Fannie Mae™

2017 Annual Stress Testing Disclosure

Results of the FHFA Supervisory Severely Adverse Scenario

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

Summary

- In November 2013, the Federal Housing Finance Agency ("FHFA") implemented stress testing rules for its regulated entities, as required by the Dodd-Frank Wall Street Reform and Consumer Protection Act. FHFA amended these rules in November 2015 to change certain dates associated with the process.

- In accordance with the FHFA Orders issued to Fannie Mae for stress testing, Fannie Mae is providing public disclosure of the results for the Severely Adverse scenario using data as of December 31, 2016, on the nine quarters ending March 31, 2019. The Severely Adverse scenario is characterized by a severe recession, with national home prices declining approximately 25%, the unemployment rate peaking at 10%, and asset prices declining sharply.

- Fannie Mae is subject to the Senior Preferred Stock Purchase Agreement ("PSPA") with the Department of the Treasury ("U.S. Treasury"). Under this agreement, U.S. Treasury has provided Fannie Mae with a funding commitment, of which $117.6B remained available as of December 31, 2016, to provide funding, under certain conditions, to eliminate deficits in our net worth.

- As instructed by FHFA, Fannie Mae is disclosing stress testing results reflecting a range with and without the establishment of a valuation allowance ("VA") against our deferred tax assets ("DTA") in Q1 2017. Results indicate that Fannie Mae would utilize an additional $14.3B to $57.0B of funding from U.S. Treasury under the specifications of the Severely Adverse scenario, depending on the accounting treatment of the VA on our DTA. The remaining available funding commitment from U.S. Treasury would be $103.3B without establishment and $60.6B with establishment of the VA on our 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.

Background

- Fannie Mae's projections under the Severely Adverse scenario comply with the instructions provided by FHFA, using Fannie Mae's internal stress testing methodology and process.
- The 2017 Dodd-Frank Act Stress Test ("DFAST") results disclosure included within this document has not been prepared under generally accepted accounting principles ("GAAP"). The stress test results under the FHFA Severely Adverse scenario, as disclosed in this document or otherwise, should not be viewed as forecasts of expected or likely outcomes for Fannie Mae. Rather, these 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 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, 2017.

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Severely Adverse Scenario Overview

- The Severely Adverse scenario features a severe recession in which:
  - the unemployment rate peaks at 10% in Q3 2018,
  - real GDP declines through Q1 2018, then increases to reach 3% annualized growth by Q1 2019,
  - national home prices decline approximately 25% through Q1 2019, led by declines in areas that experienced brisk gains in recent years, and
  - commercial real estate prices decline approximately 35% through Q1 2019.
- Interest rates reflect both severe economic weakness and a substantial decline in inflation:
  - short-term rates fall in the first quarter of 2017 and remain near zero through the end of the scenario,
  - the 10-year Treasury yield falls to 0.8% in the first quarter of 2017, then rises gradually to 1.5% by the first quarter of 2019,
  - core inflation declines to an annual rate of 1.3% by Q2 2017, then rises to 1.9% by the end of 2018, and
  - the 30-year fixed-rate mortgage rate rises to reach 4.6% by Q4 2017, then falls to 4.1% by the end of the horizon.
- The Severely Adverse scenario assumes a global market shock ("GMS") to the economic drivers of asset prices and also includes a counterparty default scenario component. These aspects are viewed as exogenous to the macroeconomic and financial market environment specified in the scenario.
  - GMS and counterparty default results are taken as an instantaneous loss and reduction of capital in the first quarter of the testing horizon without any future recoveries.
  - As specified by FHFA, results include the greater fair value loss of either the GMS or the macroeconomic scenario.

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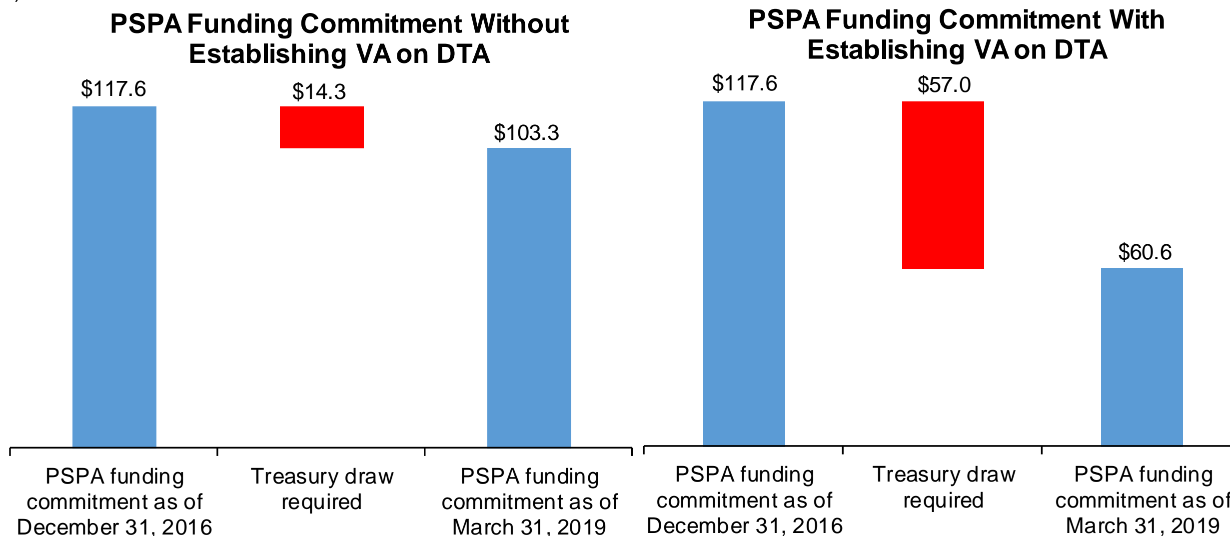
Capital Planning and Funding Commitment

- Fannie Mae management does not expect to engage in significant capital management actions while Fannie Mae is under conservatorship.
- The PSPA prohibits Fannie Mae's recapitalization, requiring quarterly dividend obligations equal to our net worth as of the prior quarter-end minus a capital reserve amount. Under the PSPA, the capital reserve amount is $0.6B in 2017 and will decrease to zero in 2018.
- Under the conditions of the Severely Adverse scenario, depending on the treatment of the VA against our DTA, the range of U.S. Treasury draws is between $14.3B and $57.0B, and the range of remaining funding commitment available under the PSPA is between $60.6B and $103.3B.



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Pro-forma Financial Metrics Under the Severely Adverse Scenario

	($ in billions)	Cumulative Projected Financial Metrics (Q1 2017 - Q1 2019)		
		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
1	Pre-provision net revenue[1]	$ 16.1	-	$ 16.1
2	(Provision) benefit for credit losses	(35.3)	-	(35.3)
3	Mark-to-market gains (losses)[2]	0.8	-	0.8
4	Global market shock impact on trading securities and counterparty[3]	(2.9)	-	(2.9)
5	Net income before taxes	(21.3)	-	(21.3)
6	(Provision) benefit for taxes	7.9	(42.7)	(34.8)
7	Other comprehensive income (loss)[4]	(1.5)	-	(1.5)
8	Total comprehensive income (loss)	(14.9)	(42.7)	(57.6)
9	Dividends paid	-	-	-
10	PSPA funding commitment as of December 31, 2016	117.6	-	117.6
11	Treasury draws required	14.3	42.7	57.0
12	Remaining PSPA funding commitment	103.3	(42.7)	60.6
13	Credit losses[5]	(11.9)		(11.9)
14	Credit losses (% of average portfolio balance)	0.39%	-	0.39%

[1] Includes net interest income, security impairments, operational risk losses, foreclosed property income (expense), and other non-interest income/expenses.
[2] Includes fair value gains (losses) on derivative and trading securities, and other gains (losses) on investment securities.
[3] Includes global market shock impact on held-for-sale loans.
[4] Includes global market shock impact on available-for-sale securities.
[5] Credit losses are defined as charge-offs, net plus foreclosed property expenses.

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Risk Methodologies

- Credit Risk
- Market Risk
- Counterparty Risk
- Operational Risk
- Other Methodologies

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Credit Risk Methodologies

- Credit risk is the potential for loss arising from a borrower's failure to honor its financial obligations. Mortgage credit risk impacts Fannie Mae's financial results through:
  - credit losses to reflect recently recognized losses on loans that Fannie Mae guarantees or owns and
  - reduction or build in the loss allowance to reflect deteriorating or improving loan performance.
- Fannie Mae assesses mortgage credit risk through the use of macroeconomic and behavioral models. These models 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.

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Market Risk Methodologies

- Market risk arises from fluctuations in the market value of positions, as a result of changes in market factors such as interest rates, implied volatility, and spreads. 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 held-for-trading ("HFT") securities, derivatives, and held-for-sale ("HFS") loans, recognized through net income, and
  - market value changes of available-for-sale ("AFS") securities, recognized through other comprehensive income ("OCI").
- Fannie Mae assesses market risk through the use of valuation models which incorporate behavioral models of mortgage performance and term structure models of the behavior of rates.
- We apply price and spread shocks prescribed by FHFA for the GMS to produce market value changes for our HFT and AFS securities and HFS loans positions. These shocks, characterized by large rate moves, sharply widening spreads, and heightened volatilities, are applied to Fannie Mae's securities as of December 31, 2016, and, as required, are taken as an instantaneous loss and reduction of capital in Q1 2017, without future recoveries. As instructed by FHFA, results reflect only the impact of the GMS, as it produced greater fair value losses than those produced by the macroeconomic scenario.

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Counterparty Risk Methodologies

- Counterparty risk is the risk that the parties with which we do business fail to meet their contractual obligations. Fannie Mae faces counterparty risk from our lender customers, mortgage insurers, derivative counterparties, and other financial institutions. Counterparty risk primarily impacts Fannie Mae's financial results through:
  - failures of credit enhancement providers, including mortgage insurers, financial guarantors, and recourse providers, to satisfy their contractual obligations to cover losses and
  - inability of a counterparty to sufficiently cover losses through payment or collateral.
- The methodology for measuring losses from counterparty exposure is prescribed by FHFA in the DFAST counterparty default scenario component guidance. For the counterparty default scenario component, we are required to assess Fannie Mae's 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.
- This year, as part of the counterparty default in GMS, a single-family mortgage insurer is determined to have the largest counterparty exposure, and the loss from default is recorded as expense in Q1 2017, without future recoveries.
- In addition to the counterparty default scenario component, counterparty risk is reflected in results through the application of FHFA-prescribed haircuts on the remaining single-family mortgage insurers.

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Operational Risk Methodologies

- Operational risk is the risk of loss resulting from inadequate or failed internal processes, systems, human factors, or external events.

- Operational risk can impact Fannie Mae's financial results in a variety of ways, including:
  - errors,
  - fraudulent acts,
  - business interruptions,
  - inappropriate behavior of employees, and
  - business partners that do not perform in accordance with their arrangements.

- For the Severely Adverse scenario, operational risk is assessed across Fannie Mae's business lines using methods drawn from the Basel II standardized framework, by applying a factor to average annual gross income from 2014 through 2016.

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Other Methodologies

- Pre-provision net revenue
  - Fannie Mae determines net interest income over the nine quarters by projecting portfolio balances and guaranty fee pricing and using the macroeconomic variables provided, such as house prices and mortgage rates.
  - Non-interest income and expense are determined at the business level using relevant macroeconomic variables and conservative management assumptions.
- (Provision) benefit for credit losses
  - Fannie Mae estimates the provision or benefit for credit losses using the approaches described under 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 macroeconomic conditions specified in the Severely Adverse scenario.
- Mark-to-market gains (losses) and other comprehensive income (loss)
  - Fannie Mae estimates fair value gains (losses) using the approaches described under Market Risk Methodologies.
  - The impact of the GMS applied to Fannie Mae's AFS positions is reflected in OCI and impairment gains (losses) during the first quarter of the forecast period, without subsequent recoveries. No other AFS losses are incorporated, as instructed by FHFA, since losses from the GMS are greater than those from the macroeconomic environment.

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Other Methodologies (Continued)

- Deferred tax assets
  - As instructed by FHFA, the results reflect a range with and without the establishment of a VA against our DTA in Q1 2017. The impact of the VA is reflected in additional U.S. Treasury draws and a smaller remaining funding commitment under the PSPA.
- 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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Appendix

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Severely Adverse Scenario – Macroeconomic Variables

Real GDP Growth

Unemployment Rate

CPI Inflation Rate

10-year Treasury Yield

Mortgage Rate

Home Price Index

Additional variables provided:

- Market volatility index
- Yields on 3-month and 5-year Treasuries
- Market shocks to securitized products and municipal and agency bonds
- 10-year BBB corporate bond yield
- Prime rate
- Commercial real estate price index

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