Federal Reserve CCAR Residential Mortgage Stress Testing Evolution

2019-2025 Analysis

*Model Validation Assessment Report*

September 25, 2025

# Executive Summary

The Federal Reserve's approach to residential mortgage stress testing has demonstrated **remarkable methodological consistency** while adapting to unprecedented economic conditions and implementing significant regulatory framework changes. Despite major disruptions from COVID-19 and the introduction of the stress capital buffer (SCB), core modeling approaches have remained stable with targeted refinements rather than fundamental overhauls.

**Key Finding:** The Federal Reserve maintained consistent modeling frameworks throughout 2019-2025, with only three material changes: enhanced interest rate sensitivity for fair-value mortgages (2022), COVID-19 data adjustments (2024), and the transformative SCB implementation (2020).

# Core Methodology Analysis

## Expected Loss Modeling Framework

The Federal Reserve's **expected-loss modeling framework** for domestic first-lien residential mortgages has maintained extraordinary consistency from 2019 through 2024. The core architecture continues to employ sophisticated competing-risks modeling using five binomial logit models that capture transitions between payment statuses:

* Current (≤89 days past due)
* Impaired (90-179 days past due)
* Default (180+ days past due)
* Paid off

## Loss Given Default Approach

The **Loss Given Default approach** has remained unchanged, utilizing a two-model framework combining a liquidation timeline model and loss severity model. This approach separately estimates timing between default and liquidation, with distinct modeling for judicial versus non-judicial foreclosure states, followed by loss severity calculations incorporating loan characteristics, house price trajectories, and geographic risk factors.

## Critical Model Variables

**Critical variables** driving the models have remained consistent:

* Interest rate type (fixed versus adjustable)
* Loan-to-value ratio at origination
* Borrower credit score
* House prices at state and county levels
* Unemployment rates
* Comprehensive interest rate scenarios covering 3-month Treasury, 10-year Treasury, and mortgage rates

The 13-quarter projection horizon covering the 9-quarter stress period plus 4-quarter allowance coverage has been maintained throughout.

## 2024 Model Update

The 2024 model update represented the **most significant methodology change** in the analysis period. The first-lien mortgage model was re-estimated to control for anomalous macroeconomic data variations observed during the COVID-19 pandemic. This re-estimation was designed to maintain appropriate risk sensitivity while accounting for unprecedented market distortions that could otherwise skew model predictions.

# Supervisory Scenarios

## Unemployment Rate Assumptions

**Unemployment rate assumptions** in severely adverse scenarios have demonstrated remarkable consistency, with peak unemployment set at **10 percent in six of seven years** analyzed. Only the 2021 scenario reached 10.75%, reflecting heightened COVID-19 uncertainty. This consistency appears anchored to Great Recession precedent and provides banks with predictable stress parameters for capital planning.

The unemployment increases have varied based on starting conditions, ranging from 3.2 percentage points (2020) to 6.5 percentage points (2023), with the Federal Reserve's Scenario Design Framework driving larger increases when starting unemployment rates are lower.

## House Price Stress Assumptions

**House price stress assumptions** have maintained severe but plausible decline patterns. The 2024 severely adverse scenario projects a **36 percent decline** in house prices from fourth quarter 2023 through the third quarter 2025, with prices reaching their trough about 36 percent below starting levels. The 2023 scenario featured a 38 percent decline, while historical scenarios have generally ranged from 30-40 percent declines, demonstrating consistency in residential real estate stress calibration.

## Interest Rate Scenarios

**Interest rate scenarios** have adapted to changing baseline conditions while maintaining stress severity. The 2024 scenario projects 3-month Treasury rates falling to 0.1 percent and remaining there through the scenario conclusion, while 10-year Treasury yields decline 3.7 percentage points to 0.8 percent before gradually rising to 1.5 percent by scenario end. Corporate bond spreads widen dramatically, with BBB-rated bonds reaching spreads of 5.8 percentage points over Treasuries by Q4 2024.

# FR Y-14M Reporting Evolution

The most significant structural change was **mandatory inclusion of covered savings and loan holding companies** effective June 30, 2020. This expanded the reporting universe to include SLHCs with $100 billion or more in total consolidated assets, implementing tailored supervision requirements under Dodd-Frank.

## COVID-19 Reporting Modifications

**COVID-19 reporting modifications** introduced specific guidance for forbearance program treatment during 2020-2021. Firms were required to continue reporting actual payment due dates rather than adjusted forbearance dates, while using loss mitigation status fields to identify forbearance arrangements. Active borrowers meeting forbearance plan terms were coded as "performing" while those delinquent before forbearance remained "non-performing."

## Troubled Debt Restructuring

**Troubled Debt Restructuring reporting** was fundamentally altered effective January 2023 following FASB ASU 2022-02. The Federal Reserve discontinued requirements for TDR Flag (Field 96) and TDR Date (Field 55) reporting for firms adopting the new accounting standard, while legacy TDR treatment continued for non-adopting institutions.

# Stress Capital Buffer Implementation

The **March 4, 2020 SCB rule implementation** represented the most significant regulatory capital framework change in the analysis period. The SCB simplified capital requirements from 13 to 8 for large banks while integrating stress test results with non-stress capital requirements into a single framework.

The SCB calculation formula = (starting CET1 ratio - minimum projected CET1 ratio under severely adverse scenario) + (4 quarters of planned dividends as % of RWA), with a minimum floor of 2.5 percent, made capital requirements more responsive to firm-specific risk profiles while maintaining supervisory independence in stress testing.

## COVID-19 Emergency Measures

**COVID-19 emergency measures** demonstrated the Federal Reserve's ability to rapidly adapt stress testing during unprecedented conditions. The June 2020 sensitivity analysis incorporated three alternative scenarios with peak unemployment ranging from 15.6 to 19.5 percent, while implementing specific sectoral stress adjustments including 80 percent hotel vacancy assumptions and one-letter-grade downgrades for affected industries.

# Government-Guaranteed Mortgages

**Government-guaranteed mortgage treatment** has remained absolutely consistent throughout 2019-2025. The Federal Reserve continues to exclude FHA, VA, and USDA government-insured or guaranteed mortgages from supervisory stress test first-lien models. The 2019 methodology stated loans are "limited to first-lien, conventional home purchase and refinance mortgages (excluding FHA/VA and other government-insured loans)," while 2024 methodology maintains identical exclusion language.

This **systematic exclusion** reflects the Federal Reserve's assessment that government guarantees fundamentally alter loss characteristics in ways that require separate treatment from conventional mortgages, though the precise supervisory rationale for continued exclusion has not been elaborated in methodology documents.

## Home Equity Product Modeling

**Home equity product modeling** has demonstrated similar stability with no identified material methodology changes from 2019-2024. The expected-loss framework using PD × LGD × EAD continues to employ five binomial logit models for payment status transitions, with HELOC-specific features accounting for end-of-draw period impacts.

Key risk factors remain **combined LTV ratios, credit scores, and utilization rates** for HELOCs, with macroeconomic sensitivity to house prices, unemployment rates, and interest rates. LGD calculations continue to account for recovery after senior-lien payout, while EAD for HELOCs uses the higher of current balance or original credit limit.

# Model Governance and Validation

The Federal Reserve implemented substantial **model risk management improvements** during 2020-2022, including creation of the Stress Test Oversight Committee (STOC) replacing the Model Oversight Group (MOG), enhanced Development and Production Oversight (DPO) framework, and strengthened System Model Validation (SMV) processes.

**Phase-in policies** continue to distinguish between material changes requiring two-year phase-in periods using averaging approaches, versus non-material changes implemented immediately. The 2024 mortgage model re-estimation was classified as non-material and implemented immediately.

**Model transparency initiatives** announced for 2025 include Board plans to propose public comment processes on models and scenarios, with material model changes following public feedback procedures. This represents a significant shift toward greater transparency while maintaining supervisory model independence.

# Conclusion

The Federal Reserve's residential mortgage stress testing framework has demonstrated remarkable resilience and consistency while successfully adapting to extraordinary economic conditions. The maintenance of core modeling approaches through COVID-19 disruption, successful SCB implementation, and systematic expansion of data collection requirements reflects sophisticated risk management and regulatory design.

**Key Insight:** The stability of fundamental methodologies combined with targeted refinements suggests the framework has reached methodological maturity while retaining adaptability for future challenges. For model validators, this consistency provides stable benchmarks for validation activities while the enhanced transparency initiatives promise improved insights into supervisory expectations and model development processes.