Morgan Stanley

2015 Dodd-Frank Act Mid-Cycle Stress Test

Submitted to the Federal Reserve Bank on July 1, 2015

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Notice

The results presented in section 3 herein contain forward-looking projections that represent estimates based on the hypothetical, severely adverse economic scenario as described in section 2. The estimates also reflect certain required assumptions regarding Morgan Stanley's (the "Company's") capital actions, which are described on page 4. 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 a hypothetical, highly adverse economic scenario.

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 a similar hypothetical stress scenario 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 and other factors.

1. Requirements for Mid-Cycle Dodd-Frank Stress Tests

- In October 2014, the Federal Reserve issued a final rule modifying the regulations for capital planning and stress testing. 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, including the Company, and requires the Company to conduct mid-cycle company-run stress tests under baseline, adverse and severely adverse hypothetical economic scenarios.
- The rule requires the Company to disclose publicly the results of its mid-cycle company-run stress test under the severely adverse stress scenario.
- The planning horizon begins with actual results as of March 31, 2015 and includes a nine quarter forecast beginning with the second quarter of 2015 and ending with the second quarter of 2017.
- 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; and
  - No redemption or repurchase of any capital instrument eligible for inclusion in the numerator of a regulatory capital ratio.
- The results of the Company's stress test, under the Company's severely adverse stress scenario assuming the Dodd-Frank Stress Testing Capital Actions, are presented under section 3 "Company-Run Dodd-Frank Stress Test – Holding Company" included herein.

2. Description of the Company Severely Adverse Scenario

- The Company's internally developed severely adverse stress scenario (the "Company 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 9-quarter horizon. Specifically, the Company 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 Severely Adverse Scenario, the Company considered several key macroeconomic and market variables and idiosyncratic events, including but not limited to those discussed herein.
  - In the first year, both U.S. and euro zone real GDP growth rates are projected to be negative 4 - 4.5% at the trough, compared with historical annual growth rates of 1-3%. Real GDP in both regions recover to grow modestly at 1.5 - 3% by 2Q 2017.
  - Equity market indices experience a sharp decline during the first year of the forecast horizon – both S&P 500 and the MSCI World Index decrease approximately 43% at the trough in 3Q 2015. U.S. equity market volatility, as measured by the VIX index, peaks at approximately 68 during 3Q 2015. Additionally, oil prices decrease by about 51% in 3Q 2015.
  - Both equity and commodity prices begin to recover during the later quarters of the forecast horizon, but remain below their starting point at the end of the forecast horizon in 2Q 2017.
  - Fed Funds rate remains about 11 bps throughout the forecast horizon. Additionally, investment grade credit spreads widen to about 550bps at the peak over the 9 quarters and recover back down to about 320bps by 2Q 2017.
  - The idiosyncratic events reflected in the Company 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 and incremental attrition of financial advisors from the Company's Wealth Management business.

3. Company-Run Dodd-Frank Stress Test – Holding Company

Projected Capital Ratios through June 30, 2017

Under the Company Severely Adverse Scenario

		Stressed Ratios Under the Company Severely Adverse Scenario [1] [2]	
	As of March 31, 2015	As of June 30, 2017 [3]	Minimum Over Planning Horizon
Tier 1 Common Risk-based Capital Ratio	14.5%	10.0%	8.8%
Common Equity Tier 1 Risk-based Capital Ratio	13.1%	8.8%	8.6%
Tier 1 Risk-based Capital Ratio	14.8%	10.0%	9.7%
Total Risk-based Capital Ratio	17.7%	12.8%	12.6%
Tier 1 Leverage Ratio	7.8%	5.7%	5.6%

(1) The capital ratios are calculated using 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. 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, the Tier 1 and the Total Risk-based Capital ratios, for each quarter in 2015 through 2Q 2017, the U.S. Basel III Standardized approach is used to calculate risk-weighted assets ("RWAs") for credit risk and market risk. In addition, the numerator for the aforementioned ratios and Tier 1 Leverage for all quarters in 2015 through 2Q 2017 reflects the U.S. Basel III transitional rules. However, with respect to the Tier 1 Common Capital ratio, the numerator is calculated using Basel I and RWAs are calculated using Basel I and Basel 2.5 for all quarters of the planning horizon, including as-of March 31, 2015.

(3) The most significant cause of reduction in capital ratios under the Company 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 Severely Adverse Scenario reflected the ongoing accretion of earnings, net of operational risk and credit losses, as well as the level of assets and RWAs projected through the forecast horizon.

3. Company-Run Dodd-Frank Stress Test – Holding Company (cont'd)

Projected Risk-Weighted Assets as of June 30, 2017

Under the Company Severely Adverse Scenario

		Stressed RWAs Under the Company Severely Adverse Scenario	
	As of March 31, 2015[1]	Basel I and Basel 2.5 [2]	U.S. Basel III Standardized Approach
Risk-Weighted Assets ($ in billions)	$436	$402	$463

(1) Actual RWAs as of March 31, 2015 are calculated using Basel III Standardized approach, including transitional elements.

(2) Basel I and Basel 2.5 RWAs as of June 30, 2017 represent the denominator for the Tier 1 Common ratio and do not include transitional elements.

3. Company-Run Dodd-Frank Stress Test – Holding Company (cont'd)

Projected Losses, Revenue and Net Income before Taxes
April 1, 2015 Through June 30, 2017
Under the Company Severely Adverse Scenario

	Cumulative Amount ($Bn)	% of Average Assets [1]
Pre-Provision Net Revenue [2]	$7.9	1.0%
Other Revenues [3]	0.0	
Less: Provision for Loan and Lease Losses	2.2	
Less: Realized Losses / Gain on AFS/HTM Securities [4]	0.0	
Less: Trading and Counterparty Losses [5]	13.4	
Less: Other Losses / Gains [6]	3.6	
Net Income Before Taxes	($11.3)	(1.4%)
Memo Items:		
Other Comprehensive Income [7]	$0.7	
Other Effects on Capital	**2Q 2017**	
Accumulated Other Comprehensive Income [8]	($0.6)	

(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 credit valuation adjustment ("CVA") losses and losses arising from the counterparty default scenario component applied to derivatives, securities lending, and repurchase agreement activities.
(6) Other losses/gains include projected stress losses on loans measured at fair value and loans held for sale.
(7) Represents the change over the forecast horizon. Other comprehensive income primarily includes incremental unrealized losses/gains on AFS securities, and 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 2Q 2017, adjusted to include 80% of unrealized gains or losses on AFS securities and defined benefit pension plan in the 2017 capital calculations.

3. Company-Run Dodd-Frank Stress Test – Holding Company (cont'd)

Projected Loan Losses by Type of Loans

April 1, 2015 Through June 30, 2017

Under the Company Severely Adverse Scenario

	Cumulative Amount ($Bn)	Portfolio Loss Rates [1]
Loan Losses	$1.7	1.8%
First Lien Mortgages, Domestic	0.0	0.2%
Junior Liens and HELOCs, Domestic	0.0	3.2%
Commercial and Industrial	0.9	4.9%
Commercial Real Estate	0.5	8.2%
Credit Cards	N/A	N/A
Other Consumer	0.0	0.2%
Other Loans [2]	0.2	0.7%

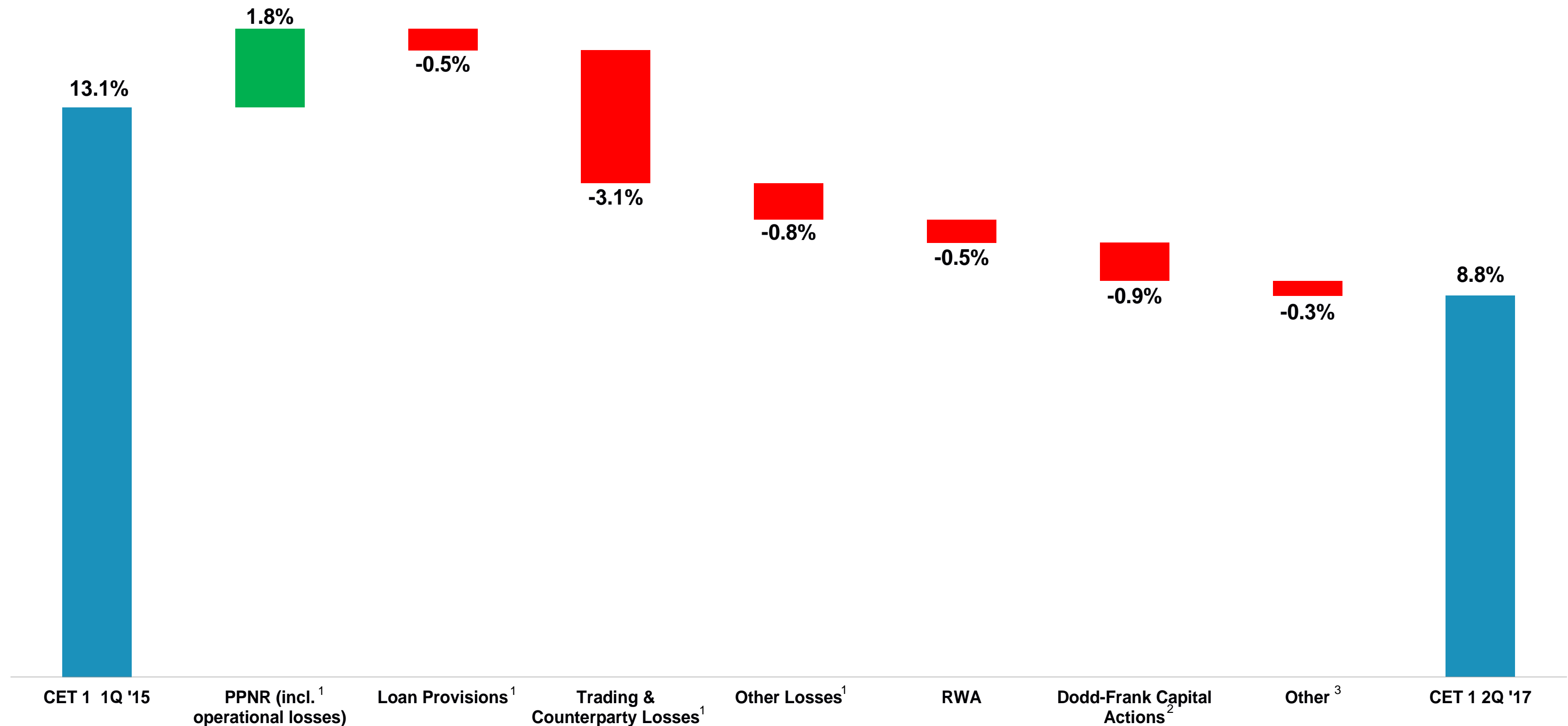
N/A—Not Applicable

(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.

3. Company-Run Dodd-Frank Stress Test – Holding Company (cont'd)

Key Drivers of the Company Severely Adverse Scenario Pro Forma Common Equity Tier 1 Capital Ratio ("CET 1")



Notes:
(1) Reflects pre-tax impact.
(2) Reflects share repurchases (2Q 2015 only) and cash dividends declared on common and preferred stock in accordance with the assumptions prescribed in the Dodd Frank Act Stress Testing Capital Actions discussed on page 4.
(3) Other includes adjustments for deferred tax assets, employee incentive plan shares, tax provisions, intangible amortization and other capital adjustments.

4. Forecast Methodologies – Company Severely Adverse Scenario

Overview

- The Company's capital ratios under the Company Severely Adverse Scenario reflect the effect of the hypothetical macroeconomic and market environment on the revenues and the resources (e.g., assets, expenses and headcount) available to the major products or businesses within each of the Company's business segments.
- Under the Company Severely Adverse Scenario, the Company employed various forecast methodologies to quantify the impact of the hypothetical assumptions, including idiosyncratic events, over the forecast time horizon.
- Several of these forecast methodologies were based on models, which like all models, have certain limitations. The models were based on various assumptions such as the historical relationships between the 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 reflected a detailed process in which each major business developed a projection over the 9 - 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 net revenues;
  - The business' expectations of customer behavior and industry dynamics under this 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 related costs, which are described on page 14 under "Losses".

4. Forecast Methodologies – Company Severely Adverse Scenario (cont'd)

Balance Sheet

- The Company's balance sheet forecast reflected a combination of historical data and forecast models tailored to the specific characteristics of each product line.
- The Company utilized historical data to ensure the forecast reflected a level of assets consistent with the macroeconomic and market assumptions and also utilized return on asset calculations 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 CET1, T1 and Total Capital Ratios and the application of Basel I for the Tier I Common Ratio.
- 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.

Losses

- **Market Risk** included all mark-to-market trading positions, private equity investments, credit valuation adjustments ("CVA") and loans carried at fair value or held for sale.
- Stress losses were estimated by repricing the Company's mark-to-market trading, private equity and CVA portfolios by applying an upfront market shock. For loans measured at fair value and loans held for sale, stress losses were calculated by computing changes in market value under the hypothetical macroeconomic and market environment.

4. Forecast Methodologies – Company Severely Adverse Scenario (cont'd)

Losses (cont'd)

- **Credit Default Risk** included losses on: (i) loans held for investment; (ii) loans measured at fair value and loans held for sale; (iii) incremental default losses on trading mark-to-market positions; (iv) counterparty default; and (v) available for sale securities.
- Credit default losses for commercial and industrial loans, including loans held for investment, loans measured at fair value and loans held for sale, were estimated using stressed Probability of Default, Loss Given Default and Exposure At Default under the Company Severely Adverse Scenario.
- Company Severely Adverse Scenarios included an idiosyncratic counterparty default risk feature comprised of the default of a large counterparty and additional knock-on defaults.
- Credit default losses for trading positions were estimated using the Company's Incremental Default Risk ("IDR") model. The IDR model represents a version of the Company's Incremental Risk Charge model, which is compliant with Basel III, to calculate the default risk of mark-to-market exposures.

4. Forecast Methodologies – Company Severely Adverse Scenario (Cont'd)

Losses (cont'd)

- **Operational Risk** loss estimates were calculated using methodologies that comprise the Company's Basel III model.
  - The model has seven units of measure, each of which corresponds to one of the seven risk types defined by the Basel Committee on Banking Supervision.
  - The Company applied a loss distribution approach where the loss frequency and loss severity of operational losses for each of the risk types are separately modeled and then aggregated.

Capital Position

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