

**ARTICLE**

05/15/2024

**AUTHORS**Laurent Birade  
Senior DirectorScott Dietz  
DirectorChris Stanley  
Senior Director**Contact Us**Americas  
+1.212.553.1658  
[clientservices@moodys.com](mailto:clientservices@moodys.com)Europe  
+44.20.7772.5454  
[clientservices.emea@moodys.com](mailto:clientservices.emea@moodys.com)Asia (Excluding Japan)  
+85.2.2916.1121  
[clientservices.asia@moodys.com](mailto:clientservices.asia@moodys.com)Japan  
+81.3.5408.4100  
[clientservices.japan@moodys.com](mailto:clientservices.japan@moodys.com)

## CCAR - using analytics to drive resilient growth

The Comprehensive Capital Analysis and Review (CCAR) is a regulatory framework introduced by the Federal Reserve to ensure that the largest U.S. banks have robust capital planning processes and adequate capital to continue operations throughout economic and credit stress.

While CCAR targets large banks, its principles and practices are beneficial for any financial institution to ensure financial stability, confident strategic direction, and sound risk management. The combination of economic and credit risks across multiple scenarios (plausible descriptions of a future state of the world, not forecasts) provides management a confidence interval that clarifies a range of outcomes, and actionable insights to target multidisciplinary expertise.

We'll show how firms of all sizes<sup>1</sup> can utilize scenario analysis and benchmarking for strategic planning and the value an empirical anchor provides boardroom decisions. Using FDIC Call Report data, 2024 CCAR scenarios and financial statement modeling, we'll illustrate the outcomes anticipated by this year's test, provide benchmarks for industry results, and describe steps for applying CCAR's lessons to advance your own institution's decision confidence.

---

<sup>1</sup> Full analysis and results are available for both Banks and Credit Unions - see appendix for more details.

### Table of contents

|   |    |
|---|----|
| Introduction  | 3  |
| CCAR practices for every institution                  | 4  |
| Using CCAR as a Benchmark                             | 6  |
| CCAR Illustrative Analysis                            | 7  |
| <hr/>   |    |
| 2024 CCAR MACROECONOMIC SCENARIOS – WHAT’S NEW?       | 7  |
| BUILDING RELIABLE FINANCIAL STATEMENT PROJECTIONS     | 8  |
| <hr/>   |    |
| Scenario Analysis & Benchmarking Results              | 10 |
| <hr/>   |    |
| INDUSTRY WIDE ANALYSIS AND CCAR BANK SEGMENT OVERVIEW | 10 |
| <hr/>   |    |
| Conclusion  | 19 |
| Glossary of Terms and Abbreviations                   | 20 |
| Appendix  | 21 |
| References  | 22 |
| <hr/>   |    |
| Contact us  | 23 |
| <hr/>   |    |

### INTRODUCTION

Banks operate in a dynamic environment characterized by economic fluctuations, regulatory changes, technological and competitive pressures. These uncertainties can significantly impact a bank's performance, risk profile, and strategic direction. Scenario analysis and benchmarking are critical tools for navigating this complexity, and developing informed, resilient strategies.

Scenario analysis involves creating and evaluating multiple plausible future states based on different assumptions about how key uncertainties might evolve. It helps banks assess the impacts of external and internal factors on their operations, financial performance, and strategic objectives. By examining a range of possible futures, banks can identify potential risks and opportunities that might not be apparent through traditional financial forecasting techniques, which often rely on linear extrapolations of past trends.

The Comprehensive Capital Analysis and Review (CCAR) is a regulatory framework introduced by the Federal Reserve to ensure that the largest U.S. banks have robust capital planning processes and adequate capital to continue operations throughout economic and credit stress. While CCAR targets large banks' performance under significant stress, its principles and practices are beneficial for any financial institution to ensure financial stability, confident strategic direction, and sound risk management. The exercise is not solely about losses—it includes a comprehensive view of the entire balance sheet and income statement to evaluate capital buffers under different scenarios. Useful strategic considerations resulting from this process include:

- a) How will revenues and expenses shift in different economic environments?
- b) How will balance growth projections and deposit gathering efforts fare under different states of the world?
- c) How do different product mixes impact returns, what is the optimal profitability under different macro-driven assumptions?

CCAR requires scenario analysis and financial modeling capabilities that are highly applicable beyond the regulatory exercise. These capabilities provide management an empirical, multi-scenario view of the potential growth and resilience of the bank. This confidence interval around future outcomes clarifies strategies and enhances decision confidence—the most important lesson institutions not subject to CCAR should take away from the exercise. We're seeing institutions of all sizes strategically investing in these capabilities to bring forward-looking clarity to boardroom decisions in a complex risk environment.

CCAR results inform improvements to business strategies, but the exercise inputs and framework are equally useful as a guide for risk management practices (including process governance, scenario development, modeling, board and management engagement, documentation, and auditability) at growing institutions. The 10+ years of CCAR exercises highlight evolutions in regulatory expectations for larger banks—a bellwether for what regulatory expectations may trickle down to smaller institutions over time. Banks approaching, or above \$10 billion in total assets should look to CCAR as a roadmap for growing wisely and staying ahead of regulatory expectations.

To bring the processes of scenario analysis and benchmarking to life, we provide key illustrations throughout this paper:

- Summarize CCAR best practices that can be scaled to any institution.

# 32

Number of CCAR banks in the 2024 cycle

# 4

Number of scenarios including the new exploratory scenarios

- Illustrate scenario analysis and benchmarking fundamentals using:
  - Analysis of scenario evolution from 2023 to 2024
  - Demonstration of how financials can be modeled for any firm from FDIC Call Report data
  - Application of 2024 CCAR scenarios and financial statement models to obtain industry-level and institution-specific results.

### CCAR PRACTICES FOR EVERY INSTITUTION

The Federal Reserve provides comprehensive documentation for the past 10+ years of CCAR exercises. Each year’s release provides a wealth of information, benchmarks, and best practices. It is publicly available, allowing all interested parties to review and understand the CCAR process and its implications for the industry. Table 1 provides practical guidelines, scalable to any institution, that we recommend based on historic CCAR releases and our decades of experience with both prudential regulators and industry participants.

Table 1 - CCAR Requirements & Best Practices for Non-CCAR Institutions

| CCAR Requirement   | Guidance for non-CCAR banks  |
|--|--|
| <b>Risk Process Management</b>   | Develop robust processes to capture firm-specific vulnerabilities and risks. It includes overall governance, model governance, the formal controls process, incorporation of management judgment, and documentation.   |
| <b>Scenario Development</b>  | Implementing a similar governance structure can help identify and manage risks effectively.  |
| Develop stress scenarios that reflect potential adverse economic conditions that are idiosyncratic to the banks’ own businesses. This is in addition to executing the scenarios provided by the Federal Reserve Regulators by the 15 <sup>th</sup> of February of each year. | Institutions can benefit from this practice by preparing for potential economic downturns and ensuring they have adequate capital to withstand such scenarios. Scenarios do not have to be macro-economically driven, they can be driven based on historical experience to derive an idiosyncratic scenario or based on worst-case (i.e., worst-case losses x5) to derive a scenario that could act as a reverse stress test and find the boundaries where the institution becomes less than well capitalized. |

|  | CCAR Requirement  | Guidance for non-CCAR banks   |
|--|---|---|
| <b>Modeling</b>                        | CCAR banks use various models for loss estimation, revenue, and balance sheet projection. The Federal Reserve provides insights each year on what types of models are used by asset class, and affirm what kind of models represent best practices. | <p>Use similar models, or CCAR results as benchmarks, to project potential losses and revenues under different scenarios.</p> <p>Empirically understanding your balance sheet or putting a confidence interval around potential outcomes for strategy development are useful for confidently positioning your firm during uncertain periods. The full potential of the activity is unlocked with two key types of analytics:</p> <ol style="list-style-type: none"> <li>1. <i>Financial statement forecasts</i> - credible forecasts are consistent with macro assumptions, account for cyclical economic factors, are transparent and fully documented.</li> <li>2. <i>Predictive credit analytics</i> – enhanced insight into borrower behavior at a facility level enables multidisciplinary coordination and adds nuance to scenario analyses of the bank’s portfolio.</li> </ol> |
| <b>Board and Management Engagement</b> | In CCAR banks, the board of directors oversees the CCAR process and approves scenarios.   | Institutions can involve their board in risk management and capital planning processes to provide a broader view of the business’ sensitivities to external and internal factors as they conduct strategic planning.  |
| <b>Documentation</b>                   | CCAR banks are required to provide detailed documentation of their capital planning processes.  | This practice can be beneficial for any institution to ensure transparency, accountability, and resiliency, but especially at smaller firms where key man risk is omnipresent.  |

|                     | CCAR Requirement  | Guidance for non-CCAR banks  |
|---------------------|---|--|
| <b>Auditability</b> | CCAR banks must demonstrate transparency down to the source data level and document all capital classification and computation rules. | <p>Institutions can adopt this practice to ensure they meet regulatory requirements and maintain financial statement integrity—it is never too early to prioritize data integrity.</p> <p>A clear runbook for stress testing enables a more efficient process that can be run in parallel with the annual strategic plan and used to update the plan on a quarterly timeframe based on evolving economic conditions.</p> |

### USING CCAR AS A BENCHMARK

Benchmarking is an invaluable part of scenario analysis. While scenario analysis focuses on preparing for a range of potential futures by understanding the impact of various external and internal factors, benchmarking introduces a comparative dimension to this analysis, measuring a bank's performance, practices, and strategies against those of leading peers or industry standards. Integrating benchmarking with scenario analysis can provide a more nuanced, competitive, and actionable approach to strategy development.

Some foundational areas of understanding inform the selection and interpretation of benchmarks from the CCAR or other scenario-based exercises:

- a) **Calibration of Scenario and Financial Assumptions:** Benchmarking can help validate the assumptions used in scenario analysis by providing a reality check against industry norms and trends. If a bank's scenarios or performance expectations are significantly more optimistic or pessimistic than the benchmarks, it may prompt a reevaluation of those assumptions, leading to more realistic and actionable strategic insights.
- b) **Enhanced Understanding of Resilience and Performance Drivers:** Through benchmarking, banks can analyze not just their own resilience and adaptability under different scenarios, but also how these attributes compare with those of their peers. This can uncover key drivers of performance and resilience, highlighting areas where the bank may need to strengthen its strategies or operations.
- c) **Regulatory Compliance and Capital Adequacy:** For banks subject to CCAR, benchmarking within scenario analysis must explicitly consider regulatory expectations and thresholds for capital adequacy. This means comparing not only operational and financial metrics with peers but also how well each bank maintains capital buffers above regulatory minimums under stress scenarios. Benchmarking can help banks identify best practices in capital conservation and risk-weighted asset optimization.
- d) **Comparative Insights for Strategic Positioning:** Benchmarking allows banks to position their scenario analysis outcomes against industry best practices or leading competitors. By comparing how different banks might fare under similar scenarios, benchmarking helps identify strategic gaps and opportunities for improvement. This comparative insight can inform more competitive strategic decisions, support growth, resilience, and shareholder value, even in adverse conditions.

Incorporating benchmarking into scenario analysis provides multi-dimensional nuance in strategic planning. It not only prepares institutions for a variety of future states but also ensures that their strategies are competitive, grounded in industry realities, and focused on areas of strategic importance. This integrated approach helps banks navigate the complex regulatory landscape while maintaining a strong focus on long-term resilience and competitiveness.

## CCAR ILLUSTRATIVE ANALYSIS

In the remainder of the paper, we provide an integrated illustration of scenario analysis, benchmarking, and financial statement modeling. Our illustration relies on three key inputs:

- a) *2024 CCAR Scenarios* – scenarios start in the first quarter of 2024 and extend through the first quarter of 2027. The 2024 exercise includes the typical Baseline and Severely Adverse scenarios but adds two exploratory scenarios that evaluate additional risks highlighted by banking system disruptions in the spring of 2023. To highlight year over year scenario changes, we will run the 2023 Baseline and Severely Adverse scenarios in parallel with their 2024 iterations.
- b) *FDIC Call Report Data through 2023Q4* – to develop industry benchmarks, our illustration will subject all U.S. banks to the 2024 CCAR scenarios. These benchmarks leverage a top-down analysis that supports the identification of industry trends, but actual results if each bank performed the CCAR exercise would vary. The relationship between historic data and scenario inputs is a key part of our analytical approach. Incorporating historical data through 2023Q4 provides the most current view of actual industry conditions available at the date of our analysis.
- c) *Moody's Call Report Forecast* – to measure the effects of macroeconomic variables on income and balance sheet projections, we leverage proprietary financial statement modeling capabilities. These tools provide forecasts of income and balance sheet statements at the industry, firm and peer group levels using FDIC Call Report data. Financial institutions of all sizes leverage this tool in their own analyses to overcome the sparse internal data and the influence of idiosyncratic factors that make it difficult to develop reliable financial statement forecasts.

The focus of our illustration is to understand major differences across scenarios and emphasize foundational takeaways useful for an institutions' early capital planning exercises. In particular, understanding how these results could be used to reveal the potential impact the 2024 scenarios may have on your own financial metrics and forward guidance.

### 2024 CCAR MACROECONOMIC SCENARIOS – WHAT'S NEW?

Each year Moody's releases scenarios based on the Federal Reserve (Fed) scenarios but expanded to cover all macroeconomic variables an institution may need to run their own stress test. The Fed scenarios typically include 16 macroeconomic variables. [Table 2](#) illustrates the evolution of these scenarios over the past year. Attention to this progression provides insight into supervisors' evolving views of risks materializing in the banking system. For non-CCAR banks, these scenarios may reveal outliers for which banks did not have mitigation plans and prompt action on their part.

The Baseline scenario is designed to incorporate prevailing market expectations, so it is built from average projections compiled from a survey of professional forecasters. The 2024 Severely Adverse scenario models a severe global recession, including prolonged declines in both residential and commercial real estate prices, which spill over into the corporate sector and

affect investment sentiment. What drew our attention, is that the behavior of credit-related macroeconomic variables remains substantially consistent with prior year assumptions. We use the magnitude of peak-to-trough change in each variable for this comparison:

- Unemployment (unchanged at 4.4);
- Home Price Index (25.3 to 23.9); and
- CRE Price Index (unchanged at 38.1).

Regulators appear to emphasize steep declines in interest rates. 2024 peak to trough changes are amplified more than 20% over 2023 changes in multiple variables, including 3-month Treasury (1.6 to 2.0), 5-year Treasury (0.4 to 0.9) and Prime rate (1.6 to 2.0).

Table 2 - Scenario Comparison: 2023 vs 2024

|                                    | Peak-to-Trough % Change |               |                  |               |          |
|------------------------------------|-------------------------|---------------|------------------|---------------|----------|
|                                    | Baseline                |               | Severely Adverse |               |          |
|                                    | 2023Q1:2026Q1           | 2024Q1:2027Q1 | 2023Q1:2026Q1    | 2024Q1:2027Q1 | % Change |
| Real GDP                           | 4.7                     | 5.1           | 8                | 8.2           | 2.50%    |
| Nominal GDP                        | 10.4                    | 10.8          | 10.1             | 10.3          | 1.98%    |
| Real disposable income per capita  | 4.6                     | 4.9           | 7                | 7.3           | 4.29%    |
| Nominal disposable income          | 11.5                    | 11.6          | 10.4             | 10.6          | 1.92%    |
| Unemployment rate                  | 1                       | 0.4           | 4.4              | 4.4           | 0.00%    |
| CPI inflation rate                 | 1.1                     | 0.2           | 1                | 1             | 0.00%    |
| 3-month Treasury rate              | 1.8                     | 2.2           | 1.6              | 2             | 25.00%   |
| 5-year Treasury yield              | 1.1                     | 1.1           | 0.4              | 0.9           | 125.00%  |
| 10-year Treasury yield             | 0.7                     | 0.5           | 0.7              | 0.7           | 0.00%    |
| BBB corporate yield                | 0.7                     | 0.3           | 2.8              | 2.8           | 0.00%    |
| Mortgage rate                      | 1.4                     | 1.4           | 0.9              | 0.9           | 0.00%    |
| Prime rate                         | 1.7                     | 2.2           | 1.6              | 2             | 25.00%   |
| Dow Jones Total Stock Market Index | 0                       | 0             | 45               | 55.4          | 0.00%    |
| House Price Index                  | 5.8                     | 4.4           | 25.2             | 23.9          | -5.16%   |
| Commercial Real Estate Price Index | 8.5                     | 4.4           | 38.1             | 38.1          | 0.00%    |
| Market Volatility Index            | 11.4                    | 13.1          | 56.8             | 54.7          | -3.70%   |

Beyond the standard Baseline and Severely Adverse scenarios, two exploratory scenarios (new for the 2024 exercise) focus on inflation and liquidity-related risks. Reflecting the opportunity for non-credit issues to impact multiple aspects of bank performance, the two additional scenarios evaluate funding and market risks, and help banks prepare for a range of conditions. Exploratory A models a combination of a moderate recession, increasing inflation and rising interest rates. Exploratory B considers a more severe, global recession with persistently high inflation and interest rates<sup>2</sup>. The exploratory analysis is distinct from the stress test and will explore hypothetical risks to the broader banking system, rather than focusing on firm-specific results.

### BUILDING RELIABLE FINANCIAL STATEMENT PROJECTIONS

Projections of the balance sheet and income statements are a common struggle, with diversity in the level of sophistication between credit-related items and line items like Pre-Provision Net Revenue (PPNR). PPNR is critical for understanding an institution's ability to earn its way out of stress but is complex to model due to its dynamic variability with both macroeconomic conditions and contributory financial statement line items. Credit projections are typically robust and leverage complex models<sup>3</sup> with well-defined links to macro-economic variables. Regulatory scrutiny over the past 5 years advanced PPNR modeling capabilities at CCAR banks. This

<sup>2</sup> Moody's Briefing on CCAR Scenarios 2024 (recorded webcast) available at: <https://events.moody.com/mc16893-wbn-2024-mau22841-ccar-scenarios>

<sup>3</sup> We refer to CCAR bank's models here; smaller institutions' model sophistication should be scaled to their size and risk profile.

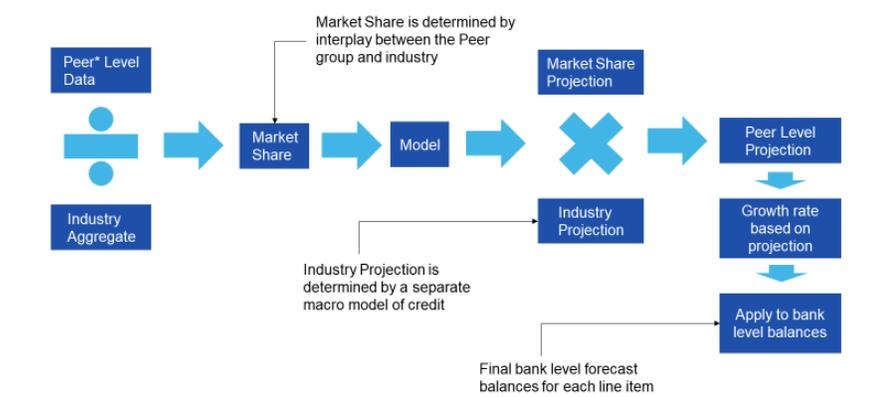
sophistication is imperative given this year's increased focus on interest rate volatility, which impacts the balance sheet differently than the credit emphasis of prior years' scenarios.

Non-CCAR banks typically lack historical time series data on PPNR and struggle to link PPNR projections to macro-economic variables. These banks are also typically more impacted than larger banks by idiosyncratic management actions, merger or system consolidations, etc. These challenges and the hard-to-define link to macro-economic variables represent a key obstacle for scenario analysis, benchmarking, and strategic planning at many institutions.

Understanding the challenge that banks face in creating timely, credible forecasts consistent with macro assumptions, that account for cyclical economic factors and are transparent and fully documented, MOODY'S created a suite of models called the Call Report Forecast<sup>4</sup> (CRF). CRF is an econometric forecast of the income statement and balance sheet based on FDIC Call Report data. The industry-based model more accurately captures the effects of macroeconomic variables than a single entity can and overcomes major limitations due to sparse/noisy data influenced by bank-specific factors. This process also allows us to forecast performance for individual institutions and/or peer groups.

Here a brief overview of the steps in creating the forecasts under different economic scenarios: First step is to compute the industry-level data, we aggregate the individual call reports from all the active banks at any given time. This level of aggregation helps create more meaningful correlations with macroeconomic data. The next step is to carve out smaller cohorts or 'segments' of banks based on asset size and region combinations and use a market share approach (of these smaller cohorts in the entire industry) to accurately capture any idiosyncratic behavior. Finally, to get to the forecast for an individual bank, we locate the said bank in its 'segment' and apply the growth rate of the forecast trajectories of the segment to the bank, for each individual line item. The industry model acts as an anchor for the entire modeling tier structure and industry forecasts are often used as qualitative adjustments when data/model outcomes become unintuitive as we move to more granular levels of modeling i.e., segments and then banks. CRF can be leveraged for regulatory stress testing as well as capital planning, strategic planning, and budgeting<sup>5</sup>.

Figure 1 - CRF Forecast Development Process



<sup>4</sup> Call report forecast methodology document can be provided upon request. Contact the author for more information.

<sup>5</sup> CRF sensitivities can be applied to budgets to create upside and downside scenarios that are conditioned by economic scenarios and provide a view that is aligned with the capital plan.

We utilized CRF to provide benchmarks for industry-wide and CCAR firm-level results. Below we discuss highlights of the exercise and include an appendix of the key forecasted items under the Severely Adverse scenario, other scenario data is available on demand.

## SCENARIO ANALYSIS & BENCHMARKING RESULTS

In our study, we examine the results of the industry and CCAR banks under the CCAR scenarios. This analysis aggregates industry performance by financial statement line item when combining 2023Q4 actuals from call report data for 4,681 FDIC insured banks, with the Baseline and Severely Adverse scenarios from 2023 and 2024. This allows us to understand the year-over-year changes in the CCAR scenario assumptions and establish industry performance benchmarks for understanding firm-level results. We also provide results highlights for the Exploratory Scenario A and B for the CCAR banks segment.

### INDUSTRY WIDE ANALYSIS AND CCAR BANK SEGMENT OVERVIEW

We built complete financial statement forecasts for each bank but highlight key line items that reflect the emphasis of the CCAR 2024 scenarios and are most relevant to bank strategies in the current macroeconomic environment<sup>6</sup>: Net Loans and Leases, Net Interest Income, Pre-Provision Net Revenue and Deposits. Consistent with CCAR's traditional emphasis on credit and capital, we also provide forecast and historic benchmarks (asset quality, capital adequacy, liquidity, profitability) for the CCAR bank segment in Table 3 and Table 4, respectively.

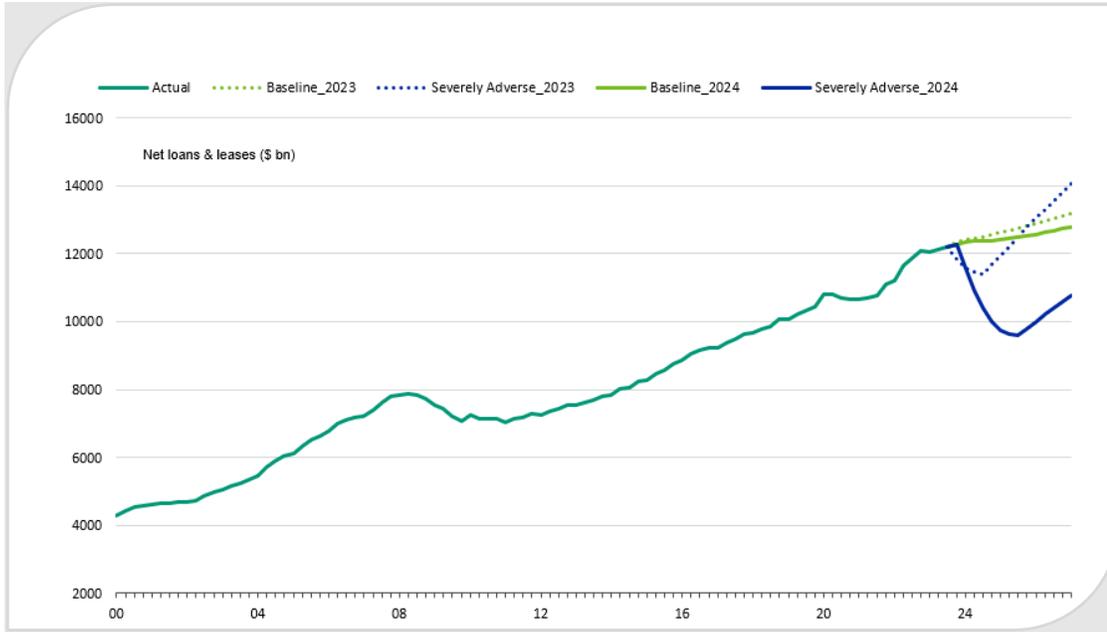
#### Net Loans and Leases

CRF Net Loans and Leases forecasts are built from GDP, property price and income variables within the CCAR scenarios. Peak to trough severity for these variables was significantly higher in the 2024 scenarios than in 2023. Altogether, this produces a more significant drop in industry loan and lease totals throughout the forecast with a related decline in PPNR results. Residential and CRE loans compose a material portion of the anticipated decline in volume.

---

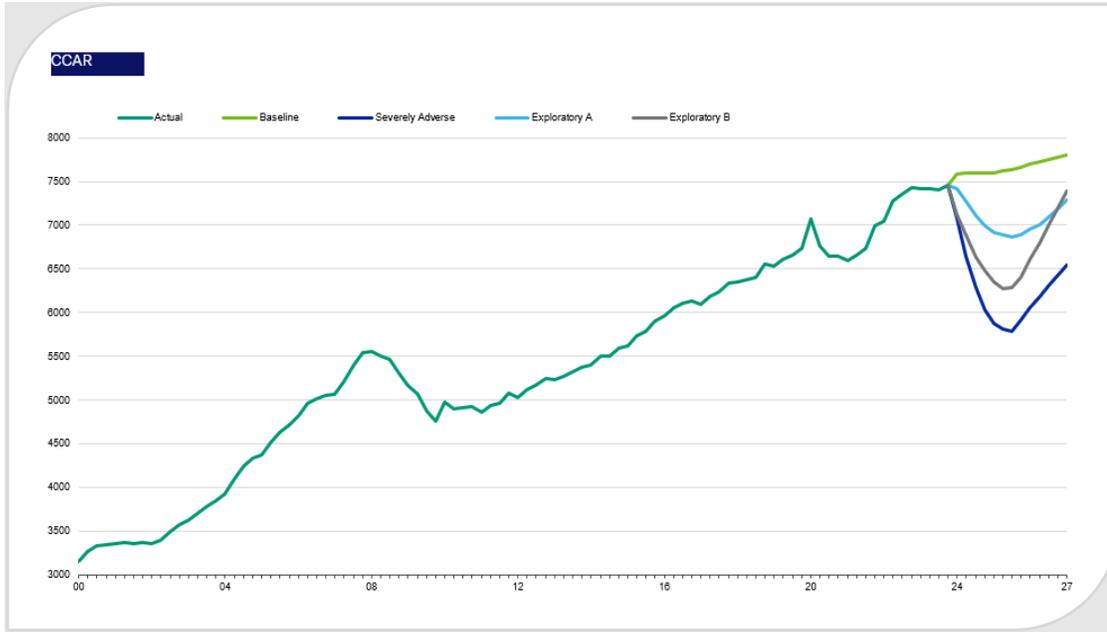
<sup>6</sup> CRF provides these results at a much more granular segment level for bank size and geographic dispersion.

Figure 2 - Industry Net Loans & Leases (\$Bn)



For the CCAR bank segment we observe that the drop in loan and lease growth for the severely adverse scenario (when rates decrease) is proportionately larger than for the Industry segment, which is potentially a side effect of larger banks dealing in larger notional loan amounts. The Exploratory scenarios reveal that in a scenario where the Federal Reserve is fighting inflation by increasing rates, the impact on loan growth is not as severe as it would be in a deep recession as portrayed by the Severely Adverse scenario. It is not surprising to see Scenario A impact being less significant, on loan growth, than Scenario B given that Scenario B involves a much deeper global recession, although rates in Scenario A stay much higher and for longer than in Scenario B. This indicates that loan growth/attrition is more strongly correlated to the state of the economy than the level of rates.

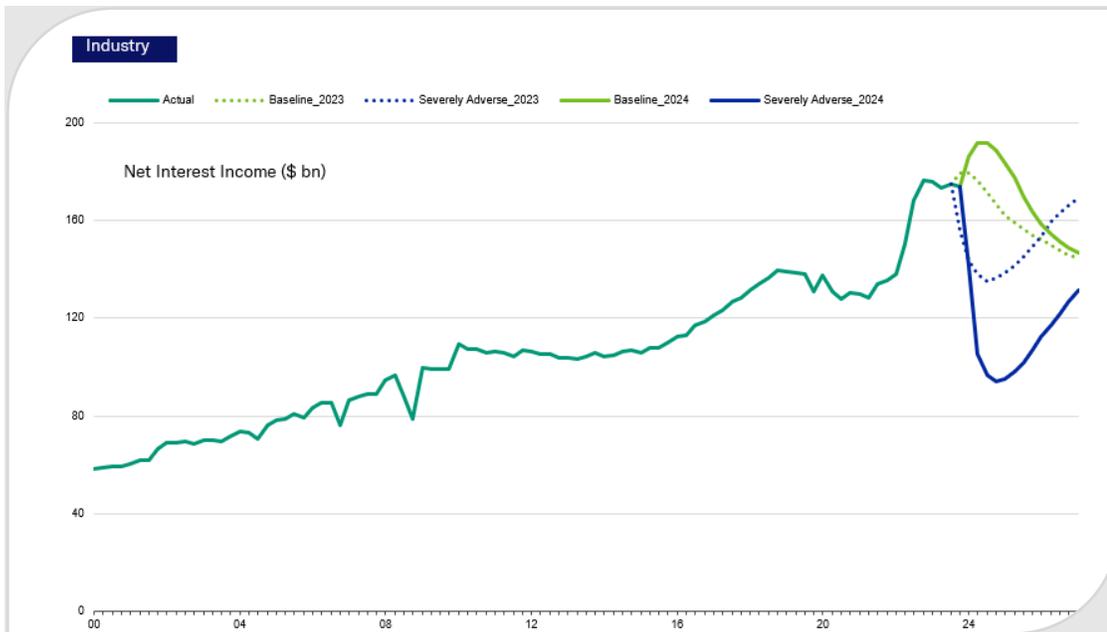
Figure 3 - CCAR Net Loans & Leases (\$Bn)



**Net Interest Income**

Net Interest Income represents interest revenues minus the increasing cost of funding observed since the Federal Reserve began hiking rates in 2022. The impact is very pronounced under the Severely Adverse scenario where the magnitude of rate declines is greater than in previous years. The higher level of rates at the starting point of the forecast (reflecting prevailing rates in 2023Q4), makes the drop more pronounced than in previous years.

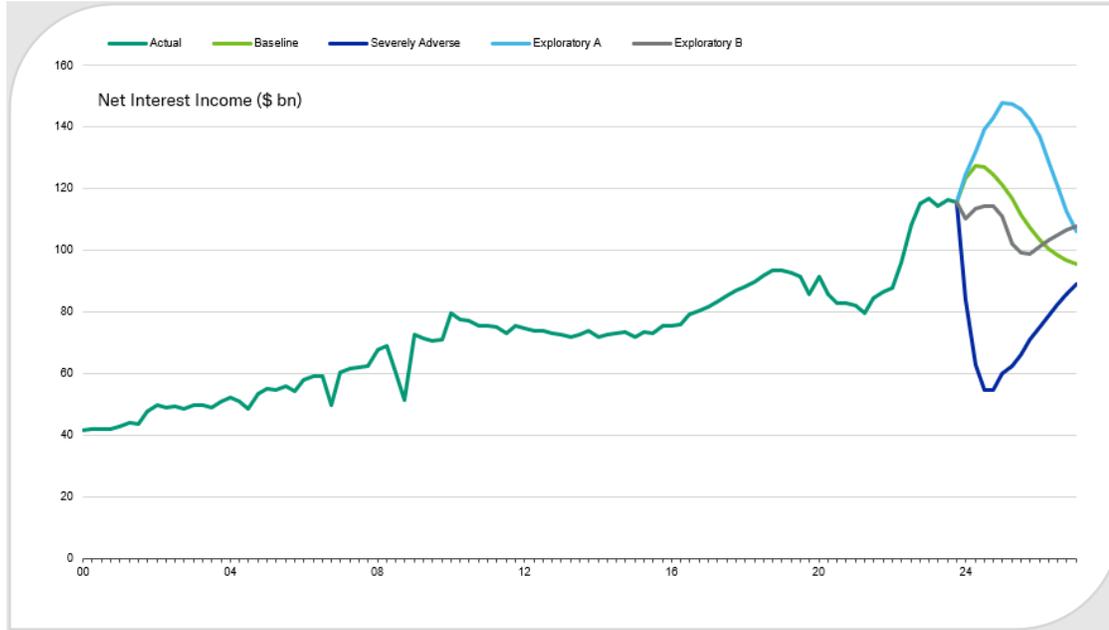
Figure 4 - Industry Net Interest Income (\$Bn)



We observe a similar pattern in CCAR banks as observed in Industry banks across the 2024

Severely Adverse scenario and Exploratory scenarios. The Exploratory A and B scenarios reveal a pattern not captured by the Severely Adverse scenario and that is the effect of higher rates due to the Federal Reserve combating rising inflation more aggressively, especially in the Exploratory A for which rates are kept much higher for much longer than in the Exploratory B scenario.

Figure 5 – CCAR Net Interest Income (\$Bn)



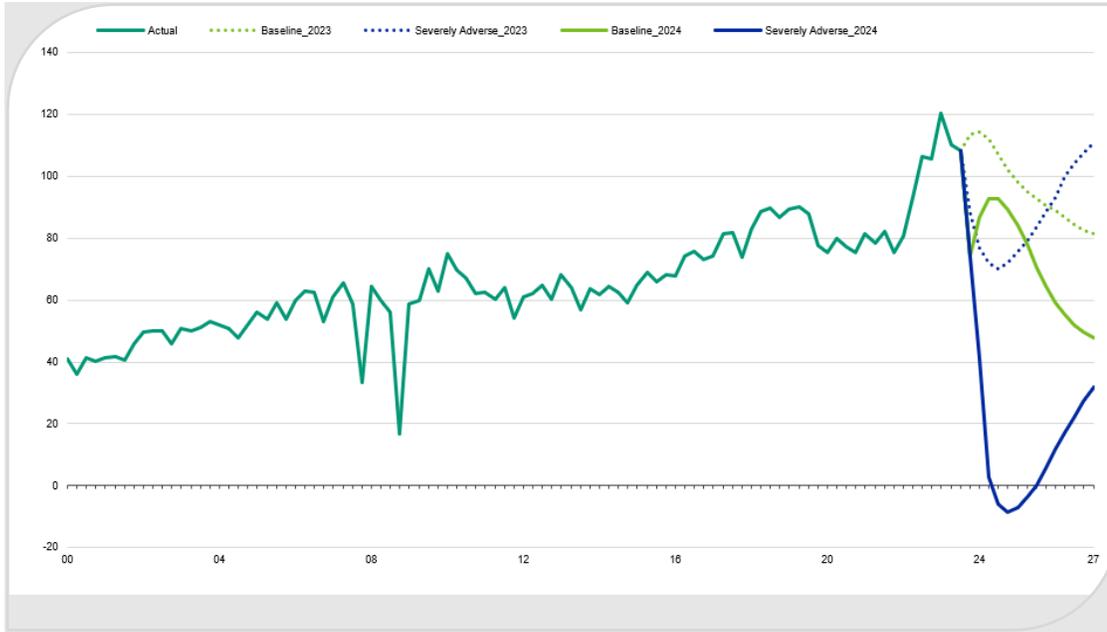
The most important assumption to analyze in your own stress test is asset and liability repricing. The vastly different rate assumptions depicted in each of the scenarios above highlights the significance of interest rate risk in the current environment, and a renewed emphasis of the risk by prudential regulators.

**Pre-provision Net Revenue**

As we’ve highlighted both the challenge of modeling PPNR and the significance of comparison between historic and forecast values to the model result, we present an important illustration of both concepts here. In 2023Q4 there is a significant spike in the noninterest expense component of PPNR in both industry and CCAR results. This spike reflects accruals for an FDIC Special Assessment<sup>7</sup> accrued in December for payment in 2024Q1. The increased expense in historic data magnifies anticipated expenses in the forecast horizon for all scenarios.

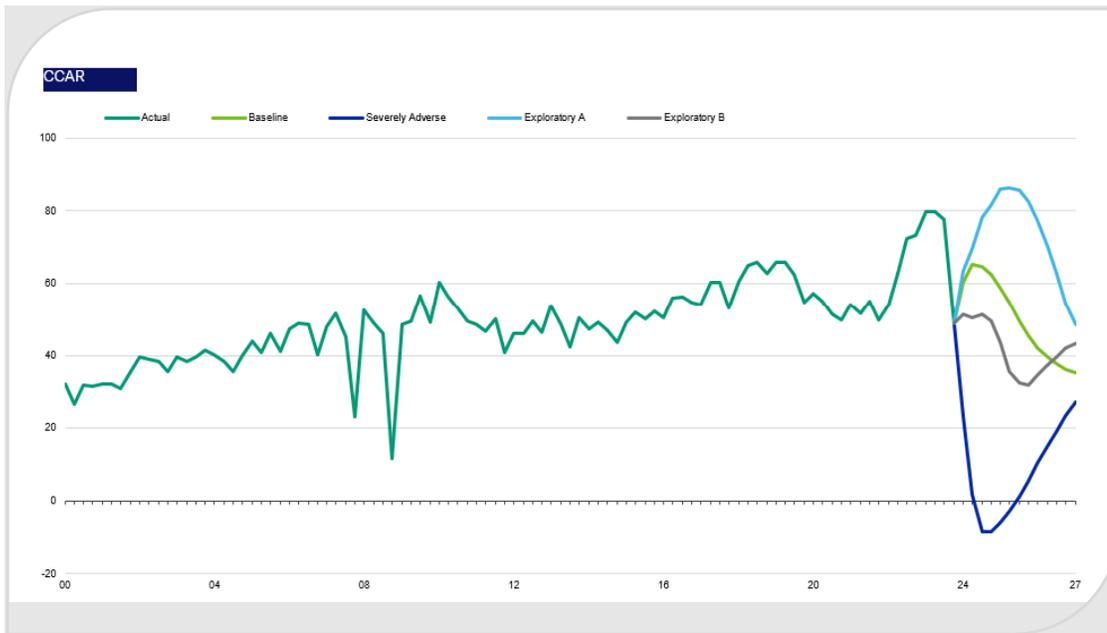
<sup>7</sup> <https://www.fdic.gov/deposit/insurance/assessments/specialassessment-psrd.html>

Figure 6 - Industry Quarterly PPNR (\$Bn)



Variations across the forecast horizon also reflect the effects of asset repricing due to interest rates in each scenario. Rate increases are most prominent in the Exploratory scenarios and have a major impact on resulting PPNR forecasts.

Figure 7 - CCAR Quarterly PPNR (\$Bn)



## Deposits

We look at deposit behavior and emphasize the influence of interest rates on deposit mix (and to benchmark related cost of funds and liquidity assumptions). Consistent with the higher rates reflected in the exploratory scenarios, non-interest deposits dip, whereas the time deposits surge

quite noticeably. We present the dip in non-interest-bearing deposits in Figure 9 vs. the increase in time deposits in Figure 8, respectively. This behavior was never top of mind for previous stress testing cycles but is one that institutions should consider for both strategic impacts, and in anticipation of regulatory questions over the coming exam cycle.

We've emphasized deposit behavior due to its visibility in this excerpt, but the impact of higher rates on bank financials is diverse: higher cost of funds, liquidity and funding impacts should all be considered as part of this cycle.

Figure 8 – Industry Time Deposits (\$Bn)

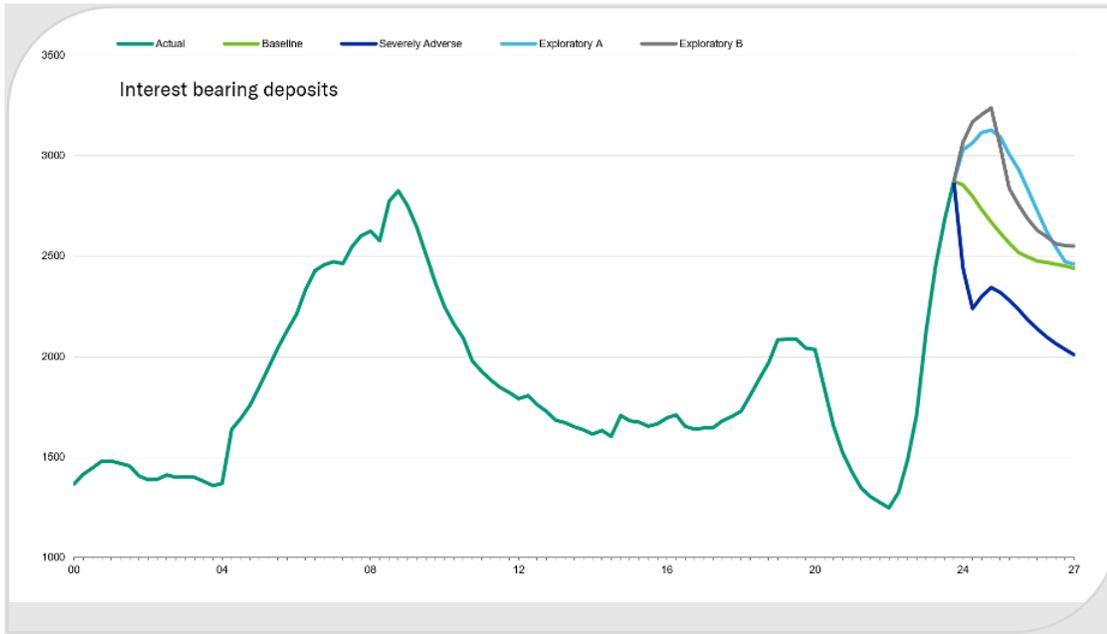
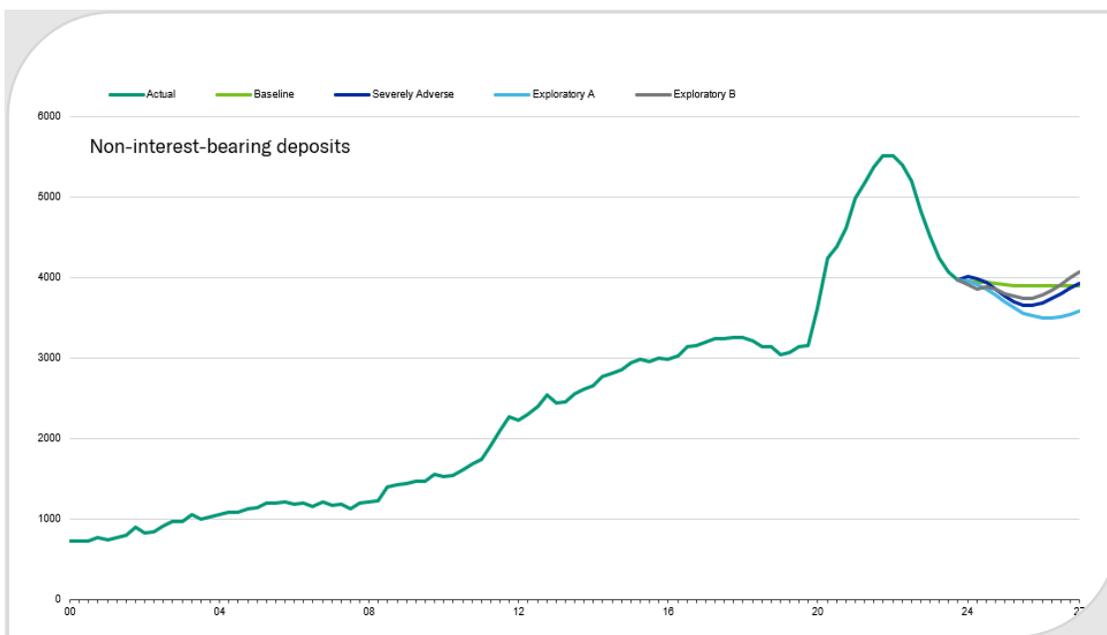


Figure 9 - Industry Non-Interest-Bearing Deposits (\$Bn)



For the CCAR bank segment, the Exploratory scenarios highlight the challenge of managing liquidity and cost of funds in a higher for longer rate environment. The Exploratory A scenario proves to be more stressful than the Severely Adverse scenario leading to higher runoff of non-interest-bearing deposits, but also exemplifies how deposits can jump in a higher rate environment if a bank is willing and able to accept a higher cost of funds.

Figure 10 – CCAR Time Deposits (\$Bn)

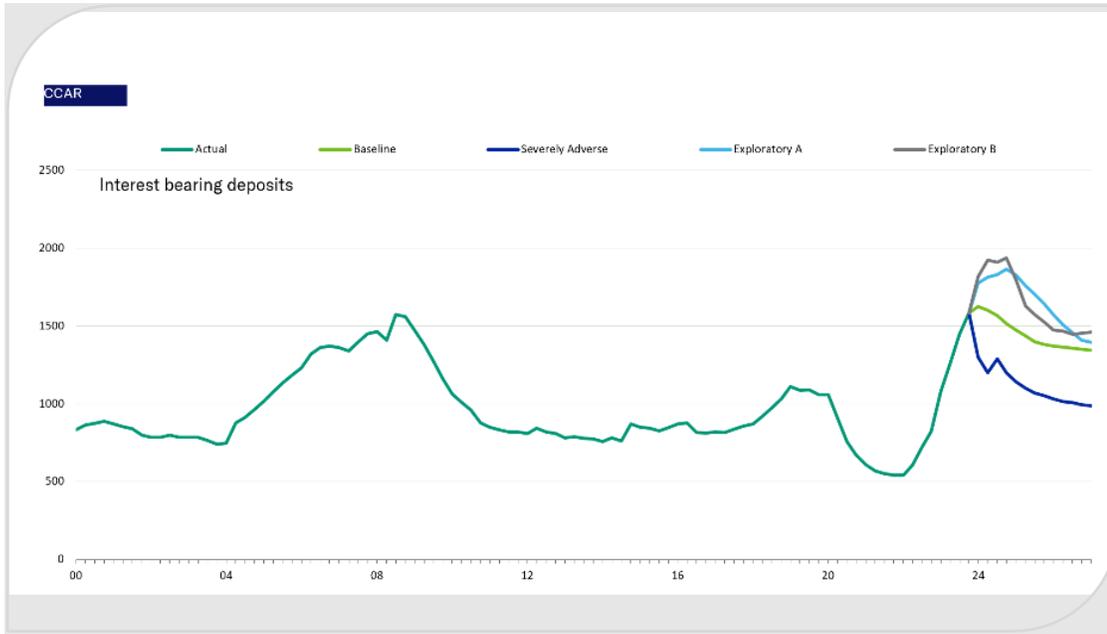
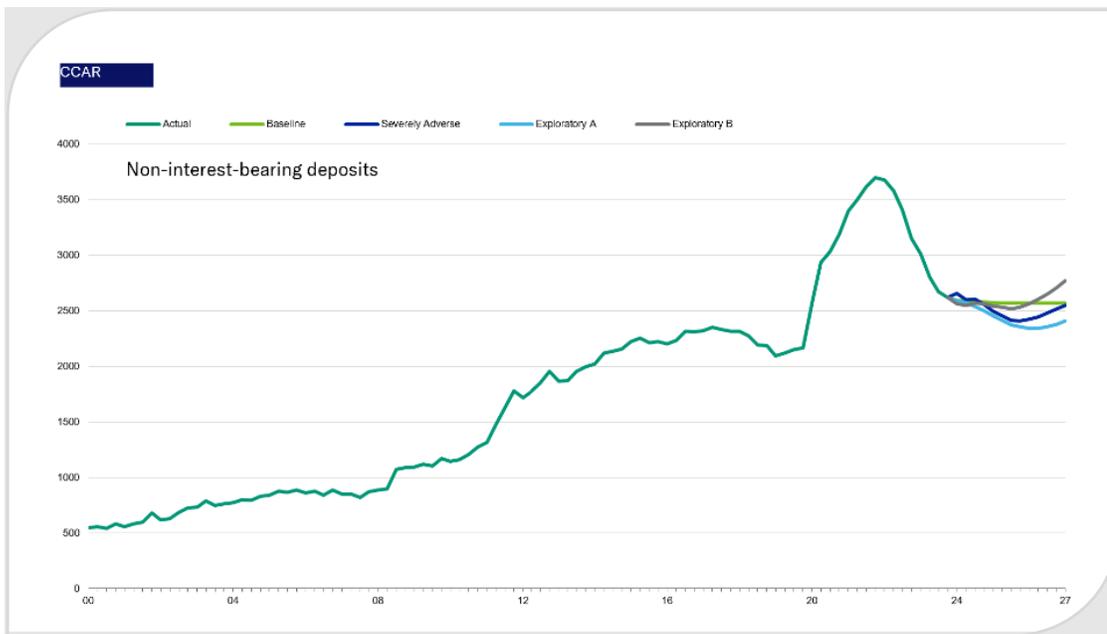


Figure 11 - CCAR Non-Interest-Bearing Deposits (\$Bn)



The strategic modeling and overlay assumptions for the Exploratory scenarios will need to be tightly linked to the ability to give up profit in lieu of a more liquid balance sheet, a balancing act management will need to ponder carefully.

### CCAR Bank Performance Ratios

In this next table we present a summary of CCAR segment results across major financial statement line items, providing a view of historical performance juxtaposed with a view of the 9-quarter averages based on our call report forecast models<sup>8</sup>. This provides good insights for benchmarking your own financial forecasts.

Table 3 - CCAR Banks 9-Quarter Average Performance by Scenario

|                                       | 2024Q1:2026Q4 Average |                  |               |               | Most Adverse |        |
|---------------------------------------|-----------------------|------------------|---------------|---------------|--------------|--------|
|                                       | Baseline              | Severely Adverse | Exploratory A | Exploratory B | Value        | Period |
| <b>ASSET QUALITY</b>                  |                       |                  |               |               |              |        |
| Allowance Credit Losses / Gross Loans | 1.94                  | 3.16             | 2.40          | 2.92          | 3.60         | 2025Q3 |
| Provision / Gross Loans               | 0.24                  | 0.53             | 0.34          | 0.48          | 0.66         | 2024Q3 |
| Net Charge Offs:                      |                       |                  |               |               |              |        |
| <i>Credit Cards</i>                   | 1.10                  | 1.89             | 1.35          | 1.70          | 2.20         | 2026Q1 |
| <i>Auto</i>                           | 0.32                  | 0.45             | 0.37          | 0.43          | 0.51         | 2025Q3 |
| <i>Residential RE</i>                 | 0.01                  | 0.09             | 0.04          | 0.10          | 0.17         | 2026Q1 |
| <i>C&amp;I</i>                        | 0.18                  | 0.48             | 0.28          | 0.34          | 0.66         | 2025Q3 |
| <i>CRE</i>                            | 0.10                  | 0.40             | 0.19          | 0.37          | 0.60         | 2026Q1 |
| <i>Total Loans</i>                    | 0.23                  | 0.46             | 0.30          | 0.40          | 0.57         | 2026Q1 |
| <b>CAPITAL ADEQUACY</b>               |                       |                  |               |               |              |        |
| Core Capital Ratio                    | 8.65                  | 9.35             | 8.84          | 8.82          | 8.47         | 2024Q1 |
| Total Risk Based Capital              | 16.00                 | 16.18            | 16.43         | 16.20         | 14.31        | 2024Q1 |
| <b>LIQUIDITY</b>                      |                       |                  |               |               |              |        |
| Cash & Balances / Assets              | 14.39                 | 17.01            | 15.13         | 16.09         | 14.02        | 2026Q4 |
| Securities / Assets                   | 24.68                 | 27.75            | 24.98         | 26.20         | 24.09        | 2024Q2 |
| Gross Loans / Assets                  | 47.54                 | 43.45            | 46.87         | 45.09         | 48.04        | 2026Q4 |
| Loans / Deposits                      | 59.32                 | 51.95            | 57.98         | 54.71         | 59.45        | 2026Q4 |
| <b>PROFITABILITY</b>                  |                       |                  |               |               |              |        |
| Return on Assets                      | 0.16                  | -0.15            | 0.25          | 0.03          | -0.26        | 2024Q3 |

<sup>8</sup> Detailed results are available for up to 140 different line items for the balance sheet, income statement and some performance measures like delinquencies assumptions, etc.

|                                   |      |       |      |      |       |        |
|-----------------------------------|------|-------|------|------|-------|--------|
| Net Income / Risk Weighted Assets | 0.27 | -0.25 | 0.42 | 0.06 | -0.42 | 2024Q3 |
|-----------------------------------|------|-------|------|------|-------|--------|

Table 4 - CCAR Banks Sector Average by Historic Period

|                                       | Quarterly End of Period |        |        |        |        |
|---------------------------------------|-------------------------|--------|--------|--------|--------|
|                                       | 2022Q4                  | 2023Q1 | 2023Q2 | 2023Q3 | 2023Q4 |
| <b>ASSET QUALITY</b>                  |                         |        |        |        |        |
| Allowance Credit Losses / Gross Loans | 1.72                    | 1.77   | 1.84   | 1.88   | 1.91   |
| Provision / Gross Loans               | 0.20                    | 0.20   | 0.22   | 0.19   | 0.24   |
| Net Charge-offs:                      |                         |        |        |        |        |
| <i>Credit Cards</i>                   | 0.54                    | 0.71   | 0.78   | 0.83   | 0.94   |
| <i>Auto</i>                           | 0.31                    | 0.23   | 0.23   | 0.27   | 0.34   |
| <i>Residential RE</i>                 | -0.01                   | 0.00   | 0.00   | 0.00   | 0.00   |
| <i>C&amp;I</i>                        | 0.06                    | 0.06   | 0.07   | 0.08   | 0.10   |
| <i>CRE</i>                            | 0.01                    | 0.04   | 0.11   | 0.06   | 0.14   |
| <i>Total Loans</i>                    | 0.11                    | 0.13   | 0.15   | 0.15   | 0.20   |
| <b>CAPITAL ADEQUACY</b>               |                         |        |        |        |        |
| Core Capital Ratio                    | 8.54                    | 8.68   | 8.67   | 8.84   | 8.65   |
| Total Risk Based Capital              | 15.30                   | 15.43  | 15.54  | 15.77  | 15.61  |
| <b>LIQUIDITY</b>                      |                         |        |        |        |        |
| Cash & Balances / Assets              | 13.27                   | 13.99  | 13.65  | 13.73  | 14.34  |
| Securities / Assets                   | 25.76                   | 24.85  | 24.38  | 23.96  | 24.39  |
| Gross Loans / Assets                  | 45.84                   | 45.27  | 46.03  | 46.19  | 46.01  |
| Loans / Deposits                      | 56.68                   | 57.75  | 58.35  | 58.95  | 58.39  |
| <b>PROFITABILITY</b>                  |                         |        |        |        |        |
| Return on Assets                      | 0.28                    | 0.30   | 0.30   | 0.31   | 0.14   |
| Net Income / Risk Weighted Assets     | 0.46                    | 0.50   | 0.50   | 0.51   | 0.24   |

### Net Charge-offs Benchmark

Lastly, we present a comparison of net charge off rates by loan type for each of the 2024 scenarios juxtaposed with CCAR bank loss rates realized during the Financial Crisis. These can be useful for benchmarking your own stress test and capital plan and report to your executive team the effect of a CCAR-like impact on your financial position. These rates can be used to

derive an early view of the potential impact of the CCAR scenarios ahead of the Federal Reserve results release. What should be noted in Table 5, is the rate of NCO for Junior Liens under the Severely Adverse scenario which jumps to 34.16% and is over 3x that experienced during the Financial Crisis.

Table 5 - CCAR NCO to Total Loans by Loan Type (%)

| Loan Types              | Great Recession                    | Severely Adverse Scenario             | Exploratory Scenario A             | Exploratory Scenario B             |
|-------------------------|------------------------------------|---------------------------------------|------------------------------------|------------------------------------|
|                         | 2008Q1 : 2010Q1                    | 2024Q1 : 2026Q1 9 Quarters Cumulative |                                    |                                    |
|                         | Cumulative Net Charge-off Rate (%) | Cumulative Net Charge-off Rate (%)    | Cumulative Net Charge-off Rate (%) | Cumulative Net Charge-off Rate (%) |
| Auto Loans              | NA                                 | 4.16                                  | 3.34                               | 3.96                               |
| C&I Loans               | 4.2                                | 4.19                                  | 2.36                               | 3.52                               |
| Other Consumer Loans    | 7                                  | 7.34                                  | 5.8                                | 6.71                               |
| Credit Card             | 17.9                               | 16.21                                 | 11.72                              | 14.33                              |
| 1-4 Family Residential  | 14.9                               | 7.04                                  | 2.42                               | 5.14                               |
| Other Construction      | 8.1                                | 3.61                                  | 0.93                               | 2.94                               |
| HELOCs                  | 5.7                                | 2.16                                  | 0.06                               | 1.19                               |
| MultiFamily             | 1.9                                | 0.83                                  | 0.38                               | 0.84                               |
| NonFarm Non Residential | 1.7                                | 5.99                                  | 3.33                               | 5.19                               |
| Owner Occupied NF NR    | 1.1                                | 1.16                                  | 0.16                               | 0.31                               |
| Junior Liens            | 11.8                               | 34.16                                 | 6.77                               | 14.47                              |
| First Liens             | 2.6                                | 0.4                                   | 0.21                               | 0.46                               |

## CONCLUSION

While CCAR is designed for large banks, its principles and practices provide multiple points of comparison for any financial institution to ensure financial stability, confident strategic direction, and sound risk management. We do not presume to have covered every CCAR or financial forecasting question you face, but have illustrated several key aspects of the task:

- The importance of benchmarking and scenario analysis to multiple aspects of bank management;
- How readily available tools enable a sharper understanding of multi-scenario financial performance of the industry, peer groups and individual firms;
- How supervisory emphasis has evolved in response to market disruptions in the spring of 2023 and the current interest rate environment.

Confident decisions and resilient strategies separate good bankers from all the rest. Scenario analysis and benchmarking add important dimensionality to stress testing, budgeting, strategic and capital planning. An empirical anchor for expert judgment is both accessible and a competitive imperative in an evolving risk environment—no matter the size of your institution. Whether you are beginning the journey, or at an advanced stage, CCAR best practices provide a roadmap for robust risk management and governance, developing stress scenarios, using models for projections, involving the board and management in the process, and maintaining detailed documentation and auditability.



In addition, CCAR provides a solid benchmark for your internal capital plan and stress test review and challenge process. Moody's provides an early benchmark for CCAR results<sup>9</sup> on industry and CCAR banks segments prior to the release of the official results.

If you'd like to understand how these best practices can be implemented for your bank's own scale, provide insights, creating operating leverage and enhanced resilience for your institution. Please contact us.

## GLOSSARY OF TERMS AND ABBREVIATIONS

- *CCAR* – Comprehensive Capital Analysis and Review; assesses whether banks are sufficiently capitalized to absorb losses during stressful conditions while meeting obligations to creditors and counterparties and continuing to be able to lend to households and businesses.
- *CRF* – Call Report Forecast; Comprehensive series of models that provide a objective approach for measuring the effects of macroeconomic variables on income and balance sheet projections.
- *PPNR* – Pre-Provision Net Revenue, defined for CCAR purposes as net interest income (interest income minus interest expense) plus noninterest income minus noninterest expense, including losses from operational-risk events and OREO expenses.

---

<sup>9</sup> We provide a table in the appendix of some important balance sheet items forecast, in addition to the ones discussed within the paper.

## APPENDIX

Table 6 – Industry Segment 13-Quarter Forecast

| Description   | 2023Q4         | 2024Q1         | 2024Q2         | 2024Q3         | 2024Q4         | 2025Q1         | 2025Q2         |
|---|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Fed CCAR 2023: Severely adverse: Total assets; (Ths. USD)                                     | 23,778,114,757 | 23,308,820,685 | 22,720,571,944 | 22,238,663,450 | 21,799,828,082 | 21,449,123,890 | 21,247,834,983 |
| Fed CCAR 2023: Severely adverse: Cash & Balances due from depository institutions; (Ths. USD) | 2,892,560,304  | 3,091,288,175  | 3,217,263,099  | 3,381,967,144  | 3,519,153,596  | 3,549,965,450  | 3,517,639,852  |
| Fed CCAR 2023: Severely adverse: Total deposits; (Ths. USD)                                   | 18,872,396,153 | 18,722,428,844 | 18,395,670,153 | 18,124,935,632 | 17,862,853,459 | 17,636,560,827 | 17,515,209,349 |
| Fed CCAR 2023: Severely adverse: Total interest expense; (Ths. USD)                           | 135,061,177    | 141,146,451    | 139,249,238    | 118,062,398    | 98,157,960     | 80,969,605     | 68,195,038     |
| Fed CCAR 2023: Severely adverse: Provision for loan and lease losses; (Ths. USD)              | 24,640,478     | 58,386,894     | 40,405,253     | 55,888,867     | 51,936,615     | 48,079,382     | 47,582,497     |
| Fed CCAR 2023: Severely adverse: Total equity capital; (Ths. USD)                             | 2,297,215,043  | 2,248,289,522  | 2,229,460,415  | 2,208,103,863  | 2,188,462,728  | 2,184,297,722  | 2,184,738,653  |
| Fed CCAR 2023: Severely adverse: Income before extraordinary items; (Ths. USD)                | 37,510,518     | (16,637,366)   | (34,377,497)   | (54,083,877)   | (53,021,966)   | (48,347,247)   | (45,088,421)   |
| Fed CCAR 2023: Severely adverse: Pre-tax net operating income; (Ths. USD)                     | 49,750,227     | (17,008,727)   | (37,665,033)   | (61,726,170)   | (60,647,135)   | (55,234,588)   | (51,404,016)   |
| Fed CCAR 2023: Severely adverse: Total interest income; (Ths. USD)                            | 309,109,386    | 283,002,929    | 244,452,408    | 214,711,791    | 192,085,354    | 176,225,155    | 166,187,849    |
| Fed CCAR 2023: Severely adverse: Total Liabilities; (Ths. USD)                                | 21,480,899,714 | 21,060,531,163 | 20,491,111,529 | 20,030,559,587 | 19,611,365,354 | 19,264,826,168 | 19,063,096,330 |
| Fed CCAR 2023: Severely adverse: Loan loss allowance; (Ths. USD)                              | 217,805,088    | 253,187,550    | 269,730,499    | 295,588,255    | 313,783,745    | 323,989,033    | 330,036,154    |
| Fed CCAR 2023: Severely adverse: Consumer Loans - Auto; (Ths. USD)                            | 530,379,082    | 521,350,866    | 512,218,963    | 513,302,839    | 514,612,085    | 524,143,451    | 537,414,526    |
| Fed CCAR 2023: Severely adverse: Credit card loans; (Ths. USD)                                | 1,116,822,085  | 1,062,368,632  | 993,825,491    | 938,089,471    | 943,163,995    | 899,358,257    | 869,793,056    |
| Fed CCAR 2023: Severely adverse: Total loans and leases; (Ths. USD)                           | 12,505,682,201 | 11,726,767,238 | 11,130,109,459 | 10,671,690,988 | 10,332,432,086 | 10,081,175,463 | 9,937,883,252  |
| Fed CCAR 2023: Severely adverse: Net loans and leases; (Ths. USD)                             | 12,287,877,113 | 11,592,680,595 | 10,919,220,926 | 10,387,524,285 | 10,003,038,823 | 9,753,301,357  | 9,643,132,204  |
| Fed CCAR 2023: Severely adverse: Noncurrent loans and leases; (Ths. USD)                      | 107,664,129    | 182,360,426    | 220,115,803    | 268,187,679    | 312,264,514    | 340,313,064    | 363,776,287    |
| Fed CCAR 2023: Severely adverse: Net income; (Ths. USD)                                       | 38,241,327     | (16,795,501)   | (34,845,496)   | (54,917,597)   | (54,163,177)   | (49,673,437)   | (46,493,528)   |
| Fed CCAR 2023: Severely adverse: Net interest income; (Ths. USD)                              | 174,048,209    | 141,856,478    | 105,203,171    | 96,649,393     | 93,927,394     | 95,255,550     | 97,992,811     |
| Fed CCAR 2023: Severely adverse: Total noninterest income; (Ths. USD)                         | 67,470,923     | 65,195,093     | 61,521,253     | 59,897,384     | 58,301,418     | 57,404,472     | 57,298,517     |
| Fed CCAR 2023: Severely adverse: Total noninterest expense; (Ths. USD)                        | 167,128,427    | 165,673,404    | 163,984,204    | 162,384,079    | 160,939,331    | 159,815,229    | 159,112,846    |
| Fed CCAR 2023: Severely adverse: Auto Loans - Net charge-offs; (Ths. USD)                     | 1,660,290      | 1,749,836      | 1,597,496      | 1,974,413      | 2,069,603      | 2,087,905      | 2,057,998      |
| Fed CCAR 2023: Severely adverse: Credit card loans - Net charge-offs; (Ths. USD)              | 11,258,223     | 11,677,798     | 11,384,200     | 12,586,681     | 13,461,520     | 15,263,953     | 16,515,355     |
| Fed CCAR 2023: Severely adverse: Net Charge-offs; (Ths. USD)                                  | 20,094,930     | 23,004,432     | 23,862,304     | 30,031,111     | 33,741,124     | 37,874,095     | 41,535,376     |
| Fed CCAR 2023: Severely adverse: Total securities; (Ths. USD)                                 | 5,443,875,761  | 5,575,602,159  | 5,747,837,888  | 5,761,415,826  | 5,692,770,095  | 5,659,616,483  | 5,658,533,013  |

| Description   | 2025Q3         | 2025Q4         | 2026Q1         | 2026Q2         | 2026Q3         | 2026Q4         | 2027Q1         |
|---|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Fed CCAR 2023: Severely adverse: Total assets; (Ths. USD)                                     | 21,143,131,581 | 21,299,479,923 | 21,559,685,705 | 21,839,615,463 | 22,125,857,541 | 22,431,328,382 | 22,723,574,552 |
| Fed CCAR 2023: Severely adverse: Cash & Balances due from depository institutions; (Ths. USD) | 3,475,373,033  | 3,357,963,722  | 3,280,416,638  | 3,250,241,486  | 3,248,776,908  | 3,267,193,508  | 3,293,751,502  |
| Fed CCAR 2023: Severely adverse: Total deposits; (Ths. USD)                                   | 17,463,521,530 | 17,601,684,963 | 17,824,841,023 | 18,061,674,889 | 18,302,486,586 | 18,559,714,652 | 18,804,782,533 |
| Fed CCAR 2023: Severely adverse: Total interest expense; (Ths. USD)                           | 58,668,867     | 51,385,853     | 45,970,956     | 41,821,955     | 38,515,184     | 35,883,850     | 33,753,511     |
| Fed CCAR 2023: Severely adverse: Provision for loan and lease losses; (Ths. USD)              | 46,865,394     | 41,726,279     | 42,075,527     | 37,215,597     | 36,055,270     | 34,167,900     | 30,225,513     |
| Fed CCAR 2023: Severely adverse: Total equity capital; (Ths. USD)                             | 2,189,813,713  | 2,210,778,746  | 2,235,889,542  | 2,267,944,071  | 2,305,124,489  | 2,342,278,144  | 2,378,464,800  |
| Fed CCAR 2023: Severely adverse: Income before extraordinary items; (Ths. USD)                | (40,936,585)   | (31,781,364)   | (26,766,741)   | (18,213,328)   | (12,898,330)   | (6,672,931)    | 743,226        |
| Fed CCAR 2023: Severely adverse: Pre-tax net operating income; (Ths. USD)                     | (46,630,709)   | (36,033,466)   | (30,180,794)   | (20,139,722)   | (13,940,276)   | (6,770,502)    | 1,819,740      |
| Fed CCAR 2023: Severely adverse: Total interest income; (Ths. USD)                            | 160,356,005    | 158,215,891    | 158,330,329    | 158,966,831    | 160,320,257    | 162,674,554    | 164,958,208    |
| Fed CCAR 2023: Severely adverse: Total Liabilities; (Ths. USD)                                | 18,953,317,868 | 19,088,701,178 | 19,323,796,163 | 19,571,671,392 | 19,820,733,052 | 20,089,050,238 | 20,345,109,752 |
| Fed CCAR 2023: Severely adverse: Loan loss allowance; (Ths. USD)                              | 333,067,721    | 329,322,534    | 324,902,395    | 317,181,009    | 310,302,186    | 304,178,470    | 296,451,158    |
| Fed CCAR 2023: Severely adverse: Consumer Loans - Auto; (Ths. USD)                            | 547,377,362    | 560,169,438    | 573,410,093    | 584,037,302    | 593,329,598    | 599,119,942    | 608,247,448    |
| Fed CCAR 2023: Severely adverse: Credit card loans; (Ths. USD)                                | 842,686,157    | 890,933,073    | 882,169,194    | 875,251,870    | 871,000,397    | 928,032,634    | 922,457,387    |
| Fed CCAR 2023: Severely adverse: Total loans and leases; (Ths. USD)                           | 9,831,987,005  | 9,949,118,184  | 10,102,597,633 | 10,257,074,580 | 10,415,646,919 | 10,587,679,416 | 10,750,891,174 |
| Fed CCAR 2023: Severely adverse: Net loans and leases; (Ths. USD)                             | 9,590,307,139  | 9,780,093,863  | 10,002,577,207 | 10,206,751,668 | 10,400,723,045 | 10,598,459,645 | 10,782,872,030 |
| Fed CCAR 2023: Severely adverse: Noncurrent loans and leases; (Ths. USD)                      | 382,385,435    | 373,843,543    | 361,819,341    | 342,130,398    | 321,634,163    | 303,240,392    | 280,060,053    |
| Fed CCAR 2023: Severely adverse: Net income; (Ths. USD)                                       | (42,377,038)   | (33,103,760)   | (27,962,686)   | (19,278,394)   | (13,849,321)   | (7,536,018)    | (12,292)       |
| Fed CCAR 2023: Severely adverse: Net interest income; (Ths. USD)                              | 101,687,138    | 106,830,038    | 112,359,373    | 117,144,877    | 121,805,073    | 126,790,704    | 131,204,697    |
| Fed CCAR 2023: Severely adverse: Total noninterest income; (Ths. USD)                         | 57,373,702     | 58,471,797     | 60,416,170     | 62,350,351     | 64,403,238     | 66,484,788     | 68,568,076     |
| Fed CCAR 2023: Severely adverse: Total noninterest expense; (Ths. USD)                        | 158,826,155    | 159,609,022    | 160,880,811    | 162,419,352    | 164,093,317    | 165,878,094    | 167,727,520    |
| Fed CCAR 2023: Severely adverse: Auto Loans - Net charge-offs; (Ths. USD)                     | 2,395,611      | 2,496,482      | 2,331,665      | 2,148,593      | 2,381,320      | 2,389,508      | 2,174,007      |
| Fed CCAR 2023: Severely adverse: Credit card loans - Net charge-offs; (Ths. USD)              | 17,045,177     | 17,585,874     | 17,860,357     | 17,652,482     | 17,400,305     | 17,049,687     | 16,914,139     |
| Fed CCAR 2023: Severely adverse: Net Charge-offs; (Ths. USD)                                  | 43,833,827     | 45,471,465     | 46,495,666     | 44,936,984     | 42,934,093     | 40,291,615     | 37,952,825     |
| Fed CCAR 2023: Severely adverse: Total securities; (Ths. USD)                                 | 5,680,598,215  | 5,751,617,527  | 5,830,341,510  | 5,898,164,775  | 5,959,033,609  | 6,016,713,974  | 6,065,942,097  |

## REFERENCES

Range of current practices - <https://www.federalreserve.gov/bankinfo/bcreg20130819a1.pdf>

Library of CCAR documents - <https://www.federalreserve.gov/supervisionreg/stress-tests-capital-planning.htm>

CCAR historical exercises - <https://www.federalreserve.gov/supervisionreg/ccar-by-year.htm>

Bank CRF results for 2024 cycle – please contact the authors

Credit Union results for 2024 cycle – please contact the authors

CCAR 2024 results - <https://www.federalreserve.gov/publications/files/2024-dfast-results-20240626.pdf>

### CONTACT US

For more information on Moody's Balance Sheet Risk Management, please visit us [here](#).

For Moody's Capital Management, please visit us [here](#).

#### AMERICAS

+1.212.123.4567

[clientservices@moodys.com](mailto:clientservices@moodys.com)

#### EMEA

+44.20.1234.5678

[clientservices.emea@moodys.com](mailto:clientservices.emea@moodys.com)

#### ASIA (Excluding Japan)

+852.1234.5678

[clientservices.asia@moodys.com](mailto:clientservices.asia@moodys.com)

#### JAPAN

+81.1234.5678

[clientservices.japan@moodys.com](mailto:clientservices.japan@moodys.com)

© 2024 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

CREDIT RATINGS ISSUED BY MOODY'S CREDIT RATINGS AFFILIATES ARE THEIR CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED OR OTHERWISE MADE AVAILABLE BY MOODY'S (COLLECTIVELY, "MATERIALS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE APPLICABLE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S MATERIALS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S MATERIALS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES OR OTHERWISE MAKES AVAILABLE ITS MATERIALS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND MATERIALS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR MATERIALS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT. FOR CLARITY, NO INFORMATION CONTAINED HEREIN MAY BE USED TO DEVELOP, IMPROVE, TRAIN OR RETRAIN ANY SOFTWARE PROGRAM OR DATABASE, INCLUDING, BUT NOT LIMITED TO, FOR ANY ARTIFICIAL INTELLIGENCE, MACHINE LEARNING OR NATURAL LANGUAGE PROCESSING SOFTWARE, ALGORITHM, METHODOLOGY AND/OR MODEL.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the credit rating process or in preparing its Materials.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it. MCO and Moody's Investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service, Inc. and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at [www.moody.com](http://www.moody.com) under the heading "Investor Relations — Corporate Governance — Charter Documents - Director and Shareholder Affiliation Policy."

Moody's SF Japan K.K., Moody's Local AR Agente de Calificación de Riesgo S.A., Moody's Local BR Agência de Classificação de Risco LTDA, Moody's Local MX S.A. de C.V. I.C.V., Moody's Local PE Clasificadora de Riesgo S.A., and Moody's Local PA Clasificadora de Riesgo S.A. (collectively, the "Moody's Non-NRSRO CRAs") are all indirectly wholly-owned credit rating agency subsidiaries of MCO. None of the Moody's Non-NRSRO CRAs is a Nationally Recognized Statistical Rating Organization.

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657 AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for India only: Moody's credit ratings, Assessments, other opinions and Materials are not intended to be and shall not be relied upon or used by any users located in India in relation to securities listed or proposed to be listed on Indian stock exchanges.

Additional terms with respect to Second Party Opinions (as defined in Moody's Investors Service Rating Symbols and Definitions): Please note that a Second Party Opinion ("SPO") is not a "credit rating". The issuance of SPOs is not a regulated activity in many jurisdictions, including Singapore. JAPAN: In Japan, development and provision of SPOs fall under the category of "Ancillary Businesses", not "Credit Rating Business", and are not subject to the regulations applicable to "Credit Rating Business" under the Financial Instruments and Exchange Act of Japan and its relevant regulation. PRC: Any SPO: (1) does not constitute a PRC Green Bond Assessment as defined under any relevant PRC laws or regulations; (2) cannot be included in any registration statement, offering circular, prospectus or any other documents submitted to the PRC regulatory authorities or otherwise used to satisfy any PRC regulatory disclosure requirement; and (3) cannot be used within the PRC for any regulatory purpose or for any other purpose which is not permitted under relevant PRC laws or regulations. For the purposes of this disclaimer, "PRC" refers to the mainland of the People's Republic of China, excluding Hong Kong, Macau and Taiwan.