2018 Mid-Cycle Stress Test Disclosure

Dodd-Frank Act Stress Test Results
JPMorgan Chase Severely Adverse Scenario

October 26, 2018

JPMorgan Chase & Co.

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Overview

The 2018 Mid-Cycle Stress Test Disclosure presents results of the mid-cycle stress test conducted by JPMorgan Chase & Co. (“JPMorgan Chase” or the “Firm”) in accordance with Subpart F of Regulation YY, issued by the Board of Governors of the Federal Reserve System (the “Federal Reserve”), which implemented the Dodd-Frank Act Stress Test (“DFAST”) requirements for covered companies. The results reflect certain forecasted financial measures for the nine-quarter projection period (3Q18 through 3Q20) under a Severely Adverse scenario internally developed by JPMorgan Chase’s economists (“JPMorgan Chase Severely Adverse scenario”).

The results presented were calculated using forecasting models and methodologies developed by JPMorgan Chase. The risks captured in JPMorgan Chase's 2018 Mid-Cycle DFAST stress test, as well as the methodologies and processes used to execute the stress test, are substantially consistent with those that were used by the Firm to perform the 2018 Comprehensive Capital Analysis and Review ("CCAR"), the results of which were disclosed in the Firm's 2018 Annual Stress Test Disclosure presentation dated June 21, 2018.

The results presented reflect the following specific assumptions as prescribed by the DFAST rule starting with the second quarter of the projection period (“DFAST Capital Actions”)[1]:

- Common stock dividend payments are assumed to continue at the same dollar amount as the average of the prior-four quarters (4Q17 – 3Q18) and include common stock dividends attributable to issuances related to employee compensation
- Scheduled dividend, interest, or principal payments for other capital instruments are assumed to be paid
- Repurchases of common stock and redemptions of other capital instruments are assumed to be zero
- Issuances of new preferred, or common stock, other than issuances of common stock related to employee compensation, are assumed to be zero

The results disclosed herein represent hypothetical estimates under the JPMorgan Chase Severely Adverse scenario that reflect an economic outcome that is more adverse than expected, and do not represent JPMorgan Chase's forecasts of expected gains, losses, pre-provision net revenue, net income before taxes, capital, risk-weighted assets (“RWA”), or capital ratios.

A strong capital position is essential to JPMorgan Chase's business strategy and competitive position. Capital adequacy and stress testing is subject to oversight at the most senior levels of the Firm, including the Board of Directors. The CCAR and Mid-Cycle stress tests are subject to a governance framework, which includes oversight by: the Board of Directors, the Firmwide Asset Liability Committee, the Capital Governance Committee, Capital & Liquidity Management, Internal Audit, Model Risk Governance & Review, and the Firmwide and line of business (“LOB”) Chief Financial Officers and Chief Risk Officers.

[1] The first quarter of the projection period (3Q18) reflects actual capital actions (e.g., actual common stock dividends and repurchases net of issuances, and issuances and redemptions of other capital instruments)

2018 Mid-Cycle Stress Test JPMorgan Chase Severely Adverse scenario summary

- The JPMorgan Chase Severely Adverse scenario is characterized by a severe global recession
- Results are forecasted over a nine-quarter planning horizon
- Results capture the impact of stressed economic and market conditions on capital and risk-weighted assets, including:
  - Potential losses on all on- and off-balance sheet positions
  - Pre-provision net revenue
  - Accumulated other comprehensive income

Key economic variables from JPMorgan Chase Severely Adverse scenario

- **U.S. real GDP** – GDP declines 5.5% between the second quarter of 2018 and its trough in the third quarter of 2019
- **U.S. inflation** – The annualized rate of change in the Consumer Price Index ("CPI") initially increases to 3.6% in the third quarter of 2018 from 1.8% in the second quarter of 2018, before briefly declining to -2.2% in the first quarter of 2019, then rising again to 4.4% in the third quarter of 2019, and finally stabilizing near 2.0% by the third quarter of 2020
- **U.S. unemployment rate** – Unemployment rate increases by 5.0 percentage points from its level in the second quarter of 2018, peaking at 8.8% in the fourth quarter of 2019
- **Real estate prices** – House prices decline by 28% and commercial real estate prices decline by 37% through the second quarter of 2020 relative to their levels in the second quarter of 2018
- **Equity markets** – Equity prices decline by 57% between the second quarter of 2018 and their trough in the third quarter of 2019. Equity market volatility (VIX) peaks in the fourth quarter of 2018
- **Short-term and long-term rates** – Short-term (3-month) Treasury rates fall to 0.00% in the fourth quarter of 2018 where they remain for the duration of the forecast period; long-term (10-year) Treasury rates trough at 1.25% in the first quarter of 2019 and rise gradually thereafter to 2.09% in the third quarter of 2020; the 30-year mortgage rate troughs at 4.08% in the second quarter of 2020
- **Credit spreads** – Spreads on investment-grade corporate bonds widen to 575 basis points at their peak in the fourth quarter of 2018
- **International** – The international component features recessions in the Euro area, the United Kingdom, Japan, and a slowdown in developing Asia

DFAST results under the JPMorgan Chase Severely Adverse scenario

Capital and RWA projections

Firm-calculated projected stressed capital ratios[1] (3Q18 – 3Q20)

	Actual 2Q18	2018 Mid-Cycle/ regulatory minimum	Stressed capital ratios[2]	
			3Q20	Minimum
Common equity tier 1 capital ratio (%)	12.0%	4.5%	9.3%	8.0%
Tier 1 risk-based capital ratio (%)	13.6%	6.0%	10.9%	9.5%
Total risk-based capital ratio (%)	15.5%	8.0%	12.8%	11.4%
Tier 1 leverage ratio (%)	8.2%	4.0%	6.5%	6.1%
Supplementary leverage ratio (%)	6.5%	3.0%	5.4%	5.1%

[1] All regulatory capital ratios are calculated under Basel III standardized transitional rules, in accordance with the transition arrangements provided in the Federal Reserve's revised capital framework, issued in July 2013, and using the definitions of capital, risk-weighted assets, leverage assets (for the tier 1 leverage ratio), and supplementary leverage exposures (for the supplementary leverage ratio), that are in effect during the applicable quarter of the planning horizon. For additional information on Basel III, see Capital Risk Management on pages 82-91 of JPMorgan Chase's Annual Report on Form 10-K for the year ended December 31, 2017, and pages 43-47 of JPMorgan Chase's Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2018

[2] The minimum capital ratio represents the lowest calculated stressed capital ratio during the period 3Q18 to 3Q20

Firm-calculated projected 3Q20 risk-weighted assets

	Actual 2Q18	Projected 3Q20
Risk-weighted assets (billions of dollars)[1]	$1,543	$1,549

[1] Risk-weighted assets are calculated under the Basel III Standardized capital risk-based approach

DFAST results under the JPMorgan Chase Severely Adverse scenario

Profit & Loss projection

Firm-calculated 9-quarter cumulative projected losses, revenue, net income before taxes, and other comprehensive income (3Q18 – 3Q20)

	Billions of dollars	Percent of average assets[1]
Pre-provision net revenue[2]	$65.4	2.5%
Other revenue[3]	0.0	
less		
Provision for loan and lease losses	44.2	
Realized losses/(gains) on securities (AFS/HTM)[4]	0.2	
Trading and counterparty losses[5]	28.2	
Other losses/(gains)[6]	8.0	
equals		
Net income (loss) before taxes	**$(15.3)**	**(0.6)%**
Memo items		
Other comprehensive income[7]	*$(0.1)*	
Other effects on capital	Actual 2Q18	3Q20
Accumulated other comprehensive income ("AOCI") in capital (billions of dollars)	*$(1.1)*	*$(0.5)*

Note: Numbers may not sum due to rounding

[1] Average assets is the nine-quarter average of total assets 3Q18 to 3Q20

[2] Pre-provision net revenue ("PPNR") includes losses from operational-risk events, mortgage repurchase expenses, and other real estate owned ("OREO") costs

[3] Other revenue includes one-time income and expense items not included in PPNR

[4] Realized losses/(gains) on securities available for sale ("AFS") and held-to-maturity ("HTM") consist of projections resulting from credit-related other-than-temporary impairment ("OTTI"). It also assumes no securities are sold throughout the forecast period

[5] Trading and counterparty losses include mark-to-market ("MTM") and credit valuation adjustment ("CVA") losses resulting from the assumed instantaneous global market shock, and losses arising from the counterparty default scenario component applied to derivatives, securities lending, and repurchase agreement activities

[6] Other losses/(gains) includes projected changes in fair value of loans held for sale ("HFS") and loans held for investment measured under the fair value option ("FVO")

[7] Other comprehensive income ("OCI") is reported on a pre-tax basis and includes net unrealized losses/gains on (a) AFS securities, (b) cash flow hedges, and (c) net losses and prior service costs related to defined benefit pension and other postretirement employee benefit ("OPEB") plans

DFAST results under the JPMorgan Chase Severely Adverse scenario

Loan loss projections

Firm-calculated 9-quarter cumulative projected loan losses, by type of loan (3Q18 – 3Q20)

	Billions of dollars	Portfolio loss rates (%)[1]
Loan losses[2]	$35.9	3.8%
First lien mortgages, domestic	1.9	0.8
Junior liens and HELOCs, domestic	1.0	3.1
Commercial & industrial[3]	7.2	4.1
Commercial real estate, domestic	3.1	2.8
Credit cards	19.0	14.2
Other consumer[4]	1.0	1.8
Other[5]	2.7	1.5

Note: Numbers may not sum due to rounding

[1] Average loan balances used to calculate portfolio loss rates exclude loans held for sale and loans accounted for under the fair value option

[2] Loan losses do not include impairments in the purchased credit-impaired ("PCI") portfolio. If impairments in the PCI portfolio were included, loan losses would have been $2.1 billion (0.8% portfolio loss rate) on first lien mortgages and $1.5 billion (4.4% portfolio loss rate) on junior liens and HELOCs; other loan types would not have been impacted by impairments in the PCI portfolio

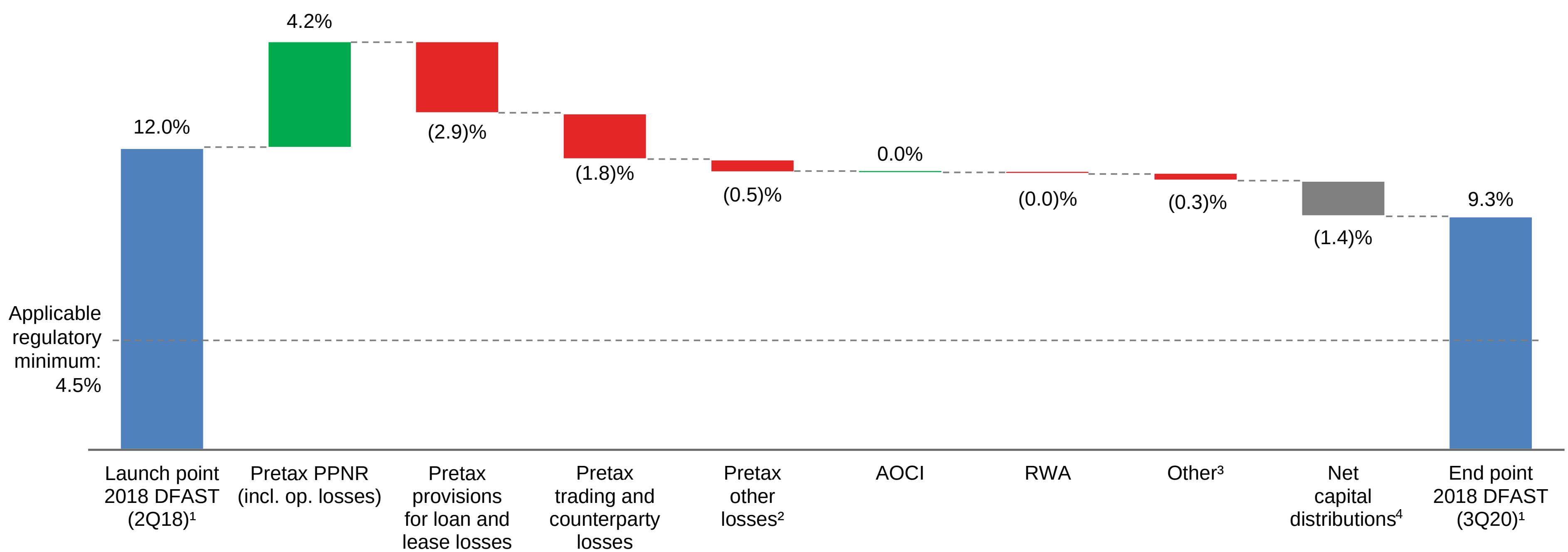
[3] Includes small and medium enterprise loans and corporate cards

[4] Includes auto loans and other consumer loans

[5] Includes international real estate loans, loans secured by farmland, loans to foreign governments, agricultural loans, securities lending, loans to depository and other financial institutions, and all other loans and leases

Key drivers of JPMorgan Chase's DFAST pro forma common equity tier 1 ("CET1") ratio

Firm-calculated CET1 ratio calculated under JPMorgan Chase Severely Adverse scenario (billions of dollars)



CET1	$185	$65	$(44)	$(28)	$(8)	$1		$(5)	$(22)	$143
RWA	$1,543						$6			$1,549

Note: Numbers may not sum due to rounding

[1] 2Q18 and 3Q20 reflect end-of-period amounts. Other amounts represent the cumulative nine-quarter impact 3Q18 to 3Q20

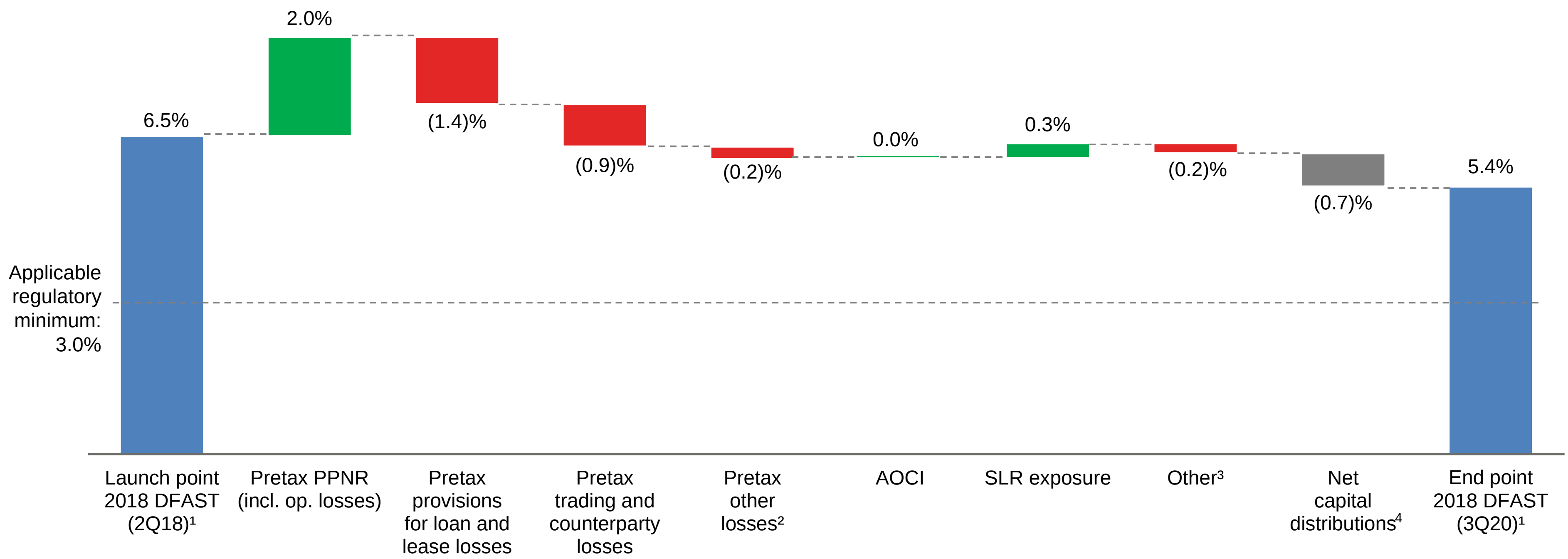
[2] Includes projected changes in fair value of loans HFS and loans held for investment measured under the FVO

[3] Represents other items, including income taxes, securities losses/gains, and goodwill and intangibles net of related deferred tax liabilities

[4] Net capital distributions reflect DFAST Capital Actions

Key drivers of JPMorgan Chase's DFAST pro forma supplementary leverage ratio ("SLR")

Firm-calculated SLR calculated under JPMorgan Chase Severely Adverse scenario (billions of dollars)



Tier 1	$210	$65	$(44)	$(28)	$(8)	$1		$(5)	$(22)	$169
SLR Exposure	$3,255						$(146)			$3,109

Note: Numbers may not sum due to rounding

[1] 2Q18 and 3Q20 reflect end-of-period amounts. Other amounts represent the cumulative nine-quarter impact 3Q18 to 3Q20

[2] Includes projected changes in fair value of loans HFS and loans held for investment measured under the FVO

[3] Represents other items, including income taxes, securities losses/gains, and goodwill and intangibles net of related deferred tax liabilities

[4] Net capital distributions reflect DFAST Capital Actions

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Key risks addressed in capital adequacy assessment projections

The below risks, categorized across four risk types, are those inherent in JPMorgan Chase's business activities. The results of the Firm's capital stress tests reflect these risks:

Risk types	Definition
Strategic	■ **Strategic risk** is the risk associated with the Firm's current and future business plans and objectives, including capital risk, liquidity risk, and the impact to the Firm's reputation ■ **Capital risk** is the risk the Firm has an insufficient level and composition of capital to support the Firm's business activities and associated risks during normal economic environments and under stressed conditions ■ **Liquidity risk** is risk that the Firm will be unable to meet its contractual and contingent financial obligations as they arise or that it does not have the appropriate amount, composition, and tenor of funding and liquidity to support its assets and liabilities ■ **Reputation risk**[1] is the potential that an action, inaction, transaction, investment or event will reduce trust in the Firm's integrity or competence by its various constituents, including clients, counterparties, investors, regulators, employees and the broader public
Credit and investment	■ **Credit and investment risk** is the risk associated with the default or change in credit profile of a client, counterparty or customer; or loss of principal or a reduction in expected returns on investments, including consumer credit risk, wholesale credit risk, and investment portfolio risk ■ **Consumer credit risk** is the risk associated with the default or change in credit profile of a customer ■ **Wholesale credit risk** is the risk associated with the default or change in credit profile of a client or counterparty ■ **Investment portfolio risk** is the risk associated with the loss of principal or a reduction in expected returns on investments arising from the investment securities portfolio held by Treasury and CIO in connection with the Firm's balance sheet or asset-liability management objectives or from principal investments managed in various lines of business in predominantly privately-held financial assets and instruments
Market	■ **Market risk** is the risk associated with the effect of changes in market factors, such as interest and foreign exchange rates, equity and commodity prices, credit spreads or implied volatilities, on the value of assets and liabilities held for both the short and long term
Operational	■ **Operational risk** is the risk associated with inadequate or failed internal processes, people and systems, or from external events and includes compliance risk, conduct risk, legal risk, and estimations and model risk ■ **Compliance risk** is the risk of failure to comply with applicable laws, rules, and regulations ■ **Conduct risk** is the risk that any action or inaction by an employee of the Firm could lead to unfair client/customer outcomes, compromise the Firm's reputation, impact the integrity of the markets in which the Firm operates, or reflect poorly on the Firm's culture ■ **Legal risk** is the risk of loss primarily caused by the actual or alleged failure to meet legal obligations that arise from the rule of law in jurisdictions in which the Firm operates, agreements with clients and customers, and products and services offered by the Firm ■ **Estimations and model risk** is the risk of the potential for adverse consequences from decisions based on incorrect or misused estimation outputs

For additional information on risks, see Enterprise-Wide Risk Management on pages 75-80 of JPMorgan Chase's Annual Report on Form 10-K for the year ended December 31, 2017, and pages 41-42 of JPMorgan Chase's Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2018

[1] Reputation risk is less quantifiable than other risks. Actual losses from historical events that may have caused reputation risk are captured through the Firm's operational loss forecasting framework; however, the entirety of the reputation risk impact may not be quantifiable

Key methodologies used in capital adequacy assessment projections

- Quantitative approach applied across all scenarios; approach employs econometric models and historical regressions where appropriate
- Qualitative models are applied to define key business assumptions (market size, market share, trading flows, expense levels, credit quality of new loan originations), and as the primary method of estimation when models cannot be used due to limited or insufficient data, or when components are not sensitive to changes in economic environment

Capital component	Forecast methodology
Capital (earnings)	**PPNR** ■ Represents total net revenue less noninterest expense; includes operational risk expense and excludes credit cost ■ Product-centric models and forecasting frameworks for revenue forecasts based on JPMorgan Chase's historical experience supplemented by industry data and qualitative model estimation, where appropriate ■ Granular, LOB-level projections for expense forecasts, governed by firmwide expense reduction guidelines for severe stress environments ■ Econometric and regression models and forecasting framework used, as appropriate, to establish relationships between macroeconomic factors and the Firm's historical experience ■ Operational risk loss projections utilize multiple approaches. For risks with relatively more frequent losses, the relationship between macroeconomic variables and the Firm's historical loss experience for those risks are utilized to derive loss projections. For idiosyncratic risks with relatively large potential losses, the loss projections rely on subject matter experts' forward-looking assessment of the risk (i.e. scenario analysis, reasonably possible loss ("RPL")) **Gains/losses on securities** ■ Projections of gains/losses on AFS and HTM positions resulting from credit-related OTTI; assumes no securities are sold throughout the forecast period ■ OTTI is estimated using credit migration models for non-securitized assets and cash flow simulations for securitized assets **Losses on HFS/FVO loans** ■ Projections of changes in valuations of HFS loans and commitments pending syndication, as well as loans accounted for under FVO in the Firm's wholesale loan portfolio ■ Projections capture the Firm's exposure to changes in the mark-to-market value of HFS/FVO loans primarily due to credit spreads based on facility rating
Credit	**Provision for loan and lease losses** ■ Projections of net charge-offs, reserves, and loan balances based on composition and characteristics of wholesale and consumer loan portfolios across asset classes and customer segments ■ Model-based approach reflects credit migrations and changes in delinquency trends driven by underlying economic factors; additionally, models consider characteristics such as credit rating, geographic distribution, product and industry mix, and collateral type ■ Utilizes loss experience data relevant to the Firm's asset classes and portfolios

Key methodologies used in capital adequacy assessment projections (cont'd)

Capital component	Forecast methodology
Market	**Trading & counterparty losses** ■ Instantaneous global market shock applied to trading and counterparty positions as of June 29, 2018; mark-to-market and nine-quarter default losses are reflected in first quarter of the projection period ■ Utilizes the existing firmwide stress framework and models approved for valuation and stress testing to measure the Firm's exposure to changes in fair value of financial instruments primarily driven by movements in interest rates, FX rates, equity prices, credit spreads, and commodity prices ■ Counterparty default assumes an instantaneous default of certain derivatives and securities financing transactions ("SFT") counterparties as a result of the idiosyncratic counterparty default component of the JPMorgan Chase Severely Adverse scenario
RWA	■ Projections of risk-weighted assets are calculated under the Basel III Standardized capital risk-based approach ■ Credit risk RWA projections utilize forecasted loan, securities, derivatives and secured financing balances ■ Market risk RWA projections reflect relationships between RWA and key macroeconomic drivers using estimation methods
AOCI	■ AOCI primarily includes the after-tax change in unrealized gains and losses on investment securities and the Firm's defined benefit pension and OPEB plans ■ Projections are based on estimated changes in value of positions using a combination of full revaluation and sensitivity-based forecasting approaches for AFS securities, and pension and OPEB plan assets and liabilities

Capital	■ Capital projections reflect:
	  ■ Balance sheet management strategies
	  ■ DFAST Capital Actions prescribed by the Federal Reserve's requirements

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Forward-looking statements

The 2018 Mid-Cycle Stress Test Results Disclosure (the "Stress Test Results") presented herein contains forward-looking projections that represent estimates based on the hypothetical, severely adverse economic and market scenarios and assumptions internally developed by JPMorgan Chase, as described herein. The Stress Test Results do not represent JPMorgan Chase's forecasts of actual expected gains, losses, pre-provision net revenue, net income before taxes, capital, risk-weighted assets ("RWA"), or capital ratios. JPMorgan Chase's actual future financial results will be influenced by actual economic and financial conditions and various other factors as described in its reports filed with the Securities and Exchange Commission ("SEC"), which are available on JPMorgan Chase's website (http://investor.shareholder.com/jpmorganchase/sec.cfm), and on the Securities and Exchange Commission's website (www.sec.gov). JPMorgan Chase does not undertake to update forward-looking statements.