Morgan Stanley

2016 Dodd-Frank Act Mid-Cycle Stress Test (DFAST)

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A Disclaimer

The results summarized in section D of the document 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 "Company'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 Company. 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 Company, 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 Mid-Cycle 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 Company.
- 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, 2016 and includes a nine quarter forecast beginning with the third quarter of 2016 and ending with the third quarter of 2018.
- The Company 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 Company’s stress test, under the Company’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 Severely Adverse Scenario

- The Company'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 rapid and severe U.S. financial markets dislocation across a wide range of asset classes followed by a gradual recovery over the nine quarter horizon. 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. In determining the Company-Run Severely Adverse Scenario, the Company considered several key macroeconomic and market variables and idiosyncratic events, including but not limited to those discussed herein.
  - U.S. and Eurozone Real GDP growth rates are projected to be negative 4.6% and negative 9.9% at the trough, respectively, compared with historical annual growth rates of 1 - 3%. Real GDP in both regions recovers and grows modestly by Q3 2018.
  - 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 48% at the trough in Q1 2017. U.S. equity market volatility, as measured by the VIX index, peaks at approximately 74 during Q4 2016. Additionally, oil prices decline by approximately 55% by Q2 2017.
  - 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 2018.
  - Fed Funds rate remains low at 11 bps throughout the forecast horizon. Additionally, BBB credit spreads widen to 623bps at the peak over the nine quarters and recover to about 250bps by Q3 2018.
  - The idiosyncratic events reflected in the Company-Run Severely Adverse Scenario include 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 one-notch ratings downgrade and incremental attrition of financial advisors from the Company's Wealth Management business.

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

Capital Ratios, Actual Q2 2016 and Projected Q3 2016 – Q3 2018
Under the Company-Run Severely Adverse Scenario

Regulatory Ratio	Actual Q2 2016[2]	Projected Stressed Capital Ratios[1] [2] (Q3 2016 - Q3 2018)	
		Ending[3]	Minimum
Common Equity Tier 1 Capital Ratio	17.5%	11.6%	11.6%
Tier 1 Risk-Based Capital Ratio	19.5%	13.3%	13.3%
Total Risk-Based Capital Ratio	23.4%	16.5%	16.5%
Tier 1 Leverage Ratio	8.3%	6.4%	6.4%

1. The capital ratios are calculated based on the Dodd-Frank Act Stress Testing Capital Actions described in Section B. 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. The minimum capital ratios do not necessarily occur in the same quarter of the planning horizon.
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 RWAs for credit risk and market risk. In addition, the numerator for all quarters of the nine quarter horizon 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 modelled 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.

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

Risk-Weighted Assets, Actual Q2 2016 and Projected Q3 2018 Under the Company-Run Severely Adverse Scenario

Item	Actual Q2 2016	Projected Q3 2018
Risk-Weighted Assets [1]	$343	$382

1. Actual and projected RWAs are calculated using the Basel III Standardized approach. In addition, the numerator for all quarters of the nine quarter horizon reflects the U.S. Basel III transitional rules, with the last three quarters of 2018 being fully phased-in.

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

Projected Losses, Revenues, and Net Income before Taxes through Q3 2018 Under the Company-Run Severely Adverse Scenario

Item	Billions of Dollars	Percent of Average Assets (1)
Pre-Provision Net Revenue (2)	$4.3	0.5%
Other Revenue (3)	-	
Less		
Provisions	$3.4	
Realized Losses/Gains on Securities (AFS / HTM) (4)	$0.1	
Trading and Counterparty Losses (5)	$10.3	
Other Losses/Gains (6)	$1.6	
Equals		
Net Income before Taxes	**($11.0)**	**(1.4)%**
Memo Items		
Other Comprehensive Income (7)	($0.4)	
Other Effects on Capital	*Q2 2016*	*Q3 2018*
AOCI Included in Capital (Billions of Dollars) (8)	($0.8)	($1.3)

1. Average assets reflect the nine-quarter average of total assets.
2. Pre-provision net revenue includes losses from operational risk events, mortgage put-back expenses and other real estate owned (“OREO”) costs.
3. Other revenue includes one-time income and (expense) items not included in pre-provision net revenue.
4. Represents available-for-sale (“AFS”) securities and held-to-maturity (“HTM”) securities.
5. Trading and counterparty losses include mark-to-market and CVA losses and losses arising from the counterparty default component scenario.
6. Other losses/gains include projected stress losses on loans measured at fair value.
7. 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.
8. Represents the inception-to-date balance of other comprehensive income as of Q2 2016 and Q3 2018, adjusted to include 60% of unrealized gains or losses on AFS securities and defined benefit pension plan in the 2016 capital calculations, 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 capital calculations.

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

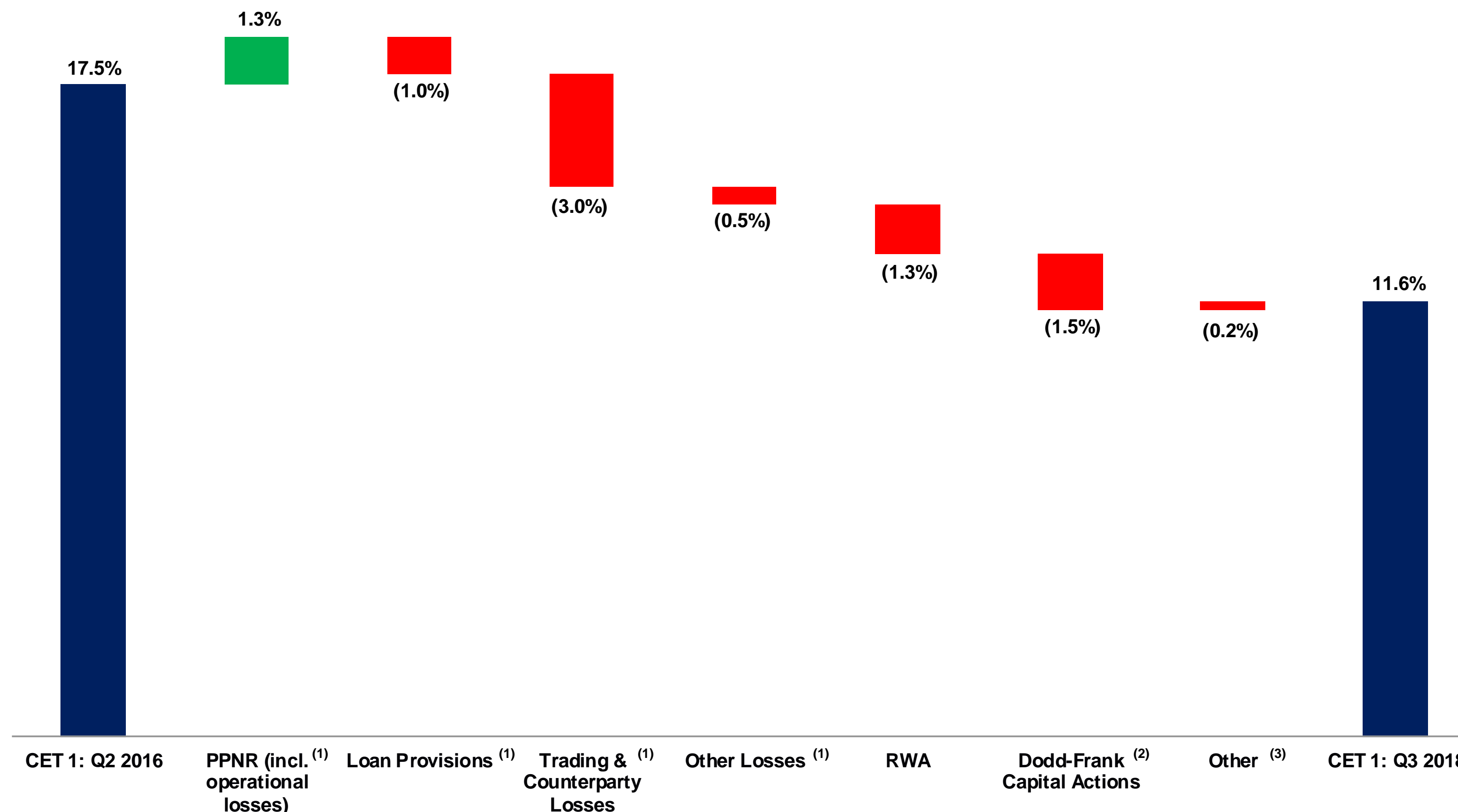
Projected Loan Losses, by Loan Type from Q3 2016 to Q3 2018 Under the Company-Run Severely Adverse Scenario

Loan Type	Billions of Dollars [1]	Portfolio Loss Rates (Percent)
First-Lien Mortgages, Domestic	$0.3	1.2%
Junior Liens and HELOCs, Domestic	$0.0	11.1%
Commercial and Industrial	$1.3	8.2%
Commercial Real Estate, Domestic	$0.4	4.1%
Credit Cards	-	-
Other Consumer	$0.0	0.3%
Other Loans [2]	$0.5	1.5%
Total Projected Loan Losses	**$2.6**	**2.5%**

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 Act Stress Test – Holding Company (5 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 (Q1 2016 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 in Section B.
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.

E Key Risks Captured in Stress Test

The below risks are those inherent in Morgan Stanley’s business activities.

Credit Risk	• Risk of loss arising when a borrower, counterparty or issuer does not meet its financial obligations to the Firm.
Market Risk	• The risk caused by a change in the level of one or more market prices, rates, indices, 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.
Funding / Liquidity Risk	• Liquidity and funding 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. Liquidity and funding 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.
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 loss that arises due to external events or actions of the Firm, its officers or employees, or lack of responsiveness to industry changes, creating negative publicity that may damage the Firm's reputation.
Capital & RWA Risk	• Risks to the Firm's spot or projected capital ratios due to adverse movement in the drivers of capital (numerator) and RWA or balance sheet (denominator).
Operational Risk	• The risk of loss, or of damage to the Firm's reputation, resulting from inadequate or failed processes, people and systems or from external events (e.g., fraud, theft, legal and compliance risks, cyber attacks or damage to physical assets).

F Forecasting Methodologies – Company-Run Severely Adverse (1 of 3)

Overview

- The Company'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 Company's business segments as well as market, credit and operational risk loss projections.
- Under the Company-Run Severely Adverse Scenario, the Company employed appropriate forecast methodologies to estimate the impact of the hypothetical assumptions over the forecast time horizon.
- Several of these forecast methodologies were model driven, with certain limitations that are inherent in all types of models. The models contain various assumptions such as the historical relationships between Company 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 Company'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 Company 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 comprised of aggregation of Baseline Loss & Incremental Stress Loss:
  - Baseline Loss: Calculated using the average nine-quarter loss using the Company's entire database (10 years of data); and
  - Incremental Stress Loss: Leverages the Company's Scenario Analysis process to select and aggregate Litigation and Non-Litigation scenarios, which stress the Company's operational risk vulnerabilities.

Balance Sheet

- Balance sheet forecasts were developed by each of the business segments and were driven by multiple elements, including the prescribed macroeconomic and market variable paths, historical data and balance sheet limits.
- The Company also applied return on asset calculations in certain cases to evaluate the reasonability and consistency of revenue and balance sheet projections.

Risk-Weighted Assets

- The Company'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 Company'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 Company's forecast.

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

Losses

- Market and Credit risk stress loss projections included mark-to-market trading positions, private equity investments, credit valuation adjustments, counterparty default, loans held for investment, loans held for sale, loans carried at fair value, and available for sale securities.
- Stress losses on the Company's mark-to-market trading, private equity and CVA portfolios were estimated by applying the Company-Run Severely Adverse Scenario upfront market shock.
- Stress losses included an idiosyncratic counterparty default risk feature comprised of the default of a large counterparty and additional knock-on defaults.
- Loan losses for 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 hypothetical macroeconomic and market environment.

Capital Position

- The Company'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.