2019 Mid-Cycle Stress Test Disclosure

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

October 25, 2019

JPMorgan Chase & Co.

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Overview

This 2019 Mid-Cycle Stress Test Disclosure presents the results of the mid-cycle stress test conducted by JPMorgan Chase & Co. ("JPMorgan Chase" or the "Firm") as required under the Board of Governors of the Federal Reserve System (the "Federal Reserve") rules that implemented the Dodd-Frank Act Stress Test ("DFAST") requirements. The results reflect certain forecasted financial measures for the nine-quarter projection period (3Q19 through 3Q21) under a Severely Adverse scenario internally developed by JPMorgan Chase economists ("JPMorgan Chase Severely Adverse scenario").

The results 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 actual expected gains, losses, pre-provision net revenue ("PPNR"), net income before taxes, capital, risk-weighted assets ("RWA"), or capital ratios.

The results were calculated using forecasting models and methodologies developed by JPMorgan Chase. The risks captured in the Firm's 2019 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 2019 Annual DFAST stress test, the results of which were disclosed in the Firm's 2019 Annual Stress Test Disclosure presentation dated June 21, 2019.

The results reflect certain assumptions required under the DFAST rule for each of the second through ninth quarters of the projection period ("DFAST Capital Actions")[1]:

- Common stock dividend payments continue at the same dollar amount as the average of the prior-four quarters (4Q18 – 3Q19) and include common stock dividends attributable to issuances related to employee compensation
- Scheduled dividend, interest, or principal payments for other capital instruments are paid
- Repurchases of common stock and redemptions of other capital instruments are zero
- Issuances of new preferred, or common stock, other than issuances of common stock related to employee compensation, are zero

A strong capital position is essential to the Firm'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 Annual and Mid-Cycle DFAST 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, the Firmwide and line of business ("LOB") Chief Financial Officers and Chief Risk Officers, Model Risk Governance & Review, and Internal Audit.

[1] The first quarter of the projection period (3Q19) reflects actual capital actions (e.g., actual common stock dividends and repurchases net of issuances, and issuances and redemptions of other capital instruments)

2019 Mid-Cycle DFAST Stress Test JPMorgan Chase Severely Adverse scenario

The JPMorgan Chase Severely Adverse scenario is characterized by a severe global recession

Key economic variables in the JPMorgan Chase Severely Adverse scenario

- **U.S. real GDP** – GDP declines by 5.9% between the second quarter of 2019 and the third quarter of 2020
- **U.S. unemployment rate** – Unemployment rate increases by 5.3 percentage points from its level in the second quarter of 2019, peaking at 8.9% in the fourth quarter of 2020
- **U.S. inflation** – The annualized rate of change in the Consumer Price Index decelerates to 0.4% in the third quarter of 2020, then stabilizes around 2.2% by the first quarter of 2021
- **Real estate prices** – House prices decline by 17% through the fourth quarter of 2020 relative to their level in the second quarter of 2019; commercial real estate prices decline 36% through the second quarter of 2021 relative to their level in the second quarter of 2019
- **Equity markets** – Equity prices decline by 58% between the second quarter of 2019 and their trough in the third quarter of 2020. Equity market volatility (VIX) peaks in the fourth quarter of 2019 at 81
- **Short-term and long-term rates** – Short-term (3-month) Treasury yields drop from 2.29% in the second quarter of 2019 to 0.07% in the third quarter of 2020, where they remain for the duration of the forecast period; long-term (10-year) Treasury yields drop from 2.22% in the second quarter of 2019 to 0.85% in the fourth quarter of 2019, then gradually rise to ~2.00% by the third quarter of 2021
- **Mortgage Rates** – 30-year mortgage rates increase from 4.01% in the second quarter of 2019 to 4.12% in the third quarter of 2019. Mortgage rates then gradually decline to ~3.50% by the third quarter of 2021
- **Credit spreads** – Spreads on investment-grade corporate bonds increase from 182 basis points in the second quarter of 2019 to 650 basis points at their peak in the fourth quarter of 2019
- **International** – The international component features recessions in the Euro area, the United Kingdom, Japan, and a slowdown in developing Asia

Mid-Cycle DFAST results under the JPMorgan Chase Severely Adverse scenario

Capital and RWA projections

Firm-calculated projected stressed capital ratios[1] (3Q19 – 3Q21)

	Actual 2Q19	2019 Mid-Cycle/ regulatory minimum	Stressed capital ratios[2]	
			3Q21	Minimum
Common equity tier 1 capital ratio (%)	12.2%	4.5%	8.9%	8.1%
Tier 1 risk-based capital ratio (%)	14.0%	6.0%	10.7%	9.9%
Total risk-based capital ratio (%)	15.8%	8.0%	12.6%	11.8%
Tier 1 leverage ratio (%)	8.0%	4.0%	6.2%	6.0%
Supplementary leverage ratio (%)	6.4%	3.0%	5.0%	4.9%

[1] All regulatory capital ratios were calculated under the Basel III Standardized rules. The supplementary leverage ratio ("SLR") was calculated under the Basel III Advanced rules for all periods. For additional information on Basel III, refer to Capital Risk Management on pages 85-94 and Note 26 on pages 269-270 of JPMorgan Chase's Annual Report on Form 10-K for the year ended December 31, 2018, and Capital Risk Management on pages 44-48 and Note 21 on pages 153-154 of JPMorgan Chase's Quarterly Report on Form 10-Q for the quarterly period ended on June 30, 2019

[2] The minimum capital ratio represents the lowest calculated stressed capital ratio during the period 3Q19 to 3Q21

Firm-calculated projected risk-weighted assets

	Actual 2Q19	Projected 3Q21
Risk-weighted assets (billions of dollars)[1]	$1,545	$1,552

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

Mid-Cycle DFAST results under the JPMorgan Chase Severely Adverse scenario

Profit & loss projections

Firm-calculated 9-quarter cumulative projected losses, revenue, net income before taxes, and other comprehensive income (3Q19 – 3Q21)

	Billions of dollars	Percent of average assets[1]
Pre-provision net revenue[2]	$63.0	2.3 %
equals		
Net interest income	115.0	4.2
Noninterest income	94.0	3.4
less		
Noninterest expense	146.0	5.3
Other revenue[3]	0.0	
less		
Provisions	43.0	
Realized losses/(gains) on securities (AFS/HTM)[4]	0.2	
Trading and counterparty losses[5]	27.7	
Other losses/(gains)[6]	7.4	
equals		
Net income (loss) before taxes	**$(15.3)**	**(0.6) %**
Memo items		
Other comprehensive income[7]	*$(6.2)*	
Other effects on capital	Actual 2Q19	3Q21
Accumulated other comprehensive income ("AOCI") in capital (billions of dollars)	*$1.1*	*$(3.1)*

Note: Numbers may not sum due to rounding

[1] Average assets is the nine-quarter average of total assets for 3Q19 to 3Q21

[2] Pre-provision net revenue includes losses from operational-risk events, mortgage repurchase expenses, and other real estate owned 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 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 losses/(gains) associated with loans held-for-sale ("HFS"), loans accounted for under the fair value option ("FVO"), and equity securities not held for trading

[7] Other comprehensive income 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

Mid-Cycle DFAST results under the JPMorgan Chase Severely Adverse scenario

Loan loss projections

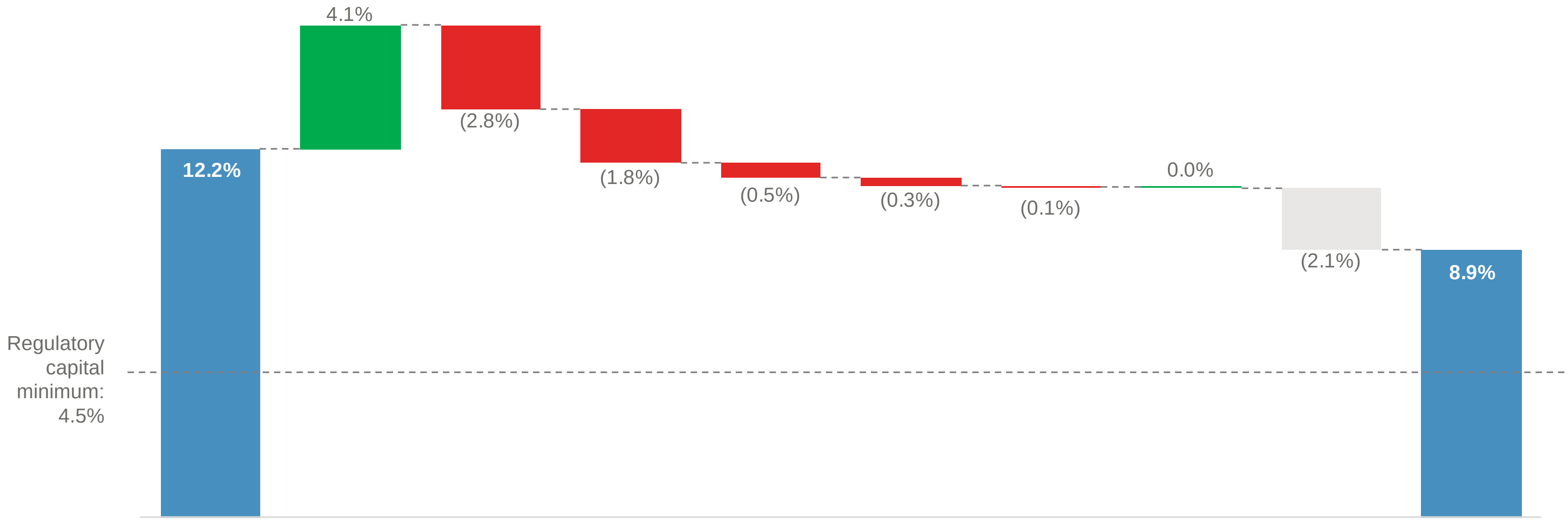
Firm-calculated 9-quarter cumulative projected loan losses, by type of loan (3Q19 – 3Q21)

Loan type	Billions of dollars	Portfolio loss rates (%)[1]
First lien mortgages, domestic	$1.0	0.5 %
Junior liens and HELOCs, domestic	0.5	1.6
Commercial & industrial[2]	9.3	5.3
Commercial real estate, domestic	1.5	1.3
Credit cards	20.1	13.8
Other Consumer[3]	1.0	1.9
Other[4]	5.0	2.5
Total projected loan losses[5]	**$38.3**	**4.1 %**

Note: Numbers may not sum due to rounding
[1] Average loan balances used to calculate portfolio loss rates exclude loans HFS and loans accounted for under the FVO
[2] Includes small and medium enterprise loans and corporate cards
[3] Includes auto loans and other consumer loans
[4] 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
[5] 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 $0.7 billion (2.4% portfolio loss rate) on junior liens and HELOCs; other loan types were not materially impacted by impairments in the PCI portfolio

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

Firm-calculated CET1 ratio calculated under JPM Severely Adverse scenario ($B)



	Launch point 2019 DFAST (2Q19)[1]	PPNR (pretax)	Provisions (pretax)	Trading and counterparty losses (pretax)	Other losses[2] (pretax)	AOCI	RWA	Other[3]	DFAST capital actions	End point 2019 DFAST (3Q21)[1]
CET1	$189	$63	$(43)	$(28)	$(7)	$(4)		$0	$(32)	$138
RWA	$1,545						$7			$1,552

Note: Numbers may not sum due to rounding

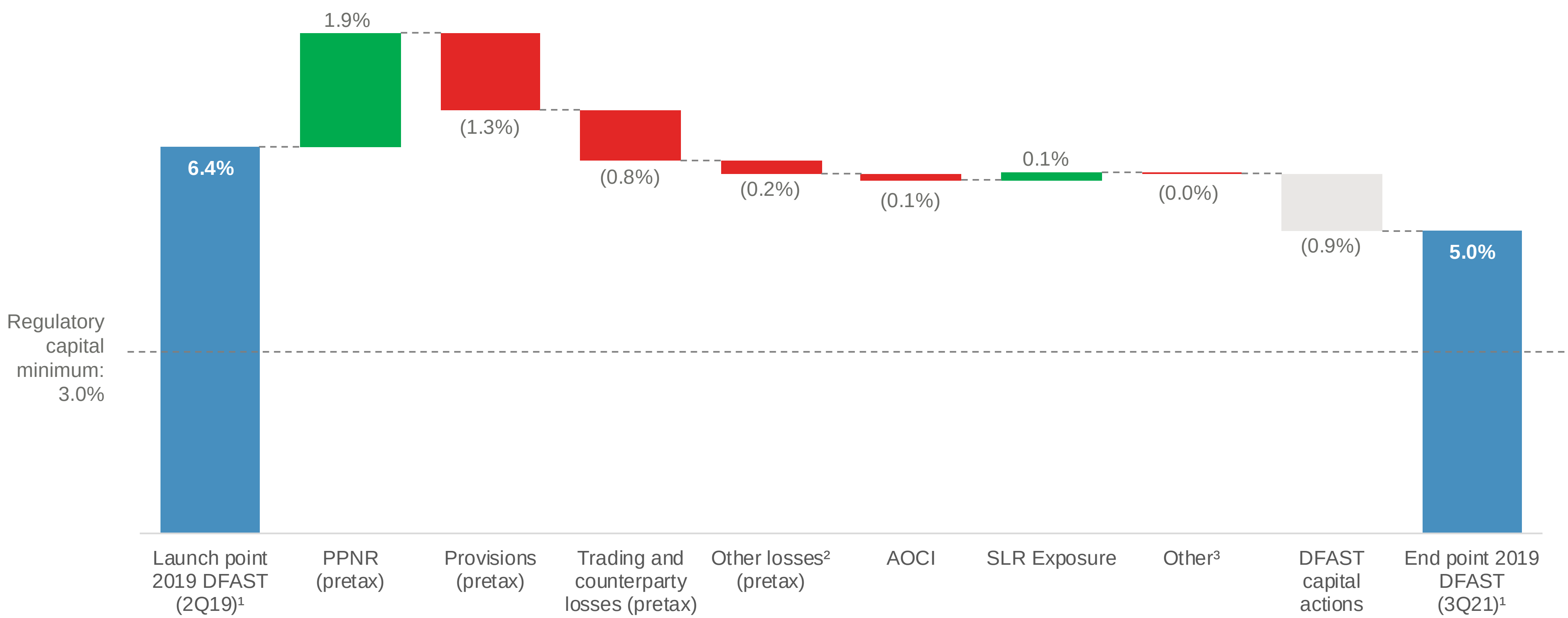
[1] 2Q19 and 3Q21 reflect end-of-period amounts. Other amounts represent the cumulative nine-quarter impact for 3Q19 to 3Q21

[2] Includes losses/(gains) associated with loans HFS, loans accounted for under the FVO, and equity securities not held for trading

[3] Includes income tax expense/benefit, realized losses/gains on securities (AFS/HTM), and goodwill and intangibles net of related deferred tax liabilities

Key drivers of JPMorgan Chase's Mid-Cycle DFAST pro forma SLR

Firm-calculated SLR calculated under JPM Severely Adverse scenario ($B)



	Launch point 2019 DFAST (2Q19)[1]	PPNR (pretax)	Provisions (pretax)	Trading and counterparty losses (pretax)	Other losses[2] (pretax)	AOCI	SLR Exposure	Other[3]	DFAST capital actions	End point 2019 DFAST (3Q21)[1]
Tier 1	$216	$63	$(43)	$(28)	$(7)	$(4)		$0	$(31)	$166
SLR exposure	$3,367						$(73)			$3,294

Note: Numbers may not sum due to rounding

[1] 2Q19 and 3Q21 reflect end-of-period amounts. Other amounts represent the cumulative nine-quarter impact for 3Q19 to 3Q21

[2] Includes losses/(gains) associated with loans HFS, loans accounted for under the FVO, and equity securities not held for trading

[3] Includes income tax expense/benefit, realized losses/gains on securities (AFS/HTM), and goodwill and intangibles net of related deferred tax liabilities

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Key risks addressed in capital adequacy assessment projections

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

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[1] ■ **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
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 predominantly by Treasury and Chief Investment Office in connection with the Firm's balance sheet or asset-liability management objectives or from principal investments managed in various lines of business and Corporate in predominantly privately-held financial 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 legal or regulatory obligations or codes of conduct and standards of self-regulatory organizations applicable to the business activities of the Firm ■ **Conduct risk** is the risk that any action or inaction by an employee or employees could lead to unfair client or customer outcomes, impact the integrity of the markets in which the Firm operates, or compromise the Firm's reputation ■ **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 potential for adverse consequences from decisions based on incorrect or misused estimation outputs

For additional information on the Firm's risks, see Enterprise-Wide Risk Management and the various risk sections on pages 79-140 of JPMorgan Chase's Annual Report on Form 10-K for the year ended December 31, 2018

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

Key methodologies used in capital adequacy assessment projections

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 are based on JPMorgan Chase's historical experience supplemented by industry data and non-model estimation, where appropriate ■ Granular, LOB-level projections are used for expense forecasts, governed by Firmwide expense reduction guidelines for severe stress environments ■ Econometric and regression models and forecasting framework are 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) **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 reflect 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 are based on the composition and characteristics of the 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 shocks with no mitigating actions were applied to trading and counterparty positions as of June 28, 2019; mark-to-market and nine-quarter default losses are reflected in the 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 the fair value of financial instruments primarily driven by movements in interest rates, FX rates, equity prices, credit spreads, and commodity prices ■ Counterparty losses assumes the instantaneous default of certain counterparties, with whom the Firm has derivatives and securities financing transactions, as a result of the idiosyncratic counterparty default component of the JPMorgan Chase Severely Adverse scenario. In addition, modelled losses related to other traded products and central counterparty clearing exposures are also included
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 models
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 results presented here contain 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, or capital and leverage ratios. Actual results may differ from those set forth in the forward-looking statements. Factors that could cause JPMorgan Chase & Co.'s actual results to differ materially from those described in the forward-looking statements can be found in JPMorgan Chase & Co.'s Annual Report on Form 10-K for the year ended December 31, 2018 and Quarterly Reports on Form 10-Q for the quarterly periods ended June 30, 2019 and March 31, 2019, which have been filed with the Securities and Exchange Commission and are available on JPMorgan Chase & Co.'s website (https://jpmorganchaseco.gcs-web.com/financial-information/sec-filings), and on the Securities and Exchange Commission's website (www.sec.gov). JPMorgan Chase & Co. does not undertake to update any forward-looking statements.