

Morgan Stanley



2017 Mid-Cycle Dodd-Frank Act Stress Test (DFAST)

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A Disclaimer

The results summarized in section D herein contain forward-looking projections that represent estimates based on the hypothetical, severely adverse economic scenario as described in section C. The estimates also reflect certain required assumptions regarding Morgan Stanley's (the "Firm's") capital actions, which are described in section B. The quantitative outputs and qualitative discussion herein should not be viewed as forecasts of expected outcomes or capital ratios or as a measure of the solvency or actual financial performance or condition of the Firm. Instead, the outputs and discussions are estimates from forward-looking exercises that consider possible outcomes based on hypothetical, highly adverse economic scenarios.

The outputs of the analyses and the discussion contained herein may not align with those produced by other financial institutions conducting similar exercises, even if similar hypothetical stress scenarios were used, due to differences in methodologies and assumptions used to produce those outputs. In addition, the results contained herein may not be comparable to results of prior stress tests conducted by the Firm, the Federal Reserve or other financial institutions due to the evolving regulatory framework, evolving macro economic and market environment and other factors.

B Requirements for Annual Dodd-Frank Act Stress Test

- In October 2014, the Federal Reserve issued a final rule to modify the regulations for capital planning and stress testing contained in the existing capital plan and stress testing rules. As amended, this final rule set forth the Supervisory and Company-Run Stress Test Requirements for Bank Holding Companies (“BHCs”) with total consolidated assets of \$50 billion or more (“Covered Company”), including the Firm.
- The rule requires Covered Companies to disclose publicly the results of their Mid-Cycle Company-Run Stress Test under the Severely Adverse stress scenario, which describes the hypothetical evolution of certain specific macroeconomic and market variables consistent with a severely adverse recession.
- The planning horizon begins with actual results as of June 30, 2017 and includes a nine quarter forecast beginning with the third quarter of 2017 and ending with the third quarter of 2019.
- The Firm is required to employ the following assumptions (the “Dodd-Frank Act Stress Testing Capital Actions”) regarding its projected capital actions beginning with the second quarter of the nine quarter forecast horizon:
 - Payment of common dividends equal to the quarterly average dollar amount of common stock dividends paid over the past four quarters;
 - Payments on any other instrument eligible for inclusion in the numerator of a regulatory capital ratio equal to the stated dividend, interest or principal due on such instrument;
 - No redemption or repurchase of any capital instrument eligible for inclusion in the numerator of a regulatory capital ratio; and
 - No issuances of common stock or preferred stock, except for issuances related to expensed employee compensation or in connection with a planned merger or acquisition.
- The results of the Firm’s stress test, under the Firm’s Severely Adverse Stress Scenario assuming the Dodd-Frank Act Stress Testing Capital Actions, are documented under section D “Company-Run Dodd-Frank Act Stress Test – Holding Company” included herein.

© Description of the Company-Run Dodd-Frank Stress Test Scenario

- The Firm's internally developed severely adverse stress scenario (the "Company-Run Severely Adverse Scenario"), assuming the Dodd-Frank Act Stress Testing Capital Actions, is characterized by a severe global recession caused by the prospect of imminent disintegration of the European Union and a shock to the US commercial real estate market, which together lead to a sudden and severe recession in markets and the economy in both the US and EU, followed by a mild recovery. Specifically, the Company-Run Severely Adverse Scenario reflects a collapse of credit markets, declines in equity markets, and a significant deterioration in the macroeconomic environment. The Company-Run Severely Adverse Scenario stressed several key macroeconomic and market variables including but not limited to those discussed herein.
 - U.S. and Eurozone Real GDP YoY% growth rates are projected to be negative 4.3% and negative 5.3% at the trough, respectively, compared with the historical annual growth rates of 1 - 2%. Real GDP YoY% growth in both regions remains negative throughout the entire forecasting period.
 - Equity market indices experience a sharp decline during the first year of the forecast horizon – both S&P 500 and the MSCI World Index decline by approximately 50% at the trough in Q1 2018. The U.S. equity market volatility, as measured by the VIX index, peaks at approximately 54 during Q1 2018. Additionally, oil prices decline by approximately 62% by Q1 2018.
 - Both equity and commodity prices begin to recover during the later quarters of the forecast horizon, but remain below their starting points at the end of the forecast horizon in Q3 2019.
 - Fed Funds rate remains low at 58 bps throughout the later quarters of the forecast horizon. Additionally, BBB credit spreads widen to 715 bps at the peak in Q1 2018 and recover to about 415 bps by Q3 2019.
 - The Company-Run Severely Adverse Scenario also includes an upfront market shock (reflecting large instantaneous price declines across credit, equity, securitized products and commodities), the default of a large counterparty, losses associated with an idiosyncratic ratings downgrade and incremental attrition of financial advisors from the Firm's Wealth Management business.

D Company-Run Dodd-Frank Stress Test (1 of 5)

Capital Ratios and Risk-Weighted Assets, Actual Q2 2017 and Projected Q3 2017 – Q3 2019, Under the Company-run Severely Adverse Scenario

Regulatory Ratio	Actual Q2 2017	Projected Stressed Capital Ratios ^{(1) (2)}		Regulatory Minimum
		Ending ⁽³⁾	Minimum	
Common Equity Tier 1 Capital Ratio	16.7%	8.8%	8.6%	4.5%
Tier 1 Risk-Based Capital Ratio	19.1%	10.9%	10.7%	6.0%
Total Risk-Based Capital Ratio	22.0%	13.6%	13.6%	8.0%
Tier 1 Leverage Ratio	8.5%	5.9%	5.7%	4.0%
Supplementary Leverage Ratio ⁽⁴⁾	6.5%	4.6%	4.5%	3.0%

(\$Bn)	Actual Q2 2017 ⁽⁵⁾	Projected Q3 2019 ⁽⁵⁾
Risk-Weighted Assets	\$369	\$411

1. The capital ratios are calculated based on the Dodd-Frank Act Stress Testing Capital Actions described on page 4. These projections represent hypothetical estimates that involve an economic outcome that is more adverse than expected. These estimates are not forecasts of expected losses, revenues, net income before taxes, or capital ratios.
2. With respect to the Common Equity Tier 1, Tier 1 and Total Risk-based Capital ratios, the U.S. Basel III standardized approach is used to calculate risk-weighted assets ("RWA") for credit risk and market risk. In addition, the numerator for 2017 reflects the U.S. Basel III transitional rules.
3. The most significant cause of reduction in capital ratios under the Company-Run Severely Adverse Scenario resulted from trading and counterparty losses that were modeled to occur in the first quarter of the forecast horizon. Ending capital ratios under the Company-Run Severely Adverse Scenario reflected the ongoing accretion of earnings, net of operational risk and credit losses, the phase-in of numerator deductions, as well as the level of assets and RWAs projected through the forecast horizon.
4. Compliance with the SLR minimum is required starting January 1, 2018. Accordingly, the projected ending and minimum capital ratios are reflective of Q1 2018 – Q3 2019.
5. Actual and projected RWAs are calculated using the Basel III Standardized approach.

D Company-Run Dodd-Frank Stress Test (2 of 5)

Projected Losses, Revenues, and Net Income before Taxes through Q3 2019 Under the Company-Run Severely Adverse Scenario

Item	Billions of Dollars	Percent of Average Assets ⁽¹⁾
Pre-Provision Net Revenue	\$3.6	0.5%
Other Revenue ⁽²⁾	N/A	
<i>Less</i>		
Provisions	\$4.5	
Realized Losses/Gains on Securities (AFS / HTM) ⁽³⁾	\$0.0	
Trading and Counterparty Losses ⁽⁴⁾	\$16.6	
Other Losses/Gains ⁽⁵⁾	\$3.9	
<i>Equals</i>		
Net Income before Taxes	(\$21.4)	(2.7)%
Memo Items		
Other Comprehensive Income ⁽⁶⁾	\$0.6	
<i>Other Effects on Capital</i>		
	Q2 2017	Q3 2019
AOCI Included in Capital (in Billion Dollars) ⁽⁷⁾	(\$2.3)	(\$1.9)

1. Average assets reflect the nine-quarter average of total assets.
2. Other revenue includes one-time income and (expense) items not included in pre-provision net revenue.
3. Represents available-for-sale ("AFS") securities and held-to-maturity ("HTM") securities.
4. Trading and counterparty losses include mark-to-market and credit valuation adjustments ("CVA") losses and losses arising from the counterparty default component scenario applied to derivatives and securities lending, and repurchase agreement activities.
5. Other losses/gains include projected change in value of loans held for sale and loans measured under the fair-value option.
6. Represents the change over the forecast horizon. Other comprehensive income primarily includes incremental unrealized losses/gains on AFS securities, defined benefit pension plan and projected changes in the Cumulative Translation Adjustment.
7. Represents the inception-to-date balance of accumulated other comprehensive income ("AOCI") as of Q2 2017 and Q3 2019, adjusted to include 80% of unrealized gains or losses on AFS securities and defined benefit pension plan in the 2017 capital calculations and 100% of unrealized gains or losses on AFS securities and defined benefit pension plan in the 2018 and Q3 2019 capital calculations.

D Company-Run Dodd-Frank Stress Test (3 of 5)

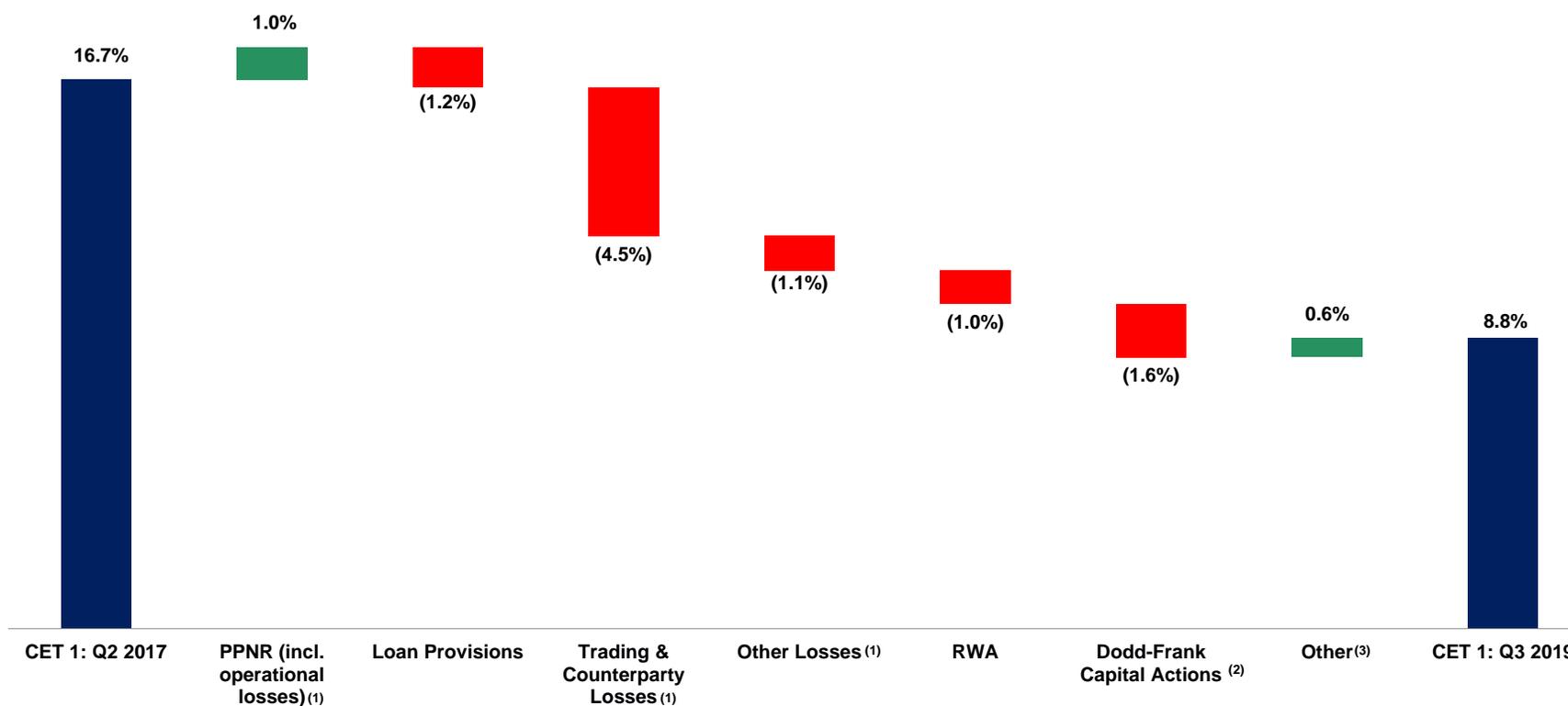
Projected Loan Losses, by Type of Loan 3Q 2017 – 3Q 2019 Under the Company-Run Severely Adverse Scenario

Loan Type	Billions of Dollars ⁽¹⁾	Portfolio Loss Rates (Percent)
First-Lien Mortgages, Domestic	\$0.5	1.9%
Junior Liens and HELOCs, Domestic	\$0.0	3.7%
Commercial and Industrial	\$1.4	10.1%
Commercial Real Estate, Domestic	\$0.5	4.8%
Credit Cards	N/A	N/A
Other Consumer	\$0.0	0.2%
Other Loans ⁽²⁾	\$0.5	1.1%
Total Projected Loan Losses	\$3.0	2.6%

1. Average loan balances used to calculate portfolio loss rates exclude loans held for sale and loans measured at fair value and are calculated over nine quarters. Portfolio loss rates represent cumulative portfolio losses as a percentage of the average loan portfolio balance.
2. Other loans include loans to depositories and other financial institutions and loans for purchasing or carrying securities.

D Company-Run Dodd-Frank Stress Test (4 of 5)

Key Drivers of Common Equity Tier 1 Capital Ratio (“CET 1”) Under the Company-Run Severely Adverse Scenario



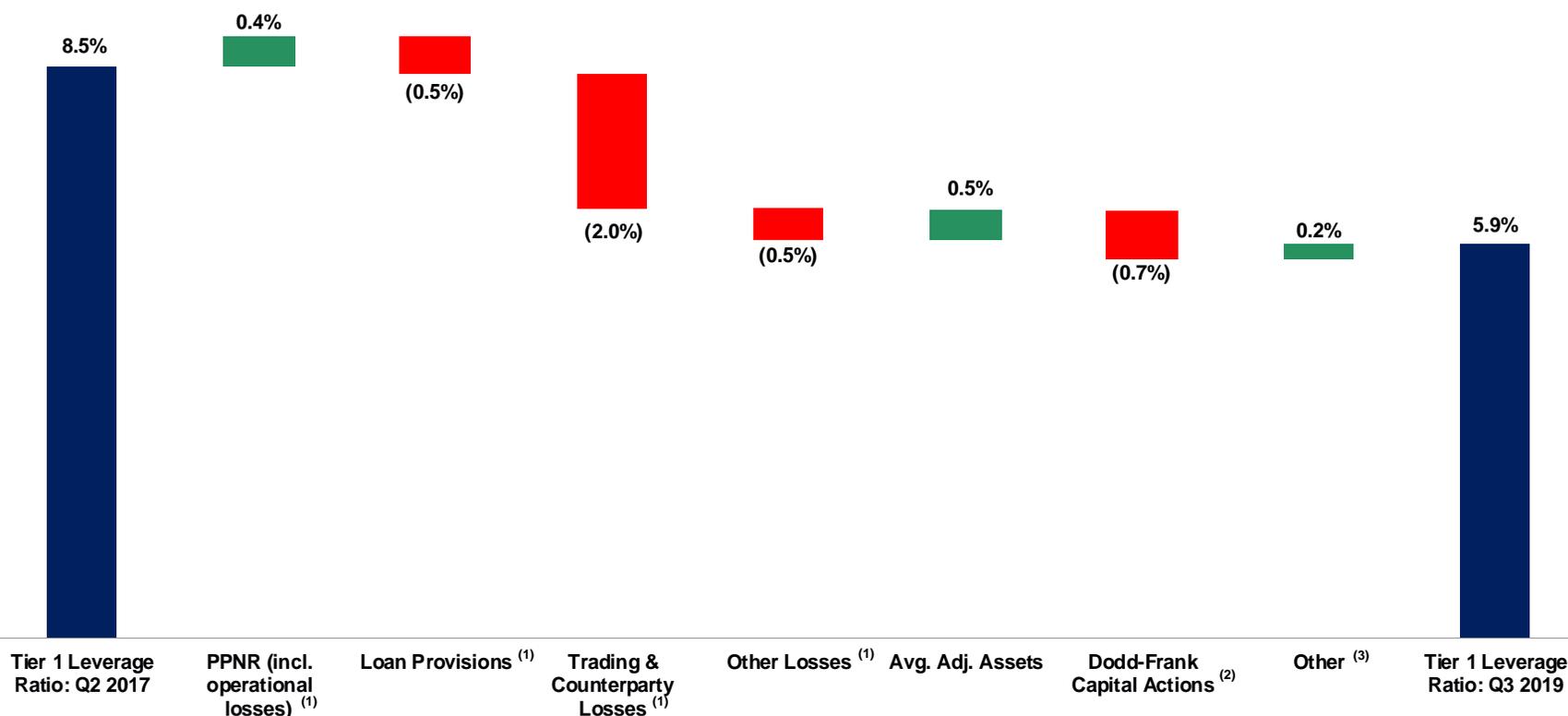
1. Reflects pre-tax impact.

2. Reflects share repurchases (Q3 2017 only) and cash dividends declared on common stock and preferred stock in accordance with the assumptions prescribed in the Dodd Frank Act Stress Testing Capital Actions, which are discussed on page 4.

3. Other includes changes in Common Equity Tier 1 deductions over the forecast horizon, employee incentive plan share issuance, AOCI, tax provisions, realized gains/losses on AFS / HTM Securities, Discontinued Operations, and Earnings Attributable to Non-Controlling Interests.

D Company-Run Dodd-Frank Stress Test (5 of 5)

Key Drivers of Tier 1 Leverage Ratio Under the Company-Run Severely Adverse Scenario



1. Reflects pre-tax impact.

2. Reflects share repurchases (Q3 2017 only) and cash dividends declared on common stock and preferred stock in accordance with the assumptions prescribed in the Dodd Frank Act Stress Testing Capital Actions, which are discussed on page 4.

3. Other includes changes in Tier 1 Capital deductions over the forecast horizon, employee incentive plan share issuance, AOCI, tax provisions, realized gains/losses on AFS / HTM Securities, Discontinued Operations, and Earnings Attributable to Non-Controlling Interests.

E Key Risks Captured in Dodd-Frank Stress Test (1 of 2)

The below risks are those inherent in the Firm's business activities and included in the internally developed severely adverse scenario.

Credit Risk

Risk of loss arising when a borrower, counterparty or issuer does not meet its financial obligations to the Firm. This risk arises from a variety of business activities, including but not limited to lending commitments, over-the-counter derivatives, securities financing transactions, listed derivatives, and prime brokerage margin lending.

Market Risk

The risk caused by a change in the level of one or more market prices, implied volatilities (the price volatility of the underlying instrument imputed from option prices), correlations or other market factors, such as market liquidity, which will result in losses for a position or portfolio owned by the Firm. Market risks impacting the Firm include the level and volatility of equity prices, debt and commodity prices, interest rates, currency values and other market indices.

Liquidity Risk

Liquidity risk refers to the risk that the Firm will be unable to finance its operations due to a loss of access to the capital markets or difficulty in liquidating its assets. Risk also encompasses the Firm's ability (or perceived ability) to meet its financial obligations without experiencing significant business disruption or reputational damage that may threaten its viability as a going concern.

E Key Risks Captured in Dodd-Frank Stress Test (2 of 2)

Earnings at Risk	Risks to baseline earnings that can arise from stressed macroeconomic conditions, departure of key revenue generators, significant loss of customer base, reduced standing amongst competitors, idiosyncratic or industrywide factors, significant changes to expected expenses and shifting of business/product mix.
Reputational Risk	Risk of baseline earnings degradation due to change in the Firm's perception in the marketplace driven by activities of third parties affiliated with the Firm or by actions of the Firm, its officers or employees, creating negative publicity and damage to the Firm's reputation.
Strategic Risk	Risk that threatens the effective and efficient execution of the Firm's strategic business initiatives, including prospective impact to earnings from misaligned design and implementation of strategic business decisions or lack of responsiveness to industry changes.
Capital and RWA Risk	Risks to the Firm's spot or projected capital ratios due to adverse movement in the drivers of capital (numerator) and RWA, balance sheet or off-balance sheet items (denominator).
Operational Risk	The risk of loss, or damage to the Firm's reputation, resulting from inadequate or failed processes or systems, human factors or from external events (e.g., fraud, theft, legal and compliance risks, cyber-attacks or damage to physical assets).

F Forecasting Methodologies – Dodd-Frank Severely Adverse (1 of 3)

Overview

- The Firm's capital ratios under the Company-Run Severely Adverse Scenario reflect the effect of the hypothetical macroeconomic and market environment on the revenues, expenses and the resources (e.g., assets and headcount) available to the Firm's business segments as well as market, credit and operational risk loss projections.
- Under the Company-Run Severely Adverse Scenario, the Firm employed appropriate forecast methodologies to project the impact of the hypothetical assumptions over the forecast time horizon.
- Several of these forecast methodologies were partially regression driven, with certain limitations that are inherent in all types of regression models. The models contain various assumptions such as the historical relationships between Firm performance and relevant macroeconomic and market variables as well as expectations of customer behavior. Changes to these assumptions can materially affect forecast results.

Pre-Provision Net Revenue ("PPNR")

- The Firm's forecast reflects a detailed process in which each major business developed a projection of PPNR over the nine-quarter forecast horizon. The projection considered:
 - Key macroeconomic and market variables that historically demonstrated the highest correlation to the level and growth rate of industry and Firm business volumes and net revenues;
 - The business' expectations of customer behavior and industry dynamics under the scenario; and
 - The impact of reduced market activity on operating costs, including projected headcount reductions and lower brokerage and clearing expenses, partially offset by an increase in operational risk losses.

F Forecasting Methodologies – Company-Run Severely Adverse (2 of 3)

- Operational Risk's Methodology is comprised of Baseline Loss & Stress Loss:
 - Base Loss, which represents the run-rate of operational risk losses, is calculated for macro-sensitive risk segments as the regression model output based on the correlation of internal loss data to select macroeconomic variables, and for non-macro-sensitive risk segments through a historical average method that reflects the Firm's 9-quarter average realized losses over the Firm's loss data collection history.
 - Stress Loss, which includes historical run-rate and large idiosyncratic losses, is calculated through the regression model output based on the correlation of internal loss data to select macroeconomic variables for macro-sensitive risk segments, historical loss based estimation for non-macro-sensitive risk segments, scenario analysis by aggregating the severities of a chosen set of idiosyncratic scenarios designed to stress material risks, and aggregation of stressed outcome of material pending litigation matters in the Firm's Litigation Docket.

Balance Sheet

- Balance sheet forecasts were developed with each of the business segments and were analytically driven by multiple elements, including the prescribed macroeconomic and market variable paths and historical data.

Risk-Weighted Assets

- The Firm's RWA forecast reflects the application of the Standardized Approach under US Basel III for the Common Equity Tier 1, Tier 1 Capital and Total Capital Ratios.
- The Firm's methodology aligned projections of standardized market and credit risk calculations to projected movements in the balance sheet and tied projections of model-driven market RWAs to the macroeconomic and market variables included in the forecast.

F Forecasting Methodologies – Company-Run Severely Adverse (3 of 3)

Losses

- Market and Credit risk stress loss projections included trading positions, private equity investments, counterparty exposures, loans held for investment, held for sale, or carried at fair value, and available for sale securities.
- Stress losses on the Firm's mark-to-market trading, private equity and counterparty risk portfolios were estimated by applying the Company-Run Severely Adverse Scenario upfront market shock.
- Losses for counterparty default were computed by applying the upfront market shock to the relevant exposures, and assuming the default of a large counterparty and additional knock-on defaults. Additionally, losses arising from the impact of issuer defaults on trading positions were also captured.
- Default losses on corporate, commercial and residential real estate loans were estimated using stressed probability-of-default, loss-given-default and exposure-at-default under the Company-Run Severely Adverse Scenario macroeconomic and market environment. Additionally, mark-to-market stress losses were calculated on loans held for sale and carried at fair value, and losses due to increases in allowance for credit loss were projected for loans held for investment.

Capital Position

- The Firm's capital position was projected by aggregating revenue and loss estimates as outlined above and deriving their respective impacts on the levels of Common Equity Tier 1 Capital, Tier 1 Capital and Total Capital on a quarterly basis over the nine-quarter forecast horizon.