Among the nine banks required to release their company-run results, the estimated loan losses were about \$200 billion, whereas the Federal Reserve projected losses of \$264 billion. This disparity can be attributed primarily to differences in loss forecasting models and balance sheet assumptions. For example, the Federal Reserve assumes that banks will continue to originate loans with significantly elevated loss rates during a severe recession.



However, when comparing the Federal Reserve’s projections with the banks’ own projections of provisions for loan and lease losses, the difference vanishes. Banks subject to the stress tests have implemented the current expected credit loss (CECL) accounting standard since January 1, 2020, both in their regular operations and capital stress tests. Nonetheless, the Fed’s supervisory methodology still uses the incurred loss model framework to calculate allowances for credit losses.

The Fed generally forecasts higher loan losses than the banks. If the Fed were to apply a similar CECL methodology, we would see a material increase in provisions and in the stress capital buffer requirement. It might be advisable to also take a fresh look at the supervisory loan loss methodologies before CECL is implemented in the supervisory stress tests.

---

*Disclaimer: The views expressed do not necessarily reflect those of the Bank Policy Institute’s member banks, and are not intended to be, and should not be construed as, legal advice of any kind.*