



# 2019 Dodd-Frank Act Stress Test Disclosure

## Results of the FHFA Supervisory Severely Adverse Scenario

As Required by the Dodd-Frank Wall Street Reform and Consumer Protection Act

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# Executive Summary

Fannie Mae is required by FHFA to complete stress testing in accordance with the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act).

- Fannie Mae conducted the annual Dodd-Frank Act Stress Test (DFAST) to assess capital adequacy over a nine-quarter projection period from Q1 2019 to Q1 2021. This document summarizes the stress test results based on the Severely Adverse scenario prescribed by FHFA.
- As instructed by FHFA, Fannie Mae discloses the impact of the Severely Adverse scenario in two ways: without the establishment of a valuation allowance (VA) on deferred tax assets (DTA) and with the establishment of a VA in Q1 2019.

<b><u>Without</u></b> establishing a VA on DTA	<b><u>With</u></b> establishing a VA on DTA
Fannie Mae would recognize <b>\$9.5B</b> of comprehensive losses over the forecasted stress scenario.	Fannie Mae would recognize <b>\$26.1B</b> of comprehensive losses over the forecasted stress scenario.

*Note: The Severely Adverse scenario is not an expected forecast, but a hypothetical stress scenario using Fannie Mae's internal projections by applying the rules and conditions set forth by FHFA (see appendix for additional information). These results do not reflect the implementation of the Current Expected Credit Losses (CECL) standard, as directed by FHFA.*



# 2019 Severely Adverse Scenario Overview

The 2019 Severely Adverse Scenario features a severe global recession accompanied by a global aversion to long-term fixed-income assets.

Key economic variables during the nine-quarter forecast horizon, as prescribed by FHFA, include:

## Macroeconomic Variables

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Residential House Price Decline	-26%
Commercial Real Estate Price Decline	-35%
Real Gross Domestic Product Decline (Peak-to-Trough)	-8%
Unemployment Rate (Peak)	10%

## Interest Rate Variables

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Mortgage Rate Decline (Peak-to-Trough)	-0.9%
10-year Treasury Yield Decline (Peak-to-Trough)	-2.2%
3-month Treasury Rate Decline (Peak-to-Trough)	-2.2%

## Global Market Shock

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RMBS Price Shock	Up to -68.5%
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- The Severely Adverse scenario includes a prescribed global market shock (GMS) to the economic drivers of asset prices and a counterparty default component (CDC) in the first quarter of the forecast horizon without any future recoveries. These aspects are viewed as exogenous to the economic environment specified in the scenario.

*Note: The Severely Adverse scenario is not an expected forecast, but a hypothetical stress scenario using Fannie Mae's internal projections by applying the rules and conditions set forth by FHFA (see appendix for additional information).*



# 2019 Severely Adverse Scenario Stress Test Results

	Cumulative Projected Financial Metrics (Q1 2019 - Q1 2021)				
	Results without establishing valuation allowance on deferred tax assets		Impact of establishing valuation allowance on deferred tax assets	Results with establishing valuation allowance on deferred tax assets	
	\$ in billions	% of avg assets <sup>6</sup>		\$ in billions	% of avg assets <sup>6</sup>
1 Pre-provision net revenue <sup>1</sup>	\$ 17.4	0.51%		\$ 17.4	0.51%
2 (Provision) benefit for credit losses	(26.0)			(26.0)	
3 Mark-to-market gains (losses) <sup>2</sup>	(0.4)			(0.4)	
4 Global market shock impact on trading securities and counterparty	(2.9)			(2.9)	
5 Net income before taxes	\$ (11.9)	-0.34%		\$ (11.9)	-0.34%
6 (Provision) benefit for taxes	2.6		(16.6)	(13.9)	
7 Other comprehensive income (loss) <sup>3</sup>	(0.3)			(0.3)	
8 Total comprehensive income (loss)	\$ (9.5)	-0.28%	\$ (16.6)	\$ (26.1)	-0.76%
9 Credit losses <sup>4</sup>	(7.2)			(7.2)	
10 Credit losses (% of average portfolio balance) <sup>5</sup>	0.22%			0.22%	

Note: Numbers may not sum due to rounding.

<sup>1</sup> Includes net interest income, security impairments, operational risk losses, foreclosed property income (expense), and other non-interest income/expenses.

<sup>2</sup> Includes fair value gains (losses) on derivative and trading securities and other gains (losses) on investment securities not captured in the global market shock impact.

<sup>3</sup> Includes global market shock impact on available-for-sale securities.

<sup>4</sup> Credit losses are defined as charge-offs, net plus foreclosed property expenses.

<sup>5</sup> Average portfolio balance over the nine-quarter planning horizon.

<sup>6</sup> Average total assets over the nine-quarter planning horizon and affected by establishment of DTA.

Note: The Severely Adverse scenario is not an expected forecast, but a hypothetical stress scenario using Fannie Mae's internal projections by applying the rules and conditions set forth by FHFA (see appendix for additional information). These results do not reflect the implementation of the CECL standard, as directed by FHFA.





# Appendix

- General Information
- Key Risks – Definitions and Methodologies
- Severely Adverse Scenario – Key Prescribed Variables

# General Information

The 2019 Severely Adverse scenario stress test results, as disclosed in this document or otherwise, should not be viewed as forecasts of expected or likely outcomes for Fannie Mae.

- Stress test projections are based solely on FHFA's hypothetical Severely Adverse scenario and other specific conditions required to be assumed by Fannie Mae. These include model assumptions necessary to project and assess the impact of the Severely Adverse scenario on the results of operations and capital position of Fannie Mae.
- Fannie Mae's future financial results and condition will be influenced by actual economic and financial conditions and various other factors as described in reports filed with the Securities and Exchange Commission and available on Fannie Mae's website, including Fannie Mae's Annual Report on Form 10-K for the year ended December 31, 2018, and Quarterly Report on Form 10-Q for the quarter ended June 30, 2019.
- The 2019 Severely Adverse scenario stress test results included within this document have not been prepared under generally accepted accounting principles (GAAP).
  - Fannie Mae's financial information, prepared under GAAP, is available in reports filed with the Securities and Exchange Commission and on Fannie Mae's website, including Fannie Mae's Quarterly Report on Form 10-Q for the quarter ended June 30, 2019.
- The key risks assessed in the Severely Adverse scenario are Credit Risk (Mortgage and Counterparty), Market Risk, Liquidity and Funding Risk, and Operational Risk. These risks are important to Fannie Mae's business and are projected using internal stress testing processes and methodologies.

*Note: The Severely Adverse scenario is not an expected forecast, but a hypothetical stress scenario using Fannie Mae's internal projections by applying the rules and conditions set forth by FHFA.*



# Key Risks Assessed in Stress Test

The below risks are important to Fannie Mae's business and are projected using Fannie Mae's internal stress testing processes and methodologies, which are summarized on the following pages.

Risk Type	Definition
Mortgage Credit Risk	Risk of loss resulting from the failure of a borrower to make required mortgage payments.
Counterparty Credit Risk	Risk of loss resulting from the failure of an institutional counterparty to fulfill its contractual obligations.
Market Risk	Risk of loss resulting from changes in the economic environment, arising from fluctuations in interest rates and spreads.
Liquidity and Funding Risk	Risk associated with Fannie Mae's inability to meet contractual obligations, access funding, or manage fluctuations in funding levels.
Operational Risk	Risk of loss resulting from inadequate or failed internal processes, people or systems, or from external events.

*Note: The Severely Adverse scenario is not an expected forecast, but a hypothetical stress scenario using Fannie Mae's internal projections by applying the rules and conditions set forth by FHFA.*





# Mortgage Credit Risk

**Definition:** Risk of loss resulting from the failure of a borrower to make required mortgage payments.

## Methodologies

- Fannie Mae uses macroeconomic and behavioral models that project the likelihood of different borrower behaviors for prepayment, default, or modification at the loan level.
- These projected behaviors vary according to the contractual terms of the mortgage, the borrower's characteristics, property types, current loan-to-value ratio and delinquency status as of the forecast date, and the projected market environment.
- Loss projections include some offset from credit enhancements, such as mortgage insurance and credit risk transfer transactions.

## Potential impact to financials

Credit risk is reflected through:

- Recently recognized losses on loans that Fannie Mae guarantees or owns, recognized in credit losses.
- Improving or deteriorating loan profile and performance, recognized in the (provision) benefit for credit losses.

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# Counterparty Credit Risk

**Definition:** Risk of loss resulting from the failure of an institutional counterparty to fulfill its contractual obligations.

## Methodologies

- FHFA prescribes the methodology for the DFAST counterparty default component (CDC).
- In the CDC, Fannie Mae is required to assess exposure to single-family mortgage insurers, multifamily credit enhancement counterparties, and derivatives and securities financing transactions counterparties. The counterparty with the largest exposure after applying the counterparty default guidance is presumed to default without future recoveries.
- In addition to the CDC, counterparty risk is reflected in results through the application of FHFA-prescribed haircuts on single-family mortgage insurers.

## Potential impact to financials

Fannie Mae faces counterparty risk from lender customers, mortgage insurers, derivative counterparties, and other financial institutions that could impact financial results through:

- Failures of credit enhancement providers, including mortgage insurers, mortgage reinsurers, financial guarantors, and recourse providers, to satisfy their contractual obligations to cover losses.
- Inability of a counterparty to sufficiently cover losses through payment or collateral.

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# Market Risk

**Definition:** Risk of loss resulting from changes in the economic environment, arising from fluctuations in interest rates and spreads.

## Methodologies

- Fannie Mae uses valuation models that incorporate mortgage performance and term rate structure behavioral models.
- To determine the impact of the GMS, the company applies price and spread shocks prescribed by FHFA. These shocks are characterized by large and sudden changes in asset prices, interest rates, and spreads.
- GMS shocks are applied to available-for-sale (AFS) and held-for-trading (HFT) securities, and held-for-sale (HFS) loans as of December 31, 2018, and, as required, are taken as an instantaneous loss and reduction of capital in Q1 2019 without future recoveries.
- As specified by FHFA, results include the greater fair value loss of either the GMS or the macroeconomic scenario.

## Potential impact to financials

Fannie Mae's retained mortgage portfolio and debt, derivative, and non-mortgage asset portfolio, while economically hedged, contain market risk that primarily impacts Fannie Mae's financial results through:

- Market value changes of HFT securities, derivatives, and HFS loans, recognized through net income in mark-to-market gains (losses) and the global market shock impact.
- Market value changes of AFS securities, recognized primarily through other comprehensive income (loss).

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# Liquidity and Funding Risk

**Definition:** Risk associated with Fannie Mae's inability to meet contractual obligations, access funding, or manage fluctuations in funding levels.

## Methodologies

- Fannie Mae uses models to forecast cash flow needs, including those associated with mortgage assets and debt obligations.
- Projected debt issuances ensure continued adherence to liquidity objectives while remaining in compliance with regulatory constraints and limits. Cost of funding in the stress scenario increases as prescribed by FHFA.

## Potential impact to financials

Funding and liquidity risk are reflected through interest income on assets and interest expense on debt, captured in pre-provision net revenue.

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# Operational Risk

**Definition:** Risk of loss resulting from inadequate or failed internal processes, people or systems, or from external events.

## Methodologies

- Fannie Mae uses methods drawn from the Basel II standardized framework by applying factors to average annual gross income from 2016-2018.
- Potential causes of operational risk include:
  - Errors
  - Fraudulent acts
  - Business interruptions
  - Inappropriate behavior of employees
  - Business partners that do not perform in accordance with their arrangements.

## Potential impact to financials

Operational risk losses are recognized as an expense in pre-provision net revenue.

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# Other Methodologies

## Pre-provision net revenue

- Fannie Mae estimates net interest income over the nine quarters by projecting portfolio balances and yields, as well as guaranty book size and pricing, using the hypothetical macroeconomic variables and scenario elements prescribed, such as house prices, mortgage rates, and debt spread widening.
- Non-interest income and expense are determined at the business level using relevant macroeconomic variables and appropriately conservative management assumptions.

## (Provision) benefit for credit losses

- Fannie Mae estimates the provision or benefit for credit losses using the approaches described under Mortgage Credit Risk Methodologies.
- Fannie Mae estimates the total loss reserves and related build or release by assessing the adequacy of the reserves based on the profile and performance of the loan portfolio under the hypothetical macroeconomic conditions specified in the Severely Adverse scenario.

## Mark-to-market gains (losses)

- Fannie Mae estimates fair value gains (losses) using the approaches described under Market Risk Methodologies.
- Since losses from the GMS were greater than those from the macroeconomic environment in the 2019 Severely Adverse Scenario, mark-to-market gains (losses) do not include any fair value gains or losses on trading securities.

*Note: The Severely Adverse scenario is not an expected forecast, but a hypothetical stress scenario using Fannie Mae's internal projections by applying the rules and conditions set forth by FHFA.*



# Other Methodologies (continued)

## Deferred tax assets

- As instructed by FHFA, Fannie Mae is disclosing two versions of stress testing results, one with and one without the establishment of a VA on DTA in Q1 2019. The impact of the establishment of the VA is reflected in higher comprehensive losses.

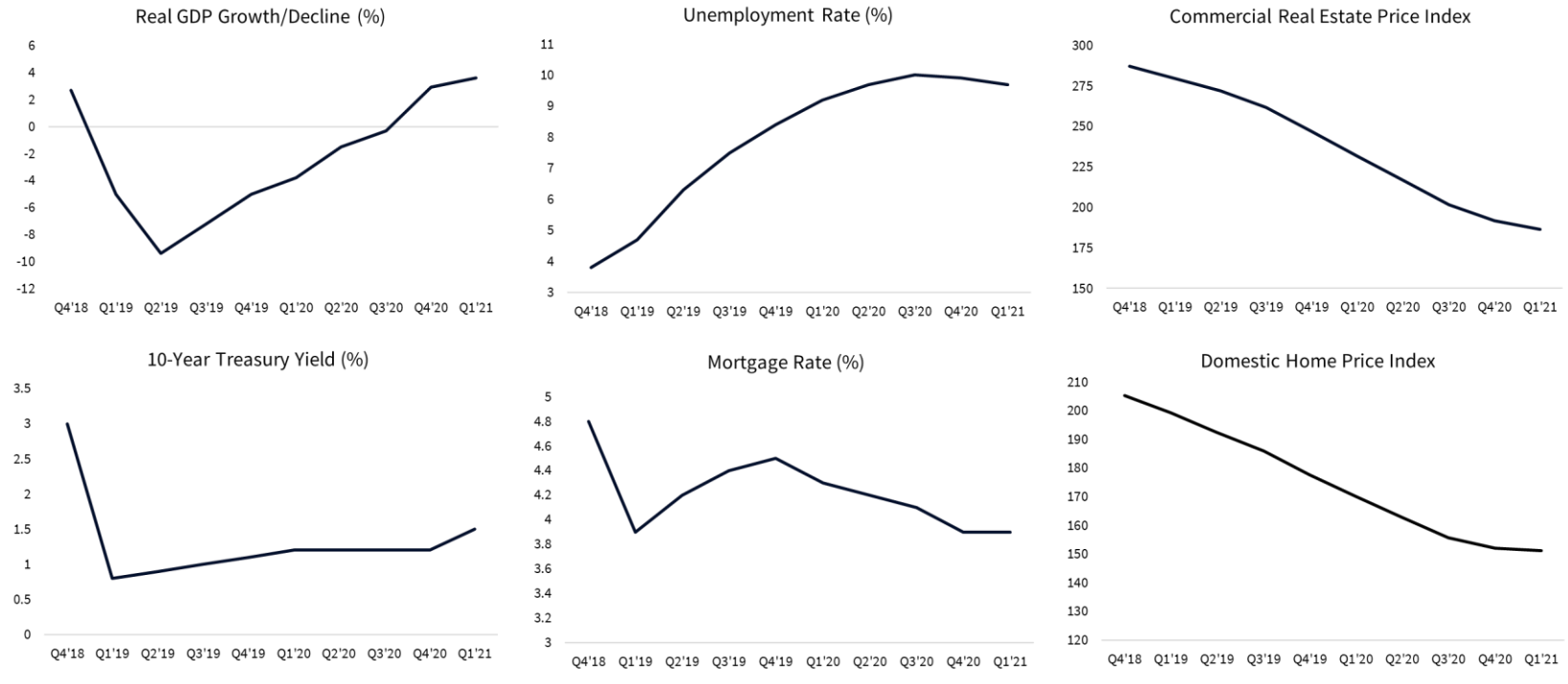
## Management judgment and governance

- Modeled projections and definitions of key business assumptions may be supplemented with management judgment in cases where data and historical relationships are insufficient to produce reliable results or model limitations require further adjustment to output.
- Consistent application of judgment is governed through a cross-functional control and governance structure incorporating multiple levels of review, challenge, and approval.
- Senior management and the Board of Directors review DFAST stress testing results. The Risk Policy and Capital Committee, a committee of the Board of Directors, reviews DFAST stress testing results and key assumptions, and also evaluates process and methodology weaknesses, limitations, and uncertainties.

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# Severely Adverse Scenario – Key Prescribed Variables



## Additional Prescribed Variables

- Market volatility index
- Yields on 3-month and 5-year Treasuries
- Market shocks to securitized products and municipal and agency bonds
- BBB corporate yield
- Prime rate
- Consumer Price Index (CPI) inflation rate

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