

State Street Corporation
2019 Mid-Cycle Stress Test Disclosure

Dodd-Frank Act Mid-Cycle Stress Test Results
Bank Holding Company Internally Developed Severely Adverse Scenario

November 4, 2019



Overview of the 2019 Stress Test

State Street Corporation (State Street), like other covered companies governed by the provisions of Section 165 of the Dodd-Frank Act, is required to conduct company run stress tests semi-annually (an annual stress test and a mid-cycle stress test) and disclose the results under the supervisory severely adverse scenario. On October 10, 2019, the FRB finalized rules that tailor its regulations for domestic and foreign banks to more closely match their risk profiles. The final rule eliminates the mid-cycle stress testing requirement for all bank holding companies but provides the Board authority to adjust the required frequency at which a banking organization must conduct a stress test based on its financial condition. The removal of the mid-cycle company-run stress tests requirement will take effect for the 2020 stress test cycle.

The annual stress test is conducted in coordination with the Comprehensive Capital Analysis and Review conducted by the FRB. The mid-cycle stress test is conducted between each annual CCAR exercise utilizing a different as-of-date. In addition, the annual stress test disclosures by the FRB and each covered company represent the results of the supervisory severely adverse scenario, while the mid-cycle stress test reflects the results of an internally developed severely adverse scenario.

As part of CCAR, the Federal Reserve conducts an annual supervisory stress test on the largest banks (i.e., with \$100 billion or greater in average total consolidated assets). These forward-looking exercises assess whether banks have sufficient capital to absorb losses and continue operating during stressful economic and financial conditions over nine quarters.

The Dodd-Frank Act requires bank holding companies (BHCs), including State Street, participating in CCAR to publish a summary of stress test results, including a post-stress capital analysis (1) under the supervisory severely adverse scenario for the annual stress test and (2) under a BHC internally developed severely adverse scenario for the mid-cycle stress test. This disclosure presents the results of the 2019 mid-cycle stress test conducted by State Street.

Required Scenarios

As required under the “Supervisory and Company-Run Stress Test Requirements for Covered Companies” Final Rule, and as applied by State Street, a stress test represents a process to assess the potential impact of scenarios (representing hypothetical economic conditions) on State Street’s consolidated financial position and consolidated results of operations and regulatory capital over a defined period (known as a “planning horizon”), taking into account State Street’s current financial condition, risks, exposures, strategies and activities.

Upon review of its material risk inventory, State Street developed the severely adverse scenario which reflects macroeconomic, market-wide, and firm-specific events tailored specifically to State Street’s business activities, operations, financial profile and condition, and regulatory requirements. The hypothetical stress environment presented by this scenario, which covers the period beginning on July 1, 2019 and ending on September 30, 2021, is a severe global recession characterized by sharp declines in real GDP, falling real estate values, and increases in unemployment.

Key economic variables from this severely adverse scenario include:

- **US Real GDP:** GDP declines by 1% in the third quarter of 2019 and reaches a trough of 8.0% in the first quarter of 2021
- **US Unemployment Rate:** Unemployment rate increases to 4% in the third quarter of 2019, peaking at 10% in the first quarter of 2021
- **Global Equity Market:** Equity prices decline by 57% between the second quarter of 2019 and their trough in the second quarter of 2020; Equity market volatility (VIX) peaks in the fourth quarter of 2019
- **US Home Price Index:** The home price index declines starting in the third quarter of 2019 and reaches a 27% reduction by the third quarter of 2021
- **BBB Corporate Spread:** Spreads on investment-grade corporate bonds widen by 368 basis points at their peak in the first quarter of 2020
- **Short-term and long-term rates:** Short-term (3-Month) US Treasury Rates fall to 0.11% in the fourth quarter of 2019 where they remain for the duration of the forecast period; long-term (10-year) US Treasury Rates fall to 2% in the third quarter of 2019 and remain flat throughout the forecast period
- **TED Spread:** TED spread widens by 188 basis points in its peak of the fourth quarter of 2019

Assumptions Regarding Dodd-Frank Act Prescribed Capital Actions

All assumptions and results presented below reflect the capital actions prescribed by Section 165 of the Dodd-Frank Act (Dodd-Frank Act prescribed capital actions), including:

- For the third quarter of 2019, actual capital actions (e.g., stock dividends and stock repurchases) occurring during that period are assumed, and;
- For each of the second through ninth quarters of the planning horizon:
 - common stock dividends continue equal to the quarterly average dollar amount of common stock dividends that the company paid in the previous year (i.e., the initial quarter of the planning horizon and the preceding three calendar quarters);
 - common stock dividends continue that are attributable to issuances related to expensed employee compensation or in connection with a planned merger or acquisition to the extent that the merger or acquisition is reflected in the pro forma balance sheet estimates;
 - scheduled payments continue on any other instrument that is eligible for inclusion in the numerator of a regulatory capital ratio;
 - no common stock repurchases and redemptions of any capital instrument take place; and
 - no issuances of common stock or preferred stock take place, except for issuances related to expensed employee compensation or in connection with a planned merger or acquisition to the extent that the merger or acquisition is reflected in the pro forma balance sheet estimates

Pro Forma Projections

The tables below summarize pro forma estimated results under the supervisory severely adverse scenario with Dodd-Frank Act prescribed capital actions. All RWA-based calculations use the Basel III standardized capital risk-based approach.

Actual Q2 2019 and projected stressed capital ratios (Q3 2019 – Q3 2021)

	Regulatory Minimums ¹	Actual	Stressed Capital Ratios	
		Q2 2019	Ending	Minimum ²
Common Equity Tier 1 (CET 1) Capital Ratio	4.5%	11.4%	9.9%	8.3%
Tier 1 Capital Ratio	6.0%	14.8%	13.7%	11.9%
Total Capital Ratio	8.0%	15.5%	14.0%	12.5%
Tier 1 Leverage Ratio	4.0%	7.6%	7.1%	5.6%
Supplementary Leverage Ratio	3.0%	6.7%	6.1%	5.0%

¹ Regulatory minimum ratio requirements as prescribed by the Federal Reserve

² Represents the projected minimum quarter-end ratio at any point during the nine quarter planning horizon of the severely adverse scenario

	Actual Q2 2019	Projected Q3 2021
Risk Weighted Assets (billions of dollars)	108.2	95.8

Projected 9-quarter cumulative losses, revenue, and net income before taxes (Q3 2019 – Q3 2021)

	Billions of dollars ¹	Percent of avg. assets ²
Pre-provision Net Revenue	1.7	0.8
Other Revenue	0.0	
Less		
Provisions	0.4	
Realized Gains/Losses on Securities	0.1	
Trading and Counterparty Losses		
Trading Counterparty Losses ³	1.1	
Non-trading Counterparty Losses	0.0	
Other Losses/Gains	0.3	
Equals		
Net Income Before Taxes	-0.1	-0.1

¹ Due to rounding, the calculation for the net income before taxes utilizing the results above may not equal the total presented

² Assets are averaged over the nine quarter planning horizon

³ Conservative recovery rate relative to the Federal Reserve's disclosed methodology was applied

Pro Forma Projections (cont.)

The table below summarizes pro forma estimated results under the supervisory severely adverse scenario with Dodd-Frank Act prescribed capital actions.

Projected 9-quarter cumulative loan losses, by loan type (Q1 2019 – Q1 2021)		
	Billions of dollars ¹	Percent of avg. assets ²
Loan losses	0.3	1.1
First Lien Mortgages, Domestic	-	-
Junior Liens and HELOCs, Domestic	-	-
Commercial and Industrial	0.2	4.0
Commercial Real Estate	0.0	0.8
Credit Cards	-	-
Other Consumer	0.0	3.3
Other Loans	0.1	0.5

¹ Due to rounding, the sum of the projected loan losses by asset type may not equal the total presented

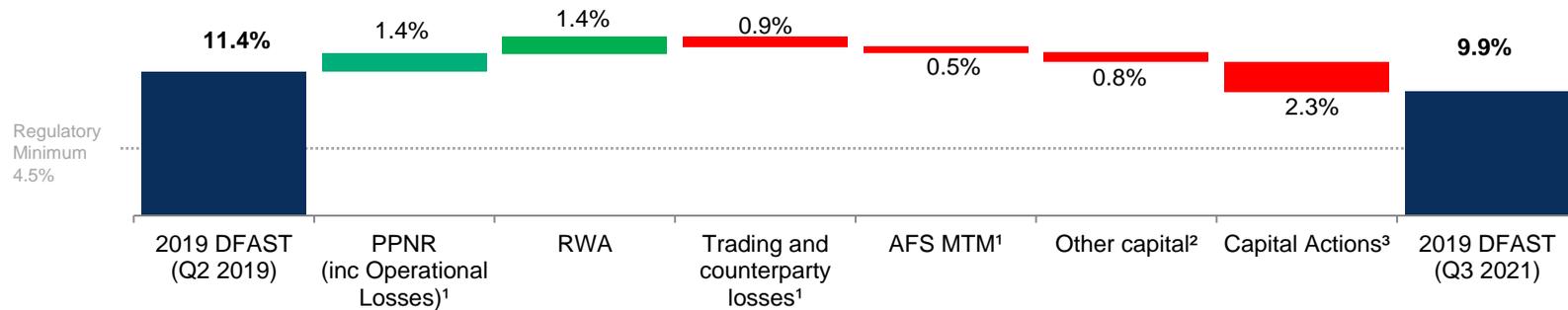
² Percentage of average balance of the identified type of loans represented by projected aggregate loan losses. Loan balances are averaged over the nine-quarter planning horizon

Under the supervisory severely adverse scenario, the stress projections resulted in a decline in the regulatory capital ratios; however, State Street exceeded all Basel III minimum regulatory capital ratio requirements throughout the nine-quarter horizon. Changes in regulatory capital were primarily driven by the stressed declines in revenue relative to baseline expectations, counterparty losses, and legal and operational losses.

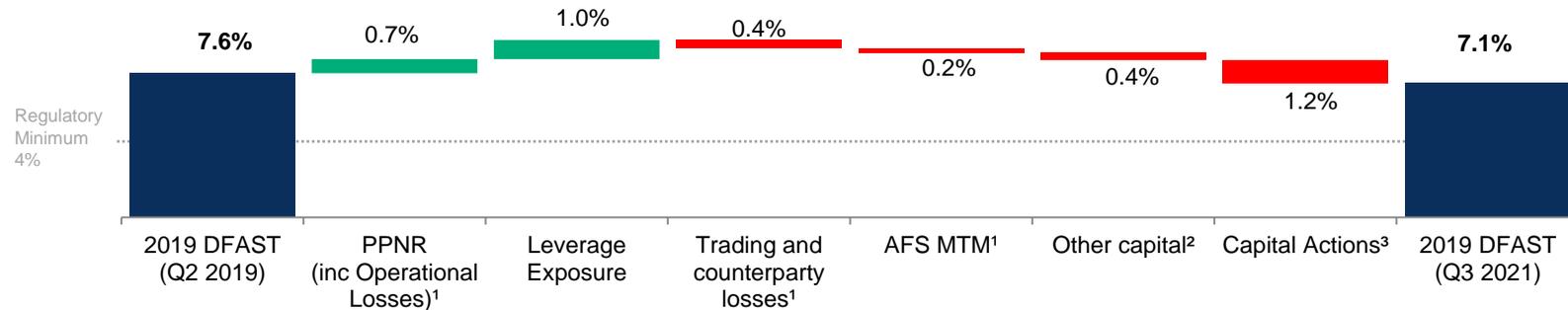
Key Drivers of State Street's Common Equity Tier 1 and Tier 1 Leverage Capital Ratios

Severely Adverse Scenario with Dodd-Frank Capital Actions (3Q19-3Q21)

Common Equity Tier 1 (CET1) Ratio



Tier 1 Leverage Ratio



Note: Numbers may not sum due to rounding

(1) Items presented above reflected net of tax, as applicable

(2) Other capital includes other losses in P&L, FX translation in AOCI, Disallowed DTA, and Goodwill & Intangibles deductions

(3) For net capital distribution, please refer to assumptions regarding Dodd-Frank Act prescribed capital actions section on page 4 for details

Stress Testing Framework – Risks and Methodologies

- State Street has a robust company-wide stress testing program that executes multiple stress tests annually, with the program overseen by management and its Board of Directors
- The stress testing program is structured around what State Street deems to be its key risks, and is grounded in its bottom-up Material Risk Identification process. These identified risks serve as an organizing principle for much of State Street’s risk management and reporting framework
- In connection with the focus on these key risks, State Street’s internally developed stress tests incorporate idiosyncratic loss events tailored to its unique risk profile. Due to the nature of State Street’s business model and consolidated statement of condition, these key risks may differ from those of a traditional commercial bank
- In the normal course of its global business activities, State Street is exposed to a variety of risks, some fundamental to the financial services industry, and others which are more specific to our business activities
- State Street’s risk management framework focuses on material risks, which include the following:
 - Credit and Counterparty Risk;
 - Liquidity Risk, Funding, and Management;
 - Operational Risk;
 - Information Technology Risk;
 - Market Risk associated with Trading Activities;
 - Market Risk associated with non-Trading Activities (which State Street refers to as asset and liability management, which consists primarily of interest rate risk);
 - Strategic Risk;
 - Model Risk; and
 - Reputational, Fiduciary, and Business Conduct Risk
- These risks, as well as some of the factors underlying the risks that could affect our businesses and our consolidated financial statements, are discussed in detail under Item 1A, “Risk Factors” and “Risk Management” under Item 7, “Management Discussion and Analysis of Financial Condition and Results of Operations,” included in our Annual Report on Form 10-K for the year ended December 31, 2018 on file with the SEC (2018 Form 10-K), as those disclosures may from time-to-time be updated in subsequent filings with the SEC

Stress Testing Framework – General Description of Methodologies

The table below and on the subsequent pages provides a general description of the methodologies used in the supervisory severely adverse scenario, including those employed to estimate losses, revenues, provision for loan and lease losses, and other components in capital projection.

Capital component	General Description of Methodologies
<p>Pre-Provision Net Revenue</p>	<p>PPNR is calculated as NII plus non-interest revenue minus non-interest expense. The following is a description of the methodologies used to calculate the components of PPNR under the supervisory severely adverse scenario.</p> <ul style="list-style-type: none"> State Street’s NII is sensitive to changes in the balance sheet due to economic conditions or business actions, movements in interest rates and foreign exchange rates, and changes in spreads earned on interest earning assets or paid on interest bearing liabilities, among other factors. Under the supervisory severely adverse scenario in the 2019 annual stress test, the interest rate paths across the nine-quarter planning horizon were the primary macroeconomic drivers used to estimate NII. In addition, State Street used projections of short-term interest rates and market volatility to forecast deposit volumes across the planning horizon. Scenario-specific decisions on investment portfolio reinvestment and loan growth assumptions were also applied to the stressed scenarios. State Street also stressed non-interest revenue, which includes servicing fees, management fees, securities finance, trading services, and processing fees and other revenue. In most cases, macroeconomic factors (e.g., equities, fixed income, GDP, currencies, volatility) identified in the scenario were linked to asset and activity levels through regression based analysis. In cases where fee revenue lacked sensitivity to the macroeconomic factors, State Street used empirical analysis in conjunction with qualitative assessments to determine the impact of stress. Non-Interest revenue also reflected reduced revenue due to client attrition associated with operational and other idiosyncratic events. State Street’s PPNR projections of non-interest expense incorporated a reduction to compensation & employee benefits, transaction processing, and professional services expense due to the impacts of lower activity levels and/or lower performance. Offsetting these reductions to expenses, State Street projected incremental costs related to severance and operational risk events such as increased litigation expenses.

Stress Testing Framework – General Description of Methodologies (cont.)

Capital component	General Description of Methodologies
<p>Trading and Counterparty Losses</p>	<p>For the 2019 mid-cycle stress test, State Street incorporated a counterparty default scenario component into the internally developed scenarios.</p> <ul style="list-style-type: none"> In connection with the counterparty default scenario component, State Street estimated and reported the potential losses and related effects on capital associated with the instantaneous and unexpected default of the counterparty that would generate the largest direct and indirect credit losses across all of State Street's core credit-related activities with the given counterparty, including derivatives, securities financing activities, and sub-custodial exposures. Additionally, as in prior years, the potential for increased defaults, or the probability of default, under the prescribed scenarios was assessed for all counterparties and across a spectrum of types of risks, yielding additional losses and related effects on capital.
<p>Loan Loss Provisions</p>	<p>Loan loss provisions under the internally developed severely adverse scenario represent the sum of the provisions associated with State Street's lending portfolio, including commercial and financial loans, commercial real estate loans and lease financing.</p> <ul style="list-style-type: none"> For the 2019 mid-cycle stress test, State Street stressed its loan losses using a stressed expected loss framework. Expected loss can be expressed as the product of the probability of default (PD), the loss given default (LGD), and the dollar exposure at the time of default (EAD) for a given lending exposure. To capture the stress impacts to each of the components of expected loss, State Street stressed the PD, LGD, and EAD parameters through macroeconomic factor regression or other models which allowed State Street to capture projected impacts of the scenario on each parameter. In addition, to account for limitations inherent in such models, State Street applied a credit review and overlay to modeled outcomes in the limited instances where such limitations were more acute, in particular for portfolios with limited internal or external loss history. For the purpose of determining the evolution of the allowance for loan and lease losses, State Street assumed that the defaulted loan losses experienced during the planning horizon would be charged off from the balance sheet.

Stress Testing Framework – General Description of Methodologies (cont.)

Capital component	General Description of Methodologies
<p>Realized Gains/Losses on Securities (Available-for-Sale/Held-to-Maturity)</p>	<p>Pursuant to GAAP, other-than-temporary impairment (OTTI) projections incorporate projected other-than temporary changes in credit expectations.</p> <ul style="list-style-type: none"> For the internally developed severely adverse scenario, OTTI was projected for structured securities using forecasts from externally sourced econometric models. These models utilized relevant stressed macroeconomic factors (e.g., GDP growth, unemployment, housing price index) together with loan- and pool-level collateral characteristics to generate prepayment rates, recovery rates, and default rates, which were used as inputs in generating bond-specific cash flows. For non-structured securities, State Street utilized loss rates that were derived from the stressed expected credit loss approach described in the preceding section.
<p>Available-for-Sale Mark-to-Market on the Investment Portfolio</p>	<p>AFS MTM is the unrealized gain or loss composed of the difference between the fair value and amortized cost of AFS securities.</p> <ul style="list-style-type: none"> Under the Basel III final rule, the AFS MTM, which is a component of accumulated other comprehensive income/loss (AOCI) within shareholders' equity, is reflected in regulatory capital For the 2019 mid-cycle stress test, State Street derived the stressed AFS MTM using forecasts from externally sourced econometric models consistent with those utilized in the OTTI projections. The models were linked to the same set of macroeconomic factors, including GDP growth, housing price index, and unemployment, in addition to other financial indicators, like interest rates and credit spreads. The most impactful macro factors were the long-term interest rate and credit spread.

Stress Testing Framework – General Description of Methodologies (cont.)

Capital component	General Description of Methodologies
<p>Risk-Weighted Assets</p>	<p>For the 2019 mid-cycle stress test, BHCs were required to calculate risk-weighted assets (RWA) under the Basel III standardized approach throughout the entire nine quarter planning horizon.</p> <ul style="list-style-type: none"> • Under this approach, stressed RWA were primarily impacted by RWA from investment portfolio securities and on- and off-balance sheet growth relative to baseline expectations for other exposures such as loans, securities finance, and derivatives exposures. • Investment portfolio securities are made up of securitizations, which use the Simplified Supervisory Formula Approach (SSFA), and non-structured securities. In applying the SSFA, State Street utilized the macroeconomic factors and externally sourced econometric models consistent with those used in the approaches for OTTI and AFS MTM. • The impacts to State Street’s RWA associated with other items such as loans, securities finance and derivatives were applied consistent with changes in PPNR and balance sheet positions underlying the various exposures. • State Street also estimated the stress impact on market risk RWA in accordance with the market risk capital rule issued by the Federal Reserve in 2012, which requires banking organizations with significant trading activities, including State Street, to explicitly incorporate the market risks of those activities into determination of the capital requirements. This approach incorporated market risk factors, including interest rates, foreign exchange rates, and the VIX.

Important Disclosure Information

The results of a stress test represent estimates of potential outcomes based on hypothetical economic and business conditions. State Street's stress testing efforts seek to incorporate loss events tailored to its unique risk profile, which differs from that of a traditional commercial bank due to the nature of the business model and consolidated statement of condition. The hypothetical economic conditions applied during any stress test do not represent State Street's projections of expected economic conditions, and the estimates representing the results of the stress test are not forecasts of expected revenues, expenses, losses or other results, or of State Street's financial condition or regulatory capital ratios or levels for any future period. Furthermore, because the methodologies, models and tools used by State Street to project estimates of revenues, expenses, losses, regulatory capital ratios and other results under stress tests are proprietary to State Street, the results of company-run stress tests may differ in material respects from the results of stress tests performed on State Street by other parties, including the Federal Reserve in its annual supervisory stress test conducted in coordination with CCAR.

Additional financial and other information about State Street and its principal business activities can be found in its 2018 Form 10-K and subsequent Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and other filings (collectively, SEC filings) with the Securities and Exchange Commission (the SEC), which are made available on the Investor Relations section of State Street's corporate website at <http://investors.statestreet.com/>. All stakeholders are encouraged to review these SEC filings. The information presented above may differ, in presentation, form, content or otherwise, from similar information, or disclosures on similar topics, presented in SEC filings. Differences could occur, for example, because SEC filings are based on applicable SEC rules and U.S. generally accepted accounting principles (GAAP), which may differ from the regulatory standards or requirements for company-run stress tests under Section 165 of the Dodd-Frank Act. In addition, the information presented in this disclosure may also differ, and would not be comparable to, similar disclosures made by other companies.

Glossary

Key Terms, Abbreviations, and Acronyms

- AFS: available-for-sale securities
- AOCI: accumulated other comprehensive income
- BHC: bank holding company
- CCAR: Comprehensive Capital Analysis and Review
- DFAST: Dodd-Frank Act stress test
- Dodd-Frank Act: Dodd-Frank Wall Street Reform and Consumer Protection Act
- DTA: deferred tax assets
- FRB: Board of Governors of the Federal Reserve System
- FX: foreign exchange
- GDP: gross domestic product
- MTM: mark-to-market
- NII: net interest income
- OTTI: other than temporary impairment
- P&L: profit-and-loss
- PPNR: pre-provision net revenue
- RWA: risk-weighted assets
- SSFA: simplified supervisory formula approach
- State Street: State Street Corporation
- TED spread: the difference between the interest rates on interbank loans and on short-term U.S. government debt
- VIX: Chicago Board Options Exchange volatility index