

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-Q
Quarterly report pursuant to Section 13 or 15(d) of
the Securities Exchange Act of 1934

For the quarterly period ended
June 30, 2019

Commission file
number 1-5805

JPMorgan Chase & Co.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

13-2624428
(I.R.S. employer
identification no.)

383 Madison Avenue, New York, New York
(Address of principal executive offices)

10179
(Zip Code)

Registrant's telephone number, including area code: (212) 270-6000
Securities registered pursuant to Section 12(b) of the Act:

<u>Title of each class</u>	<u>Trading Symbol(s)</u>	<u>Name of each exchange on which registered</u>
Common stock	JPM	The New York Stock Exchange
Depository Shares representing interests in shares of 5.45% Non-Cumulative Preferred Stock Series P	JPM PR A	The New York Stock Exchange
Depository Shares representing interests in shares of 6.30% Non-Cumulative Preferred Stock Series W	JPM PR E	The New York Stock Exchange
Depository Shares representing interests in shares of 6.125% Non-Cumulative Preferred Stock Series Y	JPM PR F	The New York Stock Exchange
Depository Shares representing interests in shares of 6.10% Non-Cumulative Preferred Stock Series AA	JPM PR G	The New York Stock Exchange
Depository Shares representing interests in shares of 6.15% Non-Cumulative Preferred Stock Series BB	JPM PR H	The New York Stock Exchange
Depository Shares representing interests in shares of 5.75% Non-Cumulative Preferred Stock Series DD	JPM PR D	The New York Stock Exchange
Depository Shares representing interests in shares of 6.00% Non-Cumulative Preferred Stock Series EE	JPM PR C	The New York Stock Exchange
Alerian MLP Index ETNs due May 24, 2024	AMJ	NYSE Arca, Inc.
Guarantee of Callable Step-Up FRNs due April 26, 2028 of JPMorgan Chase Financial Company LLC	JPM/28	The New York Stock Exchange
Guarantee of Cushing 30 MLP Index ETNs due June 15, 2037 of JPMorgan Chase Financial Company LLC	PPLN	NYSE Arca, Inc.

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. ☒ Yes ☐ No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). ☒ Yes ☐ No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). ☐ Yes ☒ No

Number of shares of common stock outstanding as of June 30, 2019: 3,197,484,989

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JPMorgan Chase & Co.
Consolidated financial highlights (unaudited)

As of or for the period ended, (in millions, except per share, ratio, headcount data and where otherwise noted)							Six months ended June 30,	
	2Q19	1Q19	4Q18	3Q18	2Q18		2019	2018
Selected income statement data								
Total net revenue	\$ 28,832	\$ 29,123	\$ 26,109	\$ 27,260	\$ 27,753	\$	57,955	\$ 55,660
Total noninterest expense	16,341	16,395	15,720	15,623	15,971		32,736	32,051
Pre-provision profit	12,491	12,728	10,389	11,637	11,782		25,219	23,609
Provision for credit losses	1,149	1,495	1,548	948	1,210		2,644	2,375
Income before income tax expense	11,342	11,233	8,841	10,689	10,572		22,575	21,234
Income tax expense	1,690	2,054	1,775	2,309	2,256		3,744	4,206
Net income	\$ 9,652	\$ 9,179	\$ 7,066	\$ 8,380	\$ 8,316	\$	18,831	\$ 17,028
Earnings per share data								
Net income: Basic	\$ 2.83	\$ 2.65	\$ 1.99	\$ 2.35	\$ 2.31	\$	5.48	\$ 4.69
Diluted	2.82	2.65	1.98	2.34	2.29		5.46	4.66
Average shares: Basic	3,250.6	3,298.0	3,335.8	3,376.1	3,415.2		3,274.3	3,436.7
Diluted	3,259.7	3,308.2	3,347.3	3,394.3	3,434.7		3,283.9	3,457.1
Market and per common share data								
Market capitalization	357,479	328,387	319,780	375,239	350,204		357,479	350,204
Common shares at period-end	3,197.5	3,244.0	3,275.8	3,325.4	3,360.9		3,197.5	3,360.9
Book value per share	73.88	71.78	70.35	69.52	68.85		73.88	68.85
Tangible book value per share ("TBVPS") ^(a)	59.52	57.62	56.33	55.68	55.14		59.52	55.14
Cash dividends declared per share	0.80	0.80	0.80	0.80	0.56		1.60	1.12
Selected ratios and metrics								
Return on common equity ("ROE") ^(b)	16%	16%	12%	14%	14%		16%	14%
Return on tangible common equity ("ROTCE") ^{(a)(b)}	20	19	14	17	17		20	18
Return on assets ^(b)	1.41	1.39	1.06	1.28	1.28		1.40	1.32
Overhead ratio	57	56	60	57	58		56	58
Loans-to-deposits ratio	63	64	67	65	65		63	65
Liquidity coverage ratio ("LCR") (average)	113	111	113	115	115		113	115
Common equity Tier 1 ("CET1") capital ratio ^(c)	12.2	12.1	12.0	12.0	12.0		12.2	12.0
Tier 1 capital ratio ^(c)	14.0	13.8	13.7	13.6	13.6		14.0	13.6
Total capital ratio ^(c)	15.8	15.7	15.5	15.4	15.5		15.8	15.5
Tier 1 leverage ratio ^(c)	8.0	8.1	8.1	8.2	8.2		8.0	8.2
Supplementary leverage ratio ("SLR")	6.4	6.4	6.4	6.5	6.5		6.4	6.5
Selected balance sheet data (period-end)								
Trading assets	\$ 523,373	\$ 533,402	\$ 413,714	\$ 419,827	\$ 418,799	\$	523,373	\$ 418,799
Investment securities	307,264	267,365	261,828	231,398	233,015		307,264	233,015
Loans	956,889	956,245	984,554	954,318	948,414		956,889	948,414
Core loans	908,971	905,943	931,856	899,006	889,433		908,971	889,433
Average core loans	905,786	916,567	907,271	894,279	877,640		911,146	869,410
Total assets	2,727,379	2,737,188	2,622,532	2,615,183	2,590,050		2,727,379	2,590,050
Deposits	1,524,361	1,493,441	1,470,666	1,458,762	1,452,122		1,524,361	1,452,122
Long-term debt	288,869	290,893	282,031	270,124	273,114		288,869	273,114
Common stockholders' equity	236,222	232,844	230,447	231,192	231,390		236,222	231,390
Total stockholders' equity	263,215	259,837	256,515	258,956	257,458		263,215	257,458
Headcount	254,983	255,998	256,105	255,313	252,942		254,983	252,942
Credit quality metrics								
Allowance for credit losses	\$ 14,295	\$ 14,591	\$ 14,500	\$ 14,225	\$ 14,367	\$	14,295	\$ 14,367
Allowance for loan losses to total retained loans	1.39%	1.43%	1.39%	1.39%	1.41%		1.39%	1.41%
Allowance for loan losses to retained loans excluding purchased credit-impaired loans ^(d)	1.28	1.28	1.23	1.23	1.22		1.28	1.22
Nonperforming assets	\$ 5,260	\$ 5,616	\$ 5,190	\$ 5,034	\$ 5,767	\$	5,260	\$ 5,767
Net charge-offs	1,403	1,361	1,236	1,033	1,252		2,764	2,587
Net charge-off rate	0.60%	0.58%	0.52%	0.43%	0.54%		0.59%	0.56%

(a) TBVPS and ROTCE are non-GAAP financial measures. For a further discussion of these measures, refer to Explanation and Reconciliation of the Firm's Use of Non-GAAP Financial Measures and Key Performance Measures on pages 19-20.

(b) Quarterly ratios are based upon annualized amounts.

(c) The Basel III capital rules became fully phased-in effective January 1, 2019. During 2018, the required capital measures were subject to the transitional rules and as of December 31, 2018 and September 30, 2018, were the same on a fully phased-in and on a transitional basis. For additional information on these measures, refer to Capital Risk Management on pages 85-94 of JPMorgan Chase's 2018 Form 10-K and pages 44-48 of this Form 10-Q.

(d) Excludes the impact of residential real estate purchased credit-impaired ("PCI") loans, a non-GAAP financial measure. For a further discussion of these measures, refer to Explanation and Reconciliation of the Firm's Use of Non-GAAP Financial Measures and Key Performance Measures on pages 19-20, and the Allowance for credit losses on pages 67-68.

INTRODUCTION

The following is Management's discussion and analysis of the financial condition and results of operations ("MD&A") of JPMorgan Chase & Co. ("JPMorgan Chase" or the "Firm") for the second quarter of 2019.

This Quarterly Report on Form 10-Q for the second quarter of 2019 ("Form 10-Q") should be read together with JPMorgan Chase's Annual Report on Form 10-K for the year ended December 31, 2018 ("2018 Form 10-K"), to which reference is hereby made, and which is referred to throughout this Form 10-Q. Refer to the Glossary of terms and acronyms and line of business metrics on pages 168-175 for definitions of terms and acronyms used throughout this Form 10-Q.

This document contains statements that are forward-looking within the meaning of the Private Securities Litigation Reform Act of 1995. These statements are based on the current beliefs and expectations of JPMorgan Chase's management and are subject to significant risks and uncertainties. For a further discussion of certain of those risks and uncertainties and the factors that could cause JPMorgan Chase's actual results to differ materially because of those risks and uncertainties, refer to Forward-looking Statements on page 79 of this Form 10-Q and Part I, Item 1A, Risk factors, on pages 7-28 of the 2018 Form 10-K.

JPMorgan Chase & Co. (NYSE: JPM), a financial holding company incorporated under Delaware law in 1968, is a leading global financial services firm and one of the largest banking institutions in the United States of America ("U.S."), with operations worldwide; JPMorgan Chase had \$2.7 trillion in assets and \$263.2 billion in stockholders' equity as of June 30, 2019. The Firm is a leader in investment banking, financial services for consumers and

small businesses, commercial banking, financial transaction processing and asset management. Under the J.P. Morgan and Chase brands, the Firm serves millions of customers in the U.S. and many of the world's most prominent corporate, institutional and government clients.

JPMorgan Chase's principal bank subsidiary is JPMorgan Chase Bank, National Association ("JPMorgan Chase Bank, N.A."), a national banking association with U.S. branches in 28 states and Washington, D.C. as of June 30, 2019. JPMorgan Chase's principal nonbank subsidiary is J.P. Morgan Securities LLC ("J.P. Morgan Securities"), a U.S. broker-dealer. The bank and non-bank subsidiaries of JPMorgan Chase operate nationally as well as through overseas branches and subsidiaries, representative offices and subsidiary foreign banks. The Firm's principal operating subsidiary in the United Kingdom ("U.K.") is J.P. Morgan Securities plc, a subsidiary of JPMorgan Chase Bank, N.A.

For management reporting purposes, the Firm's activities are organized into four major reportable business segments, as well as a Corporate segment. The Firm's consumer business segment is Consumer & Community Banking ("CCB"). The Firm's wholesale business segments are Corporate & Investment Bank ("CIB"), Commercial Banking ("CB"), and Asset & Wealth Management ("AWM"). For a description of the Firm's business segments and the products and services they provide to their respective client bases, refer to Note 31 of JPMorgan Chase's 2018 Form 10-K.

EXECUTIVE OVERVIEW

This executive overview of the MD&A highlights selected information and does not contain all of the information that is important to readers of this Form 10-Q. For a complete description of the trends and uncertainties, as well as the risks and critical accounting estimates affecting the Firm and its various lines of business, this Form 10-Q and the 2018 Form 10-K should be read together and in their entirety.

Financial performance of JPMorgan Chase

(unaudited) As of or for the period ended, (in millions, except per share data and ratios)	Three months ended June 30,			Six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Selected income statement data						
Total net revenue	\$ 28,832	\$ 27,753	4%	\$ 57,955	\$ 55,660	4%
Total noninterest expense	16,341	15,971	2	32,736	32,051	2
Pre-provision profit	12,491	11,782	6	25,219	23,609	7
Provision for credit losses	1,149	1,210	(5)	2,644	2,375	11
Net income	9,652	8,316	16	18,831	17,028	11
Diluted earnings per share	\$ 2.82	\$ 2.29	23	\$ 5.46	\$ 4.66	17
Selected ratios and metrics						
Return on common equity	16%	14%		16%	14%	
Return on tangible common equity	20	17		20	18	
Book value per share	\$ 73.88	\$ 68.85	7	\$ 73.88	\$ 68.85	7
Tangible book value per share	59.52	55.14	8	59.52	55.14	8
Capital ratios^(a)						
CET1	12.2%	12.0%		12.2%	12.0%	
Tier 1 capital	14.0	13.6		14.0	13.6	
Total capital	15.8	15.5		15.8	15.5	

(a) The Basel III capital rules became fully phased-in effective January 1, 2019. During 2018, the required capital measures were subject to the transitional rules. For additional information on these measures, refer to Capital Risk Management on pages 85-94 of JPMorgan Chase's 2018 Form 10-K and pages 44-48 of this Form 10-Q.

Comparisons noted in the sections below are for the second quarter of 2019 versus the second quarter of 2018, unless otherwise specified.

Firmwide overview

JPMorgan Chase reported strong results in the second quarter of 2019, with record net income of \$9.7 billion, or \$2.82 per share, on net revenue of \$28.8 billion. The Firm reported ROE of 16% and ROTCE of 20%.

- The Firm had record net income of \$9.7 billion, up 16%, which reflects income tax benefits of \$768 million related to the resolution of certain tax audits, higher net revenue and lower credit costs, partially offset by an increase in noninterest expense.
- Total net revenue increased 4%. Net interest income was \$14.4 billion, up 7%, driven by balance sheet growth and mix, as well as the impact of higher rates. Noninterest revenue was \$14.4 billion, up 1%, driven by several notable items, including:
 - a gain from the IPO of a strategic investment in Tradeweb, and
 - the impact of the prior-year adjustment of approximately \$330 million to the credit card rewards liabilitypredominantly offset by
 - MSR adjustments reflecting updates to model inputs, and
 - net valuation losses on certain legacy private equity investments compared with net gains in the prior year.

Excluding these items, noninterest revenue was relatively flat, with strength in CCB, offset by lower investment banking fees in the CIB and CB, as well as lower Markets noninterest revenue.

- Noninterest expense was \$16.3 billion, up 2%, driven by continued investments in the business and higher auto lease depreciation, partially offset by lower FDIC charges.
- The provision for credit losses was \$1.1 billion, down 5%.
- The total allowance for credit losses was \$14.3 billion at June 30, 2019, and the Firm had a loan loss coverage ratio of 1.39%, compared with 1.41% in the prior year; excluding the PCI portfolio, the equivalent ratio was 1.28%, compared with 1.22% in the prior year. The Firm's nonperforming assets totaled \$5.3 billion at June 30, 2019, a decrease from \$5.8 billion in the prior year, reflecting improved credit performance in the consumer portfolio.
- Firmwide average total loans were \$954.9 billion, up 2%.

Selected capital-related metrics

- The Firm's CET1 capital was \$189 billion, and the Standardized and Advanced CET1 ratios were 12.2% and 13.1%, respectively.
- The Firm's supplementary leverage ratio ("SLR") was 6.4% at June 30, 2019.
- The Firm continued to grow tangible book value per share ("TBVPS"), ending the second quarter of 2019 at \$59.52, up 8%.

ROTCE and TBVPS are non-GAAP financial measures. For a further discussion of each of these measures, refer to Explanation and Reconciliation of the Firm's Use of Non-GAAP Financial Measures and Key Performance Measures on pages 19-20.

Business segment highlights

Selected business metrics for each of the Firm's four lines of business are presented below for the second quarter of 2019.

CCB ROE 31%	<ul style="list-style-type: none"> Average loans down 2%; Home Lending loans down 7% impacted by loan sales; credit card loans up 8% Client investment assets up 16%; average deposits up 3% Credit card sales volume up 11% and merchant processing volume up 12%
CIB ROE 14%	<ul style="list-style-type: none"> Maintained #1 ranking for Global Investment Banking fees with 9.2% wallet share YTD Total Markets revenue of \$5.4 billion was flat, or down 6% adjusted^(a)
CB ROE 17%	<ul style="list-style-type: none"> Gross Investment Banking revenue of \$592 million Strong credit performance with net charge-offs of 3 bps
AWM ROE 27%	<ul style="list-style-type: none"> Average loan balances up 7% Assets under management (AUM) of \$2.2 trillion, up 7%

(a) Adjusted Markets revenue excludes a gain from the IPO of a strategic investment in Tradeweb.

For a detailed discussion of results by business segment, refer to the Business Segment Results on pages 21-42.

Credit provided and capital raised

JPMorgan Chase continues to support consumers, businesses and communities around the globe. The Firm provided new and renewed credit and raised capital for wholesale and consumer clients during the first six months of 2019, consisting of:

\$1.1 trillion	Total credit provided and capital raised
\$119 billion	Credit for consumers
\$14 billion	Credit for U.S. small businesses
\$435 billion	Credit for corporations
\$547 billion	Capital raised for corporate clients and non-U.S. government entities
\$34 billion	Credit and capital raised for nonprofit and U.S. government entities ^(a)

(a) Includes states, municipalities, hospitals and universities.

Recent events

On July 24, 2019, JPMorgan Chase acquired InstaMed, a leading U.S. healthcare technology company that specializes in healthcare payments.

On July 10, 2019, JPMorgan Chase announced the launch of You Invest Portfolios, a new digital investing solution.

On June 27, 2019, the Federal Reserve informed the Firm that it did not object to the Firm's 2019 capital plan, submitted under the Comprehensive Capital Analysis and Review ("CCAR"). As a result, the Firm announced that the Board of Directors intends to increase the quarterly common stock dividend to \$0.90 per share (up from the current \$0.80 per share), effective the third quarter of 2019 and has authorized gross common equity repurchases of up to \$29.4 billion between July 1, 2019 and June 30, 2020 under a new common equity repurchase program.

On June 26, 2019, JPMorgan Chase announced that it will expand the Firm's investment in Detroit's economic recovery, committing to reach \$200 million by the end of 2022. The announcement comes as the Firm exceeded its initial five year \$150 million commitment.

On May 18, 2019, Chase Bank USA, National Association ("Chase Bank USA, N.A."), a national bank which was the Firm's principal credit card-issuing bank, merged with and into JPMorgan Chase Bank, N.A., with JPMorgan Chase Bank, N.A. as the surviving bank.

2019 outlook

These current expectations are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Such forward-looking statements are based on the current beliefs and expectations of JPMorgan Chase's management and are subject to significant risks and uncertainties. For a further discussion of certain of those risks and uncertainties and the other factors that could cause JPMorgan Chase's actual results to differ materially because of those risks and uncertainties, refer to Forward-Looking Statements on page 79 of this Form 10-Q and Risk Factors on pages 7-28 of JPMorgan Chase's 2018 Annual Report. There is no assurance that actual results in the full year of 2019 will be in line with the outlook set forth below, and the Firm does not undertake to update any forward-looking statements.

JPMorgan Chase's current outlook for the remainder of 2019 should be viewed against the backdrop of the global and U.S. economies, financial markets activity, the geopolitical environment, the competitive environment, client and customer activity levels, and regulatory and legislative developments in the U.S. and other countries where the Firm does business. Each of these factors will affect the performance of the Firm and its lines of business. The Firm expects that it will continue to make appropriate adjustments to its businesses and operations in response to ongoing developments in the legal, regulatory, business and economic environments in which it operates.

Firmwide

- Management expects full-year 2019 net interest income, on a managed basis, to be \$57.5 billion +/-, market dependent. This range reflects lower long-end rates and up to three federal funds rate cuts of 25bps each in July, September, and December 2019 by the Federal Reserve.
- The Firm takes a disciplined approach to managing its expenses, while investing for growth and innovation. As a result, management expects Firmwide adjusted expense for the full-year 2019 to be less than \$66 billion.
- The Firm continues to experience charge-off rates at very low levels as credit trends across the consumer and wholesale portfolios remain favorable. Management expects full-year 2019 net charge-offs to be approximately \$5.5 billion.

Business Developments

Expected departure of the U.K. from the EU

The U.K.'s expected departure from the EU, which is commonly referred to as "Brexit," is scheduled to occur not later than October 31, 2019.

The Firm continues to execute the relevant elements of its Firmwide Brexit Implementation program with the objective of delivering the Firm's capabilities to its EU clients on "day one" of any departure by the U.K. from the EU, whether or not an agreement has been reached to allow an orderly withdrawal.

The principal operational risks associated with Brexit continue to be the potential for disruption caused by insufficient preparations by individual market participants or in the overall market ecosystem, and risks related to potential disruptions of connectivity among market participants. Although legislative and regulatory actions taken by the EU and the U.K. have mitigated some of the significant market-wide risks, there continues to be regulatory and legal uncertainty with respect to various matters including contract continuity and access by market participants to liquidity in certain products, such as products subject to potentially conflicting U.K. and EU regulatory requirements in relation to eligible trading venues, including certain cross-border derivative contracts and equities that are listed on both U.K. and EU exchanges.

As discussed in Business Developments on page 46 of the 2018 Form 10-K, the Firm is focused on the following key areas to ensure continuation of service to its EU clients: regulatory and legal entity readiness; client readiness; and business and operational readiness. Following are the significant updates from the matters discussed in the 2018 Form 10-K.

Regulatory and legal entity readiness

The Firm's legal entities in Germany, Luxembourg and Ireland are now prepared and licensed to provide services to the Firm's EU clients, including after any departure by the U.K. from the EU.

Client readiness

The agreements covering a significant proportion of the Firm's EU client activity have been re-documented to other EU legal entities to help facilitate continuation of service. The Firm continues to actively engage with clients that have not completed re-documentation to ensure preparedness both in terms of documentation and any operational changes that may be required. The Firm may be negatively impacted by any operational disruption stemming from delays of or lapses in the readiness of other market participants or market infrastructures.

Business and operational readiness

The Firm relocated certain employees during the first quarter of 2019. During the second quarter of 2019, the Firm has added specific employees to certain EU legal entities, where appropriate, to support the level of client activity that has been migrated. However, the Firm's final staffing plan will depend upon the timing and terms of any withdrawal by the U.K. from the EU.

If Brexit is further delayed due to a transition deal or another mechanism, the Firm will continue to review the timing and extent of any further expansion of activities in its EU legal entities, as appropriate. The Firm continues to closely monitor legislative developments, and its implementation plan allows for flexibility given the continued uncertainties.

LIBOR transition

The Firm continues to develop and implement plans to appropriately mitigate the risks associated with the expected discontinuation of certain unsecured benchmark interest rates, including the London Interbank Offered Rate ("LIBOR") and other Interbank Offered Rates ("IBORs"). In particular, the Firm:

- has implemented or is in the process of implementing fallback language for LIBOR-linked syndicated loans, securitizations, floating rate notes and bi-lateral business loans based on the recommendations of the Alternative Reference Rates Committee, and has started to introduce the Secured Overnight Financing Rate as a replacement benchmark rate for certain of these products;
- continues to monitor the transition relief being considered by the Financial Accounting Standards Board ("FASB") and International Accounting Standards Board ("IASB") concerning the accounting for contract modifications and hedge accounting; and
- continues to engage with regulators and clients as the transition from IBORs progresses.

Refer to Business Developments on page 47 of the 2018 Form 10-K for a discussion of the Firm's initiatives to address the expected discontinuation of LIBOR and other IBORs.

CONSOLIDATED RESULTS OF OPERATIONS

This section provides a comparative discussion of JPMorgan Chase's Consolidated Results of Operations on a reported basis for the three and six months ended June 30, 2019 and 2018, unless otherwise specified. Factors that relate primarily to a single business segment are discussed in more detail within that business segment. For a discussion of the Critical Accounting Estimates Used by the Firm that affect the Consolidated Results of Operations, refer to pages 76-77 of this Form 10-Q and pages 141-143 of JPMorgan Chase's 2018 Form 10-K.

Revenue

(in millions)	Three months ended June 30,			Six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Investment banking fees	\$ 1,851	\$ 2,168	(15)%	\$ 3,691	\$ 3,904	(5)%
Principal transactions	3,714	3,782	(2)	7,790	7,734	1
Lending- and deposit-related fees	1,535	1,495	3	3,017	2,972	2
Asset management, administration and commissions	4,353	4,304	1	8,467	8,613	(2)
Investment securities gains/(losses)	44	(80)	NM	57	(325)	NM
Mortgage fees and related income	279	324	(14)	675	789	(14)
Card income	1,366	1,020	34	2,640	2,295	15
Other income ^(a)	1,292	1,255	3	2,767	2,881	(4)
Noninterest revenue	14,434	14,268	1	29,104	28,863	1
Net interest income	14,398	13,485	7	28,851	26,797	8
Total net revenue	\$ 28,832	\$ 27,753	4%	\$ 57,955	\$ 55,660	4%

(a) Included operating lease income of \$1.3 billion and \$1.1 billion for the three months ended June 30, 2019 and 2018, respectively and \$2.6 billion and \$2.2 billion for the six months ended June 30, 2019 and 2018, respectively.

Quarterly results

Investment banking fees decreased reflecting lower fees across products driven by declines in industry-wide fee levels, and when compared with a strong prior year. For additional information, refer to CIB segment results on pages 27-32 and Note 5.

Principal transactions revenue includes a gain in CIB from the IPO of a strategic investment in Tradeweb. Excluding this gain, principal transactions revenue decreased, reflecting:

- lower revenue in CIB primarily driven by derivatives in Equity Markets, largely offset by higher client activity in agency mortgage trading in Fixed Income Markets
- net valuation losses on certain legacy private equity investments in Corporate compared with net gains in the prior year
- losses on cash deployment transactions in Treasury and Chief Investment Office ("CIO"), which were more than offset by the related net interest income earned on those transactions
- lower revenue related to hedges on certain investments in AWM, which was more than offset by higher valuation gains on the related investments reflected in other income.

For additional information, refer to CIB, AWM and Corporate segment results on pages 27-32, pages 37-40 and pages 41-42, and Note 5.

Asset management, administration and commissions

revenue increased primarily reflecting higher asset management fees in CBB from growth in client investment assets. For additional information, refer to CCB, AWM and CIB segment results on pages 22-26, pages 37-40 and pages 27-32, respectively, and Note 5.

Lending- and deposit-related fees increased primarily reflecting higher deposit-related fees in CCB. For additional information, refer to CCB segment results on pages 22-26, CIB on pages 27-32 and CB on pages 33-36, respectively, and Note 5.

Investment securities gains/(losses) primarily reflect the impact of repositioning the investment securities portfolio. For additional information, refer to Corporate segment results on pages 41-42 and Note 9.

Mortgage fees and related income decreased driven by:

- lower net mortgage servicing revenue on lower MSR risk management results reflecting updates to model inputs, and lower operating revenue reflecting faster prepayment speeds on lower rates

predominantly offset by

- higher net mortgage production revenue reflecting higher mortgage production margins and volumes, as well as the impact of loan sales in Home Lending.

For further information, refer to CCB segment results on pages 22-26, Note 5 and 14.

Card income increased reflecting the impact of the prior-year adjustment of approximately \$330 million to the credit card rewards liability. For further information, refer to CCB segment results on pages 22-26 and Note 5.

Other income increased reflecting:

- higher operating lease income from growth in auto operating lease volume in CCB, and
- higher investment valuation gains in AWM, which were largely offset by the impact of the related hedges reflected in principal transactions revenue

partially offset by

- lower other income in CIB associated with the increased amortization on a higher level of alternative energy investments. The lower income tax expense from the associated tax credits more than offset the impact of the higher amortization.

For further information, refer to Note 5.

Net interest income increased driven by the impact of balance sheet growth and change in mix, as well as higher rates, partially offset by lower CIB Markets net interest income. The Firm's average interest-earning assets were \$2.3 trillion, up \$133 billion, and the net interest yield on these assets, on a fully taxable-equivalent ("FTE") basis, was 2.49%, an increase of 1 basis point. The net interest yield excluding CIB Markets was 3.35%, an increase of 14 basis points. Net interest yield excluding CIB markets is a non-GAAP financial measure. For a further discussion of this measure, refer to Explanation and Reconciliation of the Firm's Use of Non-GAAP Financial Measures and Key Performance Measures on pages 19-20.

Year-to-date results

Investment banking fees decreased reflecting lower equity underwriting and advisory fees driven by declines in industry-wide fee levels.

Principal transactions revenue includes a gain in CIB from the IPO of a strategic investment in Tradeweb. Excluding this gain, CIB's revenue was relatively flat, reflecting:

- favorable changes in funding spreads on derivatives in Credit Adjustments & Other, and higher revenue in agency mortgage trading in Fixed Income Markets

offset by

- lower client activity in derivatives in Equity Markets, and lower revenue in Currencies & Emerging Markets within Fixed Income Markets

the net increase in CIB was offset by

- losses on cash deployment transactions in Treasury and CIO, which were more than offset by the related net interest income earned on those transactions
- lower revenue related to hedges on certain investments in AWM, which was more than offset by higher valuation gains on the related investments reflected in other income.

Asset management, administration and commissions revenue decreased reflecting:

- lower asset management fees in AWM driven by a shift in the mix toward lower fee products and lower average market levels, and
- lower brokerage commissions in CIB on lower activity

partially offset by

- higher asset management fees in CBB from growth in client investment assets.

For information on **lending- and deposit-related fees**, refer to CCB on pages 22-26, CIB on pages 27-32 and CB on pages 33-36, respectively, and Note 5.

Investment securities gains/(losses) primarily reflect the impact of repositioning the investment securities portfolio.

Mortgage fees and related income decreased driven by:

- lower net mortgage servicing revenue on lower MSR risk management results reflecting updates to model inputs, and lower operating revenue reflecting lower servicing revenue on a lower level of third-party loans serviced and faster prepayment speeds on lower rates

predominantly offset by

- higher net mortgage production revenue reflecting higher mortgage production margins and volumes, as well as the impact of loan sales in Home Lending.

Card income increased reflecting the impact of the prior-year adjustment of approximately \$330 million to the credit card rewards liability.

Other income decreased reflecting:

- lower other income in CIB associated with the increased amortization on a higher level of alternative energy investments. The lower income tax expense from the associated tax credits more than offset the impact of the higher amortization

partially offset by

- higher operating lease income from growth in auto operating lease volume in CCB, and
- higher investment valuation gains in AWM, which were largely offset by the impact of the related hedges reflected in principal transactions revenue.

The prior year included \$505 million of fair value gains related to the adoption of the recognition and measurement accounting guidance for certain equity investments previously held at cost in the first quarter of 2018.

Net interest income increased driven by the impact of balance sheet growth and change in mix, as well as higher rates, partially offset by lower CIB Markets net interest income. The Firm's average interest-earning assets were \$2.3 trillion, up \$122 billion, and the net interest yield on these assets, on an FTE basis, was 2.53%, an increase of 4 basis points. The net interest yield excluding CIB Markets was 3.39%, an increase of 22 basis points. Net interest yield excluding CIB markets is a non-GAAP financial measure.

Provision for credit losses

(in millions)	Three months ended June 30,			Six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Consumer, excluding credit card	\$ (318)	\$ (56)	(468)%	\$ (204)	\$ 90	NM
Credit card	1,440	1,164	24	2,642	2,334	13
Total consumer	1,122	1,108	1	2,438	2,424	1
Wholesale	27	102	(74)	206	(49)	NM
Total provision for credit losses	\$ 1,149	\$ 1,210	(5)%	\$ 2,644	\$ 2,375	11%

Quarterly results

The **provision for credit losses** decreased driven by **wholesale**, with the prior year reflecting a higher provision from net portfolio activity, including new exposures and loan sales.

The **total consumer** provision was relatively flat reflecting:

- an increase in credit card due to
 - a \$200 million addition to the allowance for loan losses reflecting loan growth and higher loss rates, as anticipated, and
 - higher net charge-offs on loan growth

offset by

- a decrease in consumer, excluding credit card due to
 - a \$400 million reduction in the allowance for loan losses in the PCI residential real estate portfolio, reflecting continued improvement in home prices and delinquencies

partially offset by

- higher net charge-offs in the residential real estate portfolio as the prior year benefited from a recovery on a loan sale.

For additional information on the credit portfolio and the allowance for credit losses, refer to the segments discussions of CCB on pages 22-26, CIB on pages 27-32, CB on pages 33-36, the Allowance for Credit Losses on pages 67-68, and Note 12.

Year-to-date results

The **provision for credit losses** increased predominantly driven by **wholesale**, reflecting a net addition to the allowance for credit losses on select Commercial and Industrial (“C&I”) client downgrades. The prior period was a benefit, reflecting a reduction in the allowance for credit losses primarily driven by a single name in the Oil & Gas portfolio, partially offset by other net portfolio activity.

The **total consumer** provision was relatively flat reflecting:

- an increase in credit card due to
 - a \$200 million addition to the allowance for loan losses reflecting loan growth and higher loss rates, as anticipated, and
 - higher net charge-offs on loan growth

offset by

- a decrease in consumer, excluding credit card due to
 - a \$400 million reduction in the allowance for loan losses in the PCI residential real estate portfolio, reflecting continued improvement in home prices and delinquencies

partially offset by

- higher net charge-offs in the residential real estate portfolio as the prior year benefited from a recovery from a loan sale.

Noninterest expense

(in millions)	Three months ended June 30,			Six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Compensation expense	\$ 8,547	\$ 8,338	3%	\$ 17,484	\$ 17,200	2%
Noncompensation expense:						
Occupancy	1,060	981	8	2,128	1,869	14
Technology, communications and equipment	2,378	2,168	10	4,742	4,222	12
Professional and outside services	2,212	2,126	4	4,251	4,247	—
Marketing	862	798	8	1,741	1,598	9
Other expense ^{(a)(b)}	1,282	1,560	(18)	2,390	2,915	(18)
Total noncompensation expense	7,794	7,633	2	15,252	14,851	3
Total noninterest expense	\$ 16,341	\$ 15,971	2%	\$ 32,736	\$ 32,051	2%

(a) Included Firmwide legal expense/(benefit) of \$69 million and \$0 million for the three months ended June 30, 2019 and 2018, respectively and \$(12) million and \$70 million for the six months ended June 30, 2019 and 2018, respectively.

(b) Included FDIC-related expense of \$121 million and \$368 million for the three months ended June 30, 2019 and 2018, respectively and \$264 million and \$751 million for the six months ended June 30, 2019 and 2018, respectively.

Quarterly results

Compensation expense increased driven by investments in the businesses, including front office hires, as well as technology staff, largely offset by lower performance-related compensation in CIB.

Noncompensation expense increased as a result of:

- higher investments in the businesses, including, technology, real estate and marketing
- higher depreciation expense from growth in auto operating lease volume in CCB
- higher outside services expense primarily due to higher volume-related brokerage expense in certain businesses in CIB
- higher legal expense, and
- a contribution to the Firm’s Foundation, whereas all prior-year contributions were made in the fourth quarter

largely offset by

- lower FDIC charges as a result of the elimination of the surcharge at the end of the third quarter of 2018, and
- the absence of a loss in the prior year on the liquidation of a legal entity of \$174 million

For additional information on the liquidation of a legal entity, refer to Note 19.

Year-to-date results

Compensation expense increased driven by investments in the businesses, including front office hires, as well as technology staff, largely offset by lower performance-related compensation in CIB.

Noncompensation expense increased as a result of:

- higher investments in the businesses, including, technology, real estate and marketing
- higher depreciation expense from growth in auto operating lease volume in CCB, and
- contributions to the Firm’s Foundation, whereas all prior-year contributions were made in the fourth quarter

largely offset by

- lower FDIC charges as a result of the elimination of the surcharge at the end of the third quarter of 2018, and
- the absence of a loss of \$174 million in the prior year in other expense on the liquidation of a legal entity in Corporate.

Income tax expense

(in millions)	Three months ended June 30,			Six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Income before income tax expense	\$ 11,342	\$10,572	7%	\$ 22,575	\$ 21,234	6%
Income tax expense	1,690	2,256	(25)	3,744	4,206	(11)
Effective tax rate	14.9%	21.3%		16.6%	19.8%	

Quarterly results

The **effective tax rate** decreased due to the recognition of \$768 million of tax benefits related to the resolution of certain tax audits and the change in the mix of income and expenses subject to U.S. federal, state and local taxes. The decrease was partially offset by a \$189 million tax benefit recorded in the second quarter of 2018 resulting from a change in the estimate for the deemed repatriation tax on non-U.S. earnings. For additional information on the 2019 tax benefits, refer to Note 1.

Year-to-date results

The **effective tax rate** decreased due to the recognition of \$874 million of tax benefits related to the resolution of certain tax audits and the change in the mix of income and expenses subject to U.S. federal, state and local taxes. The decrease was partially offset by a decrease in tax benefits related to the vesting of employee stock-based awards, as well as a \$189 million tax benefit recorded in the second quarter of 2018 resulting from a change in the estimate for the deemed repatriation tax on non-U.S. earnings.

CONSOLIDATED BALANCE SHEETS AND CASH FLOWS ANALYSIS

Consolidated balance sheets analysis

The following is a discussion of the significant changes between June 30, 2019, and December 31, 2018.

Selected Consolidated balance sheets data

(in millions)	June 30, 2019	December 31, 2018	Change
Assets			
Cash and due from banks	\$ 23,164	\$ 22,324	4%
Deposits with banks	244,874	256,469	(5)
Federal funds sold and securities purchased under resale agreements	267,864	321,588	(17)
Securities borrowed	130,661	111,995	17
Trading assets	523,373	413,714	27
Investment securities	307,264	261,828	17
Loans	956,889	984,554	(3)
Allowance for loan losses	(13,166)	(13,445)	(2)
Loans, net of allowance for loan losses	943,723	971,109	(3)
Accrued interest and accounts receivable	88,399	73,200	21
Premises and equipment	24,665	14,934	65
Goodwill, MSRs and other intangible assets	53,302	54,349	(2)
Other assets	120,090	121,022	(1)
Total assets	\$ 2,727,379	\$ 2,622,532	4%

Cash and due from banks and deposits with banks

decreased primarily as a result of a shift in the deployment of cash in Treasury and CIO into short-term instruments in trading assets. Deposits with banks reflect the Firm's placements of its excess cash with various central banks, including the Federal Reserve Banks.

Federal funds sold and securities purchased under resale agreements

reflected higher client activity in CIB, which was more than offset by the impact of netting, and the reduction in the deployment of cash in Treasury and CIO. For additional information, refer to Liquidity Risk Management on pages 49-53 and Note 10.

Securities borrowed increased driven by higher demand for securities largely related to client-driven market-making activities in CIB. For additional information, refer to Liquidity Risk Management on pages 49-53 and Note 10.

Trading assets increased compared with lower levels at year-end predominantly due to client-driven market-making activities in debt and equity instruments in CIB Markets, including prime brokerage. In addition, but to a lesser extent, trading assets increased in Treasury and CIO associated with the deployment of cash into short-term instruments. For additional information, refer to Notes 2 and 4.

Investment securities increased primarily reflecting net purchases of U.S. government agency mortgage-backed securities ("MBS") and U.S. Treasuries in Treasury and CIO. For additional information on Investment securities, refer to Corporate segment results on pages 41-42, Investment Portfolio Risk Management on page 69, and Notes 2 and 9.

Loans decreased reflecting:

- lower consumer loans in the residential real estate portfolio, predominantly driven by loan sales in Home Lending, and
- lower loans in CIB, primarily driven by a loan syndication and net paydowns, partially offset by increases in CB and AWM.

The **allowance for loan losses** decreased largely driven by Consumer due to a \$400 million reduction in the allowance for loan losses in the PCI residential real estate portfolio, reflecting continued improvement in home prices and delinquencies, partially offset by a \$200 million addition to the allowance in the credit card portfolio, due to loan growth and higher loss rates, as anticipated.

For a more detailed discussion of loans and the allowance for loan losses, refer to Credit and Investment Risk Management on pages 54-69, and Notes 2, 3, 11 and 12.

Accrued interest and accounts receivable increased reflecting higher client receivables related to client-driven market-making activities in CIB Fixed Income Markets, as well as higher receivables in CCB related to the timing of payment activities in Card Services, due to the end of the quarter falling on a weekend.

Premises and equipment increased due to the adoption of the new lease accounting guidance effective January 1, 2019. For additional information, refer to Note 16.

For information on Goodwill and MSRs, refer to Note 14.

Selected Consolidated balance sheets data (continued)

(in millions)	June 30, 2019	December 31, 2018	Change
Liabilities			
Deposits	\$ 1,524,361	\$ 1,470,666	4%
Federal funds purchased and securities loaned or sold under repurchase agreements	201,683	182,320	11
Short-term borrowings	59,890	69,276	(14)
Trading liabilities	147,639	144,773	2
Accounts payable and other liabilities	216,137	196,710	10
Beneficial interests issued by consolidated variable interest entities ("VIEs")	25,585	20,241	26
Long-term debt	288,869	282,031	2
Total liabilities	2,464,164	2,366,017	4
Stockholders' equity	263,215	256,515	3
Total liabilities and stockholders' equity	\$ 2,727,379	\$ 2,622,532	4%

Deposits increased due to growth in CIB from client activity in Securities Services and Treasury Services, and net issuances of structured notes in Markets, as well as continued growth in new accounts in CCB. Deposits in CB and AWM were relatively stable. For additional information, refer to Liquidity Risk Management on pages 49-53 and Notes 2 and 15.

Federal funds purchased and securities loaned or sold under repurchase agreements increased primarily due to higher secured financing of trading assets-debt and equity instruments and client-driven market-making activities in CIB. For additional information, refer to Liquidity Risk Management on pages 49-53 and Note 10.

Short-term borrowings decreased reflecting lower short-term advances from Federal Home Loan Banks ("FHLB") and commercial paper in Treasury and CIO primarily due to short-term liquidity management. For additional information, refer to Liquidity Risk Management on pages 49-53.

Trading liabilities increased modestly as a result of client-driven market-making activities in CIB, which resulted in higher levels of short positions in debt instruments in Fixed Income Markets, largely offset by a decline in short positions in equity instruments, primarily in prime brokerage. For additional information, refer to Notes 2 and 4.

Accounts payable and other liabilities increased reflecting:

- the impact of the adoption of the new lease accounting guidance effective January 1, 2019
- higher payables in CCB related to the timing of payment activities in Card Services, due to the end of the quarter falling on a weekend.

For additional information on Leases, refer to Note 16.

Beneficial interests issued by consolidated VIEs increased due to:

- higher levels of Firm-administered multi-seller conduit commercial paper issued to third parties

partially offset by

- maturities of credit card securitizations.

For further information on Firm-sponsored VIEs and loan securitization trusts, refer to Off-Balance Sheet Arrangements on page 18 and Notes 13 and 22.

Long-term debt increased primarily due to client-driven net issuances of structured notes in CIB Markets, and in Treasury and CIO, from the net issuances of senior debt, partially offset by lower FHLB advances. For additional information on the Firm's long-term debt activities, refer to Liquidity Risk Management on pages 49-53.

For information on changes in stockholders' equity, refer to page 83, and on the Firm's capital actions, refer to Capital actions on pages 46-47.

Consolidated cash flows analysis

The following is a discussion of cash flow activities during the six months ended June 30, 2019 and 2018.

(in millions)	Six months ended June 30,	
	2019	2018
Net cash provided by/(used in)		
Operating activities	\$ (94,734)	\$ 576
Investing activities	27,424	(38,974)
Financing activities	56,469	13,766
Effect of exchange rate changes on cash	86	(1,492)
Net decrease in cash and due from banks and deposits with banks	\$ (10,755)	\$ (26,124)

Operating activities

- In 2019, cash used primarily resulted from higher trading assets-debt and equity instruments, securities borrowed, accrued interest and accounts receivable and other assets, partially offset by higher trading liabilities, and net proceeds from loans originated for sale.
- In 2018, cash provided primarily resulted from higher trading liabilities-debt and equity instruments and accounts payable and other liabilities, offset by higher trading assets-debt and equity instruments.

Investing activities

- In 2019, cash provided resulted from lower securities purchased under resale agreements, and net proceeds from the sale of loans held-for-investment, partially offset by net purchases of investment securities.
- In 2018, cash used resulted from higher securities purchased under resale agreements and net loans originated, partially offset by net proceeds from investment securities.

Financing activities

- In 2019, cash provided resulted from higher deposits and securities loaned or sold under repurchase agreements, partially offset by net payments on long-term borrowings.
- In 2018, cash provided resulted from higher securities loaned or sold under repurchase agreements, short-term borrowings and deposits, partially offset by net payments on long-term borrowings.
- For both periods, cash was used for repurchases of common stock and cash dividends on common and preferred stock.

* * *

For a further discussion of the activities affecting the Firm's cash flows, refer to Consolidated Balance Sheets Analysis on pages 15-17, Capital Risk Management on pages 44-48, and Liquidity Risk Management on pages 49-53 of this Form 10-Q, and pages 95-100 of JPMorgan Chase's 2018 Form 10-K.

OFF-BALANCE SHEET ARRANGEMENTS

In the normal course of business, the Firm enters into various off-balance sheet arrangements and contractual obligations that may require future cash payments. Certain obligations are recognized on-balance sheet, while others are disclosed off-balance sheet under accounting principles generally accepted in the U.S. (“U.S. GAAP”).

Special-purpose entities

The Firm has several types of off-balance sheet arrangements, including through nonconsolidated special-purpose entities (“SPEs”), which are a type of VIE, and through lending-related financial instruments (e.g., commitments and guarantees).

The Firm holds capital, as appropriate, against all SPE-related transactions and related exposures, such as derivative contracts and lending-related commitments and guarantees.

The Firm has no commitments to issue its own stock to support any SPE transaction, and its policies require that transactions with SPEs be conducted at arm’s length and reflect market pricing. Consistent with this policy, no JPMorgan Chase employee is permitted to invest in SPEs with which the Firm is involved where such investment would violate the Firm’s Code of Conduct.

The table below provides an index of where in this Form 10-Q a discussion of the Firm’s various off-balance sheet arrangements can be found. In addition, refer to Note 1 for information about the Firm’s consolidation policies.

Type of off-balance sheet arrangement	Location of disclosure	Page references
Special-purpose entities: variable interests and other obligations, including contingent obligations, arising from variable interests in nonconsolidated VIEs	Refer to Note 13	138-143
Off-balance sheet lending-related financial instruments, guarantees, and other commitments	Refer to Note 22	155-158

EXPLANATION AND RECONCILIATION OF THE FIRM'S USE OF NON-GAAP FINANCIAL MEASURES AND KEY PERFORMANCE MEASURES

The Firm prepares its Consolidated Financial Statements in accordance with U.S. GAAP and this presentation is referred to as “reported” basis; these financial statements appear on pages 80-84.

In addition to analyzing the Firm’s results on a reported basis, the Firm also reviews and uses certain non-GAAP financial measures at the Firmwide and segment level. These non-GAAP measures include:

- Firmwide “managed” basis results, including the overhead ratio, which include certain reclassifications to present total net revenue from investments that receive tax credits and tax-exempt securities on a basis comparable to taxable investments and securities (“FTE” basis)

- Net interest income and net yield excluding CIB’s Markets businesses
- Certain credit metrics and ratios, which exclude PCI loans
- Tangible common equity (“TCE”), ROTCE, and TBVPS.

In addition, core loans is a key performance measure utilized by the Firm and its investors and analysts in assessing actual growth in the loan portfolio.

For a further discussion of management’s use of non-GAAP financial measures and key performance measures, refer to Explanation and Reconciliation Of the Firm’s Use Of Non-GAAP Financial Measures and Key Performance Measures on pages 57-59 of JPMorgan Chase’s 2018 Form 10-K.

The following summary table provides a reconciliation from the Firm’s reported U.S. GAAP results to managed basis.

(in millions, except ratios)	Three months ended June 30,					
	2019			2018		
	Reported results	Fully taxable-equivalent adjustments ^(a)	Managed basis	Reported results	Fully taxable-equivalent adjustments ^(a)	Managed basis
Other income	\$ 1,292	\$ 596	\$ 1,888	\$ 1,255	\$ 474	\$ 1,729
Total noninterest revenue	14,434	596	15,030	14,268	474	14,742
Net interest income	14,398	138	14,536	13,485	161	13,646
Total net revenue	28,832	734	29,566	27,753	635	28,388
Pre-provision profit	12,491	734	13,225	11,782	635	12,417
Income before income tax expense	11,342	734	12,076	10,572	635	11,207
Income tax expense	\$ 1,690	\$ 734	\$ 2,424	\$ 2,256	\$ 635	\$ 2,891
Overhead ratio	57%	NM	55%	58%	NM	56%

(in millions, except ratios)	Six months ended June 30,					
	2019			2018		
	Reported results	Fully taxable-equivalent adjustments ^(a)	Managed basis	Reported results	Fully taxable-equivalent adjustments ^(a)	Managed basis
Other income	\$ 2,767	\$ 1,181	\$ 3,948	\$ 2,881	\$ 929	\$ 3,810
Total noninterest revenue	29,104	1,181	30,285	28,863	929	29,792
Net interest income	28,851	281	29,132	26,797	319	27,116
Total net revenue	57,955	1,462	59,417	55,660	1,248	56,908
Pre-provision profit	25,219	1,462	26,681	23,609	1,248	24,857
Income before income tax expense	22,575	1,462	24,037	21,234	1,248	22,482
Income tax expense	\$ 3,744	\$ 1,462	\$ 5,206	\$ 4,206	\$ 1,248	\$ 5,454
Overhead ratio	56%	NM	55%	58%	NM	56%

(a) Predominantly recognized in CIB, CB and Corporate.

The following table provides information on net interest income and net yield excluding CIB's Markets businesses.

(in millions, except rates)	Three months ended June 30,			Six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Net interest income - managed basis^{(a)(b)}	\$ 14,536	\$ 13,646	7%	\$ 29,132	\$ 27,116	7%
Less: CIB Markets net interest income ^(c)	624	754	(17)	1,248	1,784	(30)
Net interest income excluding CIB Markets^(a)	\$ 13,912	\$ 12,892	8	\$ 27,884	\$ 25,332	10
Average interest-earning assets^(d)	\$ 2,339,094	\$ 2,206,005	6	\$ 2,319,105	\$ 2,196,675	6
Less: Average CIB Markets interest-earning assets ^{(c)(d)}	673,480	595,160	13	661,397	585,322	13
Average interest-earning assets excluding CIB Markets	\$ 1,665,614	\$ 1,610,845	3%	\$ 1,657,708	\$ 1,611,353	3%
Net interest yield on average interest-earning assets - managed basis^(d)	2.49%	2.48%		2.53%	2.49%	
Net interest yield on average CIB Markets interest-earning assets ^{(c)(d)}	0.37	0.51		0.38	0.61	
Net interest yield on average interest-earning assets excluding CIB Markets	3.35%	3.21%		3.39%	3.17%	

(a) Interest includes the effect of related hedges. Taxable-equivalent amounts are used where applicable.

(b) For a reconciliation of net interest income on a reported and managed basis, refer to the table above relating to the reconciliation from the Firm's reported U.S. GAAP results to managed basis.

(c) For further information on CIB's Markets businesses, refer to page 31.

(d) In the second quarter of 2019, the Firm reclassified balances related to certain instruments from interest-earning to noninterest-earning assets, as the associated returns are recorded in principal transactions revenue and not in net interest income. These changes were applied retrospectively and, accordingly, prior period amounts were revised to conform with the current presentation.

The following summary table provides a reconciliation from the Firm's common stockholders' equity to TCE.

(in millions, except per share and ratio data)	Period-end		Average			
	Jun 30, 2019	Dec 31, 2018	Three months ended June 30,		Six months ended June 30,	
			2019	2018	2019	2018
Common stockholders' equity	\$ 236,222	\$ 230,447	\$ 233,026	\$ 228,901	\$ 231,547	\$ 228,261
Less: Goodwill	47,477	47,471	47,472	47,494	47,474	47,499
Less: Other intangible assets	732	748	741	822	741	833
Add: Certain Deferred tax liabilities ^(a)	2,316	2,280	2,304	2,221	2,296	2,216
Tangible common equity	\$ 190,329	\$ 184,508	\$ 187,117	\$ 182,806	\$ 185,628	\$ 182,145
Return on tangible common equity	NA	NA	20%	17%	20%	18%
Tangible book value per share	\$ 59.52	\$ 56.33	NA	NA	NA	NA

(a) Represents deferred tax liabilities related to tax-deductible goodwill and to identifiable intangibles created in nontaxable transactions, which are netted against goodwill and other intangibles when calculating TCE.

BUSINESS SEGMENT RESULTS

The Firm is managed on a line of business basis. There are four major reportable business segments – Consumer & Community Banking, Corporate & Investment Bank, Commercial Banking and Asset & Wealth Management. In addition, there is a Corporate segment.

The business segments are determined based on the products and services provided, or the type of customer served, and they reflect the manner in which financial information is currently evaluated by the Firm's Operating Committee. Segment results are presented on a managed basis. For a definition of managed basis, refer to Explanation and Reconciliation of the Firm's use of Non-GAAP Financial Measures and Key Performance Measures on pages 19–20.

Description of business segment reporting methodology

Results of the business segments are intended to present each segment as if it were essentially a stand-alone business. The management reporting process that derives business segment results includes the allocation of certain

income and expense items. For further information about line of business capital, refer to Line of business equity on page 46. The Firm periodically assesses the assumptions, methodologies and reporting classifications used for segment reporting, and further refinements may be implemented in future periods.

Business segment capital allocation

The amount of capital assigned to each business is referred to as equity. On at least an annual basis, the assumptions and methodologies used in capital allocation are assessed and as a result, the capital allocated to lines of business may change. For additional information on business segment capital allocation, refer to Line of business equity on page 91 of JPMorgan Chase's 2018 Form 10-K.

For a further discussion of those methodologies, refer to Business Segment Results – Description of business segment reporting methodology on pages 60–61 of JPMorgan Chase's 2018 Form 10-K.

Segment results – managed basis

The following tables summarize the Firm's results by segment for the periods indicated.

Three months ended June 30, (in millions, except ratios)	Consumer & Community Banking			Corporate & Investment Bank			Commercial Banking		
	2019	2018	Change	2019	2018	Change	2019	2018	Change
Total net revenue	\$ 13,833	\$ 12,497	11%	\$ 9,641	\$ 9,923	(3)%	\$ 2,211	\$ 2,316	(5)%
Total noninterest expense	7,162	6,879	4	5,487	5,403	2	864	844	2
Pre-provision profit/(loss)	6,671	5,618	19	4,154	4,520	(8)	1,347	1,472	(8)
Provision for credit losses	1,120	1,108	1	—	58	NM	29	43	(33)
Net income/(loss)	4,174	3,412	22	2,935	3,198	(8)	996	1,087	(8)
Return on equity ("ROE")	31%	26%		14%	17%		17%	21%	

Three months ended June 30, (in millions, except ratios)	Asset & Wealth Management			Corporate			Total		
	2019	2018	Change	2019	2018	Change	2019	2018	Change
Total net revenue	\$ 3,559	\$ 3,572	—%	\$ 322	\$ 80	303%	\$ 29,566	\$ 28,388	4%
Total noninterest expense	2,596	2,566	1	232	279	(17)	16,341	15,971	2
Pre-provision profit/(loss)	963	1,006	(4)	90	(199)	NM	13,225	12,417	7
Provision for credit losses	2	2	—	(2)	(1)	(100)	1,149	1,210	(5)
Net income/(loss)	719	755	(5)	828	(136)	NM	9,652	8,316	16
ROE	27%	33%		NM	NM		16%	14%	

Six months ended June 30, (in millions, except ratios)	Consumer & Community Banking			Corporate & Investment Bank			Commercial Banking		
	2019	2018	Change	2019	2018	Change	2019	2018	Change
Total net revenue	\$ 27,584	\$ 25,094	10%	\$ 19,489	\$ 20,406	(4)%	\$ 4,549	\$ 4,482	1%
Total noninterest expense	14,373	13,788	4	10,940	11,062	(1)	1,737	1,688	3
Pre-provision profit/(loss)	13,211	11,306	17	8,549	9,344	(9)	2,812	2,794	1
Provision for credit losses	2,434	2,425	—	87	(100)	NM	119	38	213
Net income/(loss)	8,137	6,738	21	6,186	7,172	(14)	2,049	2,112	(3)
ROE	31%	26%		15%	20%		18%	20%	

Six months ended June 30, (in millions, except ratios)	Asset & Wealth Management			Corporate			Total		
	2019	2018	Change	2019	2018	Change	2019	2018	Change
Total net revenue	\$ 7,048	\$ 7,078	—%	\$ 747	\$ (152)	NM	\$ 59,417	\$ 56,908	4%
Total noninterest expense	5,243	5,147	2	443	366	21	32,736	32,051	2
Pre-provision profit/(loss)	1,805	1,931	(7)	304	(518)	NM	26,681	24,857	7
Provision for credit losses	4	17	(76)	—	(5)	NM	2,644	2,375	11
Net income/(loss)	1,380	1,525	(10)	1,079	(519)	NM	18,831	17,028	11
ROE	26%	33%		NM	NM		16%	14%	

The following sections provide a comparative discussion of the Firm's results by segment as of or for the three and six months ended June 30, 2019 versus the corresponding periods in the prior year, unless otherwise specified.

CONSUMER & COMMUNITY BANKING

For a discussion of the business profile of CCB, refer to pages 62-65 of JPMorgan Chase's 2018 Form 10-K and Line of Business Metrics on page 173.

Selected income statement data

(in millions, except ratios)	Three months ended June 30,			Six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Revenue						
Lending- and deposit-related fees	\$ 928	\$ 875	6%	\$ 1,801	\$ 1,732	4%
Asset management, administration and commissions	664	591	12	1,282	1,166	10
Mortgage fees and related income	279	324	(14)	675	789	(14)
Card income	1,257	910	38	2,425	2,080	17
All other income	1,312	1,048	25	2,590	2,120	22
Noninterest revenue	4,440	3,748	18	8,773	7,887	11
Net interest income	9,393	8,749	7	18,811	17,207	9
Total net revenue	13,833	12,497	11	27,584	25,094	10
Provision for credit losses	1,120	1,108	1	2,434	2,425	—
Noninterest expense						
Compensation expense	2,672	2,621	2	5,380	5,281	2
Noncompensation expense ^(a)	4,490	4,258	5	8,993	8,507	6
Total noninterest expense	7,162	6,879	4	14,373	13,788	4
Income before income tax expense	5,551	4,510	23	10,777	8,881	21
Income tax expense	1,377	1,098	25	2,640	2,143	23
Net income	\$ 4,174	\$ 3,412	22	\$ 8,137	\$ 6,738	21
Revenue by line of business						
Consumer & Business Banking	\$ 6,797	\$ 6,131	11	\$ 13,365	\$ 11,853	13
Home Lending	1,118	1,347	(17)	2,464	2,856	(14)
Card, Merchant Services & Auto	5,918	5,019	18	11,755	10,385	13
Mortgage fees and related income details:						
Net production revenue	353	93	280	553	188	194
Net mortgage servicing revenue ^(b)	(74)	231	NM	122	601	(80)
Mortgage fees and related income	\$ 279	\$ 324	(14)%	\$ 675	\$ 789	(14)%
Financial ratios						
Return on equity	31%	26%		31%	26%	
Overhead ratio	52	55		52	55	

Note: In the discussion and the tables which follow, CCB presents certain financial measures which exclude the impact of PCI loans; these are non-GAAP financial measures.

- (a) Included operating lease depreciation expense of \$959 million and \$827 million for the three months ended June 30, 2019 and 2018, respectively, and \$1.9 billion and \$1.6 billion for six months ended June 30, 2019 and 2018, respectively.
- (b) Included MSR risk management results of \$(244) million and \$(23) million for the three months ended June 30, 2019 and 2018, respectively and \$(253) million and \$(6) million for six months ended June 30, 2019 and 2018, respectively.

Quarterly results

Net income was \$4.2 billion, an increase of 22%.

Net revenue was \$13.8 billion, an increase of 11%.

Net interest income was \$9.4 billion, up 7%, driven by:

- higher deposit margins and balance growth in CBB, as well as higher loan balances and margin expansion in Card,

partially offset by

- loan spread compression and lower loan balances in Home Lending.

Noninterest revenue was \$4.4 billion, up 18%, including the impact of the prior-year adjustment of approximately \$330 million to the credit card rewards liability, predominantly offset by lower MSR risk management results reflecting updates to model inputs. Excluding these notable items, noninterest revenue was up 16%, largely driven by:

- higher net mortgage production revenue reflecting higher mortgage production margins and volumes, as well as the impact of loan sales in Home Lending, and
- higher auto lease volume,

partially offset by

- lower operating revenue reflecting faster prepayment speeds on lower rates.

Refer to Note 14 for further information regarding changes in value of the MSR asset and related hedges, and mortgage fees and related income.

Noninterest expense was \$7.2 billion, up 4%, largely driven by:

- technology, marketing and other investments in the business, as well as higher auto lease depreciation,

partially offset by

- expense efficiencies and lower FDIC charges.

The provision for credit losses was \$1.1 billion, relatively flat compared with the prior year, reflecting:

- an increase in credit card due to
 - a \$200 million addition to the allowance for loan losses reflecting loan growth and higher loss rates, as anticipated, and
 - higher net charge-offs, on loan growth

offset by

- a decrease in consumer, excluding credit card due to
 - a \$400 million reduction in the allowance for loan losses in the PCI residential real estate portfolio, reflecting continued improvement in home prices and delinquencies

partially offset by

- higher net charge-offs in the residential real estate portfolio as the prior year benefited from a recovery on a loan sale.

Year-to-date results

Net income was \$8.1 billion, an increase of 21%.

Net revenue was \$27.6 billion, an increase of 10%.

Net interest income was \$18.8 billion, up 9%, driven by:

- higher deposit margins and balance growth in CBB, as well as higher loan balances and margin expansion in Card,

partially offset by

- loan spread compression and lower loan balances in Home Lending.

Noninterest revenue was \$8.8 billion, up 11%, including the impact of the prior-year adjustment of approximately \$330 million to the credit card rewards liability, predominantly offset by lower MSR risk management results reflecting updates to model inputs. Excluding these notable items, noninterest revenue was up 10%, largely driven by:

- higher auto lease volume, and
- higher net mortgage production revenue reflecting higher mortgage production margins and volumes, as well as the impact of loan sales in Home Lending,

partially offset by

- lower operating revenue reflecting lower servicing revenue on a lower level of third-party loans serviced and faster prepayment speeds on lower rates.

Noninterest expense was \$14.4 billion, up 4%, driven by:

- technology, marketing and other investments in the business, as well as higher auto lease depreciation,

partially offset by

- expense efficiencies and lower FDIC charges.

The provision for credit losses was \$2.4 billion, flat compared with the prior year, reflecting:

- an increase in credit card due to
 - a \$200 million addition to the allowance for loan losses reflecting loan growth and higher loss rates, as anticipated, and
 - higher net charge-offs, on loan growth

offset by

- a decrease in consumer, excluding credit card due to
 - a \$400 million reduction in the allowance for loan losses in the PCI residential real estate portfolio, reflecting continued improvement in home prices and delinquencies

partially offset by

- higher net charge-offs in the residential real estate portfolio as the prior year benefited from a recovery on a loan sale.

Selected metrics

(in millions, except headcount)	As of or for the three months ended June 30,			As of or for the six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Selected balance sheet data (period-end)						
Total assets	\$ 550,690	\$ 552,674	– %	\$ 550,690	\$ 552,674	– %
Loans:						
Consumer & Business Banking	26,616	26,272	1	26,616	26,272	1
Home equity	32,958	39,033	(16)	32,958	39,033	(16)
Residential mortgage	186,575	202,205	(8)	186,575	202,205	(8)
Home Lending	219,533	241,238	(9)	219,533	241,238	(9)
Card	157,576	145,255	8	157,576	145,255	8
Auto	62,073	65,014	(5)	62,073	65,014	(5)
Total loans	465,798	477,779	(3)	465,798	477,779	(3)
Core loans	418,177	419,295	–	418,177	419,295	–
Deposits	695,100	679,154	2	695,100	679,154	2
Equity	52,000	51,000	2	52,000	51,000	2
Selected balance sheet data (average)						
Total assets	\$ 542,337	\$ 544,642	–	\$ 548,053	\$ 541,806	1
Loans:						
Consumer & Business Banking	26,570	26,110	2	26,529	25,978	2
Home equity	33,676	39,898	(16)	34,446	40,836	(16)
Residential mortgage	191,009	201,587	(5)	197,332	200,129	(1)
Home Lending	224,685	241,485	(7)	231,778	240,965	(4)
Card	153,746	142,724	8	152,447	142,825	7
Auto	62,236	65,383	(5)	62,498	65,622	(5)
Total loans	467,237	475,702	(2)	473,252	475,390	–
Core loans	418,470	414,120	1	423,315	412,145	3
Deposits	690,892	673,761	3	685,980	666,719	3
Equity	52,000	51,000	2	52,000	51,000	2
Headcount^(a)	127,732	131,945	(3)%	127,732	131,945	(3)%

(a) During the third quarter of 2018, approximately 1,200 employees transferred from CCB to CIB as part of the reorganization of the Commercial Card business.

Selected metrics

(in millions, except ratio data)	As of or for the three months ended June 30,			As of or for the six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Credit data and quality statistics						
Nonaccrual loans ^{(a),(b)}	\$ 3,142	\$ 3,854	(18)%	\$ 3,142	\$ 3,854	(18)%
Net charge-offs/(recoveries) ^(c)						
Consumer & Business Banking	66	50	32	125	103	21
Home equity	(16)	(7)	(129)	(16)	9	NM
Residential mortgage	(12)	(149)	92	(17)	(147)	88
Home Lending	(28)	(156)	82	(33)	(138)	76
Card	1,240	1,164	7	2,442	2,334	5
Auto	42	50	(16)	100	126	(21)
Total net charge-offs/(recoveries)	\$ 1,320	\$ 1,108	19	\$ 2,634	\$ 2,425	9
Net charge-off/(recovery) rate ^(c)						
Consumer & Business Banking	1.00%	0.77%		0.95%	0.80%	
Home equity ^(d)	(0.25)	(0.09)		(0.12)	0.06	
Residential mortgage ^(d)	(0.03)	(0.33)		(0.02)	(0.16)	
Home Lending ^(d)	(0.06)	(0.29)		(0.03)	(0.13)	
Card	3.24	3.27		3.23	3.30	
Auto	0.27	0.31		0.32	0.39	
Total net charge-off/(recovery) rate^(d)	1.19	1.00		1.18	1.10	
30+ day delinquency rate						
Home Lending ^{(e),(f)}	0.71%	0.86%		0.71%	0.86%	
Card	1.71	1.65		1.71	1.65	
Auto	0.82	0.77		0.82	0.77	
90+ day delinquency rate – Card	0.87	0.85		0.87	0.85	
Allowance for loan losses						
Consumer & Business Banking	\$ 796	\$ 796	–	\$ 796	\$ 796	–
Home Lending, excluding PCI loans	1,003	1,003	–	1,003	1,003	–
Home Lending – PCI loans ^(c)	1,299	2,132	(39)	1,299	2,132	(39)
Card	5,383	4,884	10	5,383	4,884	10
Auto	465	464	–	465	464	–
Total allowance for loan losses^(c)	\$ 8,946	\$ 9,279	(4)%	\$ 8,946	\$ 9,279	(4)%

(a) Excludes PCI loans. The Firm is recognizing interest income on each pool of PCI loans as each of the pools is performing.

(b) At June 30, 2019 and 2018, nonaccrual loans excluded mortgage loans 90 or more days past due and insured by U.S. government agencies of \$1.8 billion and \$3.3 billion, respectively. These amounts have been excluded based upon the government guarantee.

(c) Net charge-offs/(recoveries) and the net charge-off/(recovery) rates for the three months ended June 30, 2019 and 2018, excluded \$39 million and \$73 million, respectively, and for six months ended June 30, 2019 and 2018, excluded \$89 million and \$93 million, respectively, of write-offs in the PCI portfolio. These write-offs decreased the allowance for loan losses for PCI loans. For further information on PCI write-offs, refer to Summary of changes in the allowance for credit losses on page 68.

(d) Excludes the impact of PCI loans. For the three months ended June 30, 2019 and 2018, the net charge-off/(recovery) rates including the impact of PCI loans were as follows: (1) home equity of (0.19)% and (0.07)%, respectively; (2) residential mortgage of (0.03)% and (0.30)%, respectively; (3) Home Lending of (0.05)% and (0.26)%, respectively; and (4) total CCB of 1.14% and 0.93%, respectively. For six months ended June 30, 2019 and 2018, the net charge-off/(recovery) rates including impact of PCI loans were as follows: (1) home equity of (0.09)% and 0.04%, respectively; (2) residential mortgage of (0.02)% and (0.15)%, respectively; (3) Home Lending of (0.03)% and (0.12)%, respectively; and (4) total CCB of 1.13% and 1.03%, respectively.

(e) At June 30, 2019 and 2018, excluded mortgage loans insured by U.S. government agencies of \$2.9 billion and \$5.0 billion, respectively, that are 30 or more days past due. These amounts have been excluded based upon the government guarantee.

(f) Excludes PCI loans. The 30+ day delinquency rate for PCI loans was 8.71% and 9.40% at June 30, 2019 and 2018, respectively.

Selected metrics

(in billions, except ratios and where otherwise noted)	As of or for the three months ended June 30,			As of or for the six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Business Metrics						
Number of branches	4,970	5,091	(2)%	4,970	5,091	(2)%
Active digital customers (in thousands) ^(a)	51,032	47,952	6	51,032	47,952	6
Active mobile customers (in thousands) ^(b)	35,392	31,651	12	35,392	31,651	12
Debit and credit card sales volume	\$ 281.5	\$ 255.0	10	\$ 536.6	\$ 487.4	10
Consumer & Business Banking						
Average deposits	\$ 676.7	\$ 659.8	3	\$ 672.6	\$ 653.1	3
Deposit margin	2.60%	2.36%		2.61%	2.28%	
Business banking origination volume	\$ 1.7	\$ 1.9	(9)	\$ 3.2	\$ 3.6	(10)
Client investment assets	328.1	283.7	16	328.1	283.7	16
Home Lending						
Mortgage origination volume by channel						
Retail	\$ 12.5	\$ 10.4	20	\$ 20.4	\$ 18.7	9
Correspondent	12.0	11.1	8	19.1	21.0	(9)
Total mortgage origination volume^(c)	\$ 24.5	\$ 21.5	14	\$ 39.5	\$ 39.7	(1)
Total loans serviced (period-end)	\$ 780.1	\$ 802.6	(3)	\$ 780.1	\$ 802.6	(3)
Third-party mortgage loans serviced (period-end)	526.6	533.0	(1)	526.6	533.0	(1)
MSR carrying value (period-end)	5.1	6.2	(18)	5.1	6.2	(18)
Ratio of MSR carrying value (period-end) to third-party mortgage loans serviced (period-end)	0.97%	1.16%		0.97%	1.16%	
MSR revenue multiple ^(d)	2.69x	3.31x		2.77x	3.22x	
Card, excluding Commercial Card						
Credit card sales volume	\$ 192.5	\$ 174.0	11	\$ 365.0	\$ 331.1	10
Card Services						
Net revenue rate	11.48%	10.38%		11.55%	11.00%	
Merchant Services						
Merchant processing volume	\$ 371.6	\$ 330.8	12	\$ 728.1	\$ 647.1	13
Auto						
Loan and lease origination volume	\$ 8.5	\$ 8.3	2	\$ 16.4	\$ 16.7	(2)
Average auto operating lease assets	21.3	18.4	16%	21.1	18.0	17%

(a) Users of all web and/or mobile platforms who have logged in within the past 90 days.

(b) Users of all mobile platforms who have logged in within the past 90 days.

(c) Firmwide mortgage origination volume was \$26.3 billion and \$23.7 billion for the three months ended June 30, 2019 and 2018, respectively, and \$42.7 billion and \$43.7 billion for six months ended June 30, 2019 and 2018, respectively.

(d) Represents the ratio of MSR carrying value (period-end) to third-party mortgage loans serviced (period-end) divided by the ratio of annualized loan servicing-related revenue to third-party mortgage loans serviced (average).

CORPORATE & INVESTMENT BANK

For a discussion of the business profile of CIB, refer to pages 66–70 of JPMorgan Chase’s 2018 Form 10-K and Line of Business Metrics on page 173.

Selected income statement data

(in millions, except ratios)	Three months ended June 30,			Six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Revenue						
Investment banking fees	\$ 1,846	\$ 2,139	(14)%	\$ 3,690	\$ 3,835	(4)%
Principal transactions	3,885	3,666	6	8,048	7,695	5
Lending- and deposit-related fees	374	382	(2)	735	763	(4)
Asset management, administration and commissions	1,149	1,155	(1)	2,250	2,286	(2)
All other income	229	190	21	423	870	(51)
Noninterest revenue	7,483	7,532	(1)	15,146	15,449	(2)
Net interest income	2,158	2,391	(10)	4,343	4,957	(12)
Total net revenue^(a)	9,641	9,923	(3)	19,489	20,406	(4)
Provision for credit losses	—	58	NM	87	(100)	NM
Noninterest expense						
Compensation expense	2,698	2,720	(1)	5,647	5,756	(2)
Noncompensation expense	2,789	2,683	4	5,293	5,306	—
Total noninterest expense	5,487	5,403	2	10,940	11,062	(1)
Income before income tax expense	4,154	4,462	(7)	8,462	9,444	(10)
Income tax expense	1,219	1,264	(4)	2,276	2,272	—
Net income	\$ 2,935	\$ 3,198	(8)%	\$ 6,186	\$ 7,172	(14)%
Financial ratios						
Return on equity	14%	17%		15%	20%	
Overhead ratio	57	54		56	54	
Compensation expense as percentage of total net revenue	28	27		29	28	

(a) Includes tax-equivalent adjustments, predominantly due to income tax credits related to alternative energy investments; income tax credits and amortization of the cost of investments in affordable housing projects; and tax-exempt income from municipal bonds of \$547 million and \$428 million for the three months ended June 30, 2019 and 2018, respectively, and \$1.1 billion and \$833 million for the six months ended June 30, 2019 and 2018, respectively.

Selected income statement data

(in millions)	Three months ended June 30,			Six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Revenue by business						
Investment Banking	\$ 1,776	\$ 1,949	(9)%	\$ 3,521	\$ 3,536	— %
Treasury Services	1,135	1,181	(4)	2,282	2,297	(1)
Lending	337	321	5	677	623	9
Total Banking	3,248	3,451	(6)	6,480	6,456	—
Fixed Income Markets	3,690	3,453	7	7,415	8,006	(7)
Equity Markets	1,728	1,959	(12)	3,469	3,976	(13)
Securities Services	1,045	1,103	(5)	2,059	2,162	(5)
Credit Adjustments & Other ^(a)	(70)	(43)	(63)	66	(194)	NM
Total Markets & Securities Services^(b)	6,393	6,472	(1)	13,009	13,950	(7)
Total net revenue	\$ 9,641	\$ 9,923	(3)%	\$ 19,489	\$ 20,406	(4)%

(a) Consists primarily of credit valuation adjustments (“CVA”) managed centrally within CIB and funding valuation adjustments (“FVA”) on derivatives. Results are primarily reported in principal transactions revenue. Results are presented net of associated hedging activities and net of CVA and FVA amounts allocated to Fixed Income Markets and Equity Markets.

(b) Formerly Markets & Investor Services.

Quarterly results

Net income was \$2.9 billion, down 8%.

Net revenue was \$9.6 billion, down 3%.

Banking revenue was \$3.2 billion, down 6%.

- Investment Banking revenue was \$1.8 billion, down 9%, reflecting lower fees across products. The Firm maintained its #1 ranking for Global Investment Banking fees, according to Dealogic.
 - Debt underwriting fees were \$816 million, down 13%, driven by declines in industry-wide fee levels.
 - Advisory fees were \$525 million, down 16% and Equity underwriting fees were \$505 million, down 11%, driven by declines in industry-wide fee levels and when compared to a strong prior year.
- Treasury Services revenue was \$1.1 billion, down 4%, predominantly driven by deposit margin compression, largely offset by growth in operating deposits and higher fees on increased payments volume.
- Lending revenue was \$337 million, up 5%, predominantly driven by higher net interest income reflecting growth in loan balances.

Markets & Securities Services revenue was \$6.4 billion, down 1%. Markets revenue was \$5.4 billion, flat compared to the prior year, and included a gain from the IPO of a strategic investment in Tradeweb. Excluding this gain, total Markets revenue and Fixed Income Markets revenue were down 6% and 3% respectively.

- Fixed Income Markets revenue was \$3.7 billion reflecting relative weakness in EMEA across products, largely offset by increased client activity in North America Rates and agency mortgage trading due to the changing rate environment.
- Equity Markets revenue was \$1.7 billion, down 12% compared to a strong prior year, predominantly driven by lower client activity in derivatives.
- Securities Services revenue was \$1.0 billion, down 5%, driven by deposit margin compression and the impact of a business exit, partially offset by increased client activity.

The provision for credit losses was zero, compared with \$58 million in the prior year.

Noninterest expense was \$5.5 billion, up 2%, reflecting higher legal expense, largely offset by lower performance-related compensation expense.

Year-to-date results

Net income was \$6.2 billion, down 14%.

Net revenue was \$19.5 billion, down 4%.

Banking revenue was \$6.5 billion, flat compared to the prior year.

- Investment Banking revenue was \$3.5 billion, flat compared to the prior year, driven by lower equity underwriting and advisory fees, partially offset by higher debt underwriting fees. The Firm maintained its #1 ranking for Global Investment Banking fees with overall share gains, according to Dealogic.
 - Equity underwriting fees were \$770 million, down 16% and Advisory fees were \$1.2 billion, down 3%, driven by declines in industry-wide fee levels.
 - Although industry-wide fee levels declined, Debt underwriting fees of \$1.8 billion were up 2%, driven by large acquisition financing deals.
- Treasury Services revenue was \$2.3 billion, down 1%, reflecting deposit margin compression offset by growth in operating deposits and higher fees on increased payments volume.
- Lending revenue was \$677 million, up 9%, predominantly driven by higher net interest income reflecting growth in loan balances.

Markets & Securities Services revenue was \$13.0 billion, down 7%. Markets revenue was \$10.9 billion, which included a gain from the IPO of a strategic investment in Tradeweb. In addition, prior year results included approximately \$500 million of fair value gains related to the adoption of the recognition and measurement accounting guidance for certain equity investments previously held at cost. Excluding these gains, total Markets revenue and Fixed Income Markets revenue were down 8% and 6% respectively.

- Fixed Income Markets revenue was \$7.4 billion reflecting lower revenue in Currencies & Emerging Markets and Rates. This decline was partially offset by higher revenue in agency mortgage trading due to the changing rate environment.
- Equity Markets revenue was \$3.5 billion, down 13% compared to a strong prior year, predominantly driven by lower client activity in derivatives.
- Securities Services revenue was \$2.1 billion, down 5%, driven by deposit margin compression and the impact of a business exit, partially offset by increased client activity.
- Credit Adjustments & Other was a gain of \$66 million, compared with a loss of \$194 million in the prior year.

The provision for credit losses was \$87 million reflecting select C&I client downgrades. The prior year was a benefit of \$100 million, reflecting a reduction in the allowance for credit losses primarily driven by a single name in the Oil & Gas portfolio, partially offset by net portfolio activity.

Noninterest expense was \$10.9 billion, down 1%, reflecting lower performance-related compensation expense and lower FDIC charges partially offset by higher investments in technology and higher legal expense.

Selected metrics

(in millions, except headcount)	As of or for the three months ended June 30,			As of or for the six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Selected balance sheet data (period-end)						
Assets	\$ 962,498	\$ 908,954	6%	\$ 962,498	\$ 908,954	6%
Loans:						
Loans retained ^(a)	123,074	116,645	6	123,074	116,645	6
Loans held-for-sale and loans at fair value	6,838	6,254	9	6,838	6,254	9
Total loans	129,912	122,899	6	129,912	122,899	6
Core loans	129,747	122,574	6	129,747	122,574	6
Equity	80,000	70,000	14	80,000	70,000	14
Selected balance sheet data (average)						
Assets	\$ 992,792	\$ 937,217	6	\$ 976,408	\$ 923,756	6
Trading assets-debt and equity instruments	421,775	358,611	18	401,656	356,750	13
Trading assets-derivative receivables	48,815	60,623	(19)	49,707	60,393	(18)
Loans:						
Loans retained ^(a)	\$ 124,194	\$ 113,950	9	\$ 125,585	\$ 111,665	12
Loans held-for-sale and loans at fair value	7,763	5,961	30	8,186	5,722	43
Total loans	\$ 131,957	\$ 119,911	10	\$ 133,771	\$ 117,387	14
Core loans	131,792	119,637	10	133,596	117,090	14
Equity	80,000	70,000	14	80,000	70,000	14
Headcount^(b)	54,959	51,400	7%	54,959	51,400	7%

(a) Loans retained includes credit portfolio loans, loans held by consolidated Firm-administered multi-seller conduits, trade finance loans, other held-for-investment loans and overdrafts.

(b) During the third quarter of 2018 approximately 1,200 employees transferred from CCB to CIB as part of the reorganization of the Commercial Card business.

Selected metrics

(in millions, except ratios)	As of or for the three months ended June 30,			As of or for the six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Credit data and quality statistics						
Net charge-offs/(recoveries)	\$ 72	\$ 114	(37)%	\$ 102	\$ 134	(24)%
Nonperforming assets:						
Nonaccrual loans:						
Nonaccrual loans retained ^(a)	\$ 569	\$ 352	62 %	\$ 569	\$ 352	62
Nonaccrual loans held-for-sale and loans at fair value	370	175	111	370	175	111
Total nonaccrual loans	939	527	78	939	527	78
Derivative receivables	39	112	(65)	39	112	(65)
Assets acquired in loan satisfactions	58	104	(44)	58	104	(44)
Total nonperforming assets	\$ 1,036	\$ 743	39	\$ 1,036	\$ 743	39
Allowance for credit losses:						
Allowance for loan losses	\$ 1,131	\$ 1,043	8	\$ 1,131	\$ 1,043	8
Allowance for lending-related commitments	807	828	(3)	807	828	(3)
Total allowance for credit losses	\$ 1,938	\$ 1,871	4%	\$ 1,938	\$ 1,871	4%
Net charge-off/(recovery) rate ^(b)	0.23%	0.40%		0.16%	0.24%	
Allowance for loan losses to period-end loans retained	0.92	0.89		0.92	0.89	
Allowance for loan losses to period-end loans retained, excluding trade finance and conduits ^(c)	1.27	1.27		1.27	1.27	
Allowance for loan losses to nonaccrual loans retained ^(a)	199	296		199	296	
Nonaccrual loans to total period-end loans	0.72%	0.43%		0.72%	0.43%	

(a) Allowance for loan losses of \$147 million and \$141 million were held against these nonaccrual loans at June 30, 2019 and 2018, respectively.

(b) Loans held-for-sale and loans at fair value were excluded when calculating the net charge-off/(recovery) rate.

(c) Management uses allowance for loan losses to period-end loans retained, excluding trade finance and conduits, a non-GAAP financial measure, to provide a more meaningful assessment of CIB's allowance coverage ratio.

Investment banking fees

(in millions)	Three months ended June 30,			Six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Advisory	\$ 525	\$ 626	(16)%	\$ 1,169	\$ 1,201	(3)%
Equity underwriting	505	570	(11)	770	916	(16)
Debt underwriting ^(a)	816	943	(13)	1,751	1,718	2
Total investment banking fees	\$ 1,846	\$ 2,139	(14)%	\$ 3,690	\$ 3,835	(4)%

(a) Includes loan syndications.

League table results – wallet share

	Three months ended June 30, 2019		Full-year 2018	
	Rank	Share	Rank	Share
Based on fees ^(a)				
Long-term debt^(b)				
Global	# 1	7.3%	# 1	7.2%
U.S.	1	10.7	1	11.2
Equity and equity-related^(c)				
Global	1	9.7	1	9.0
U.S.	2	11.6	1	12.3
M&A^(d)				
Global	2	9.3	2	8.7
U.S.	2	9.7	2	8.9
Loan syndications				
Global	2	8.9	1	9.5
U.S.	2	10.3	1	12.0
Global investment banking fees^(e)	# 1	8.7%	# 1	8.6%

(a) Source: Dealogic as of July 1, 2019. Reflects the ranking of revenue wallet and market share.

(b) Long-term debt rankings include investment-grade, high-yield, supranationals, sovereigns, agencies, covered bonds, asset-backed securities (“ABS”) and mortgage-backed securities (“MBS”); and exclude money market, short-term debt, and U.S. municipal securities.

(c) Global equity and equity-related ranking includes rights offerings and Chinese A-Shares.

(d) Global M&A excludes any withdrawn transactions. U.S. M&A revenue wallet represents wallet from client parents based in the U.S.

(e) Global investment banking fees exclude money market, short-term debt and shelf deals.

Markets revenue

The following table summarizes select income statement data for the Markets businesses. Markets includes both Fixed Income Markets and Equity Markets. Markets revenue comprises principal transactions, fees, commissions and other income, as well as net interest income. The Firm assesses its Markets business performance on a total revenue basis, as offsets may occur across revenue line items. For example, securities that generate net interest income may be risk-managed by derivatives that are

recorded in principal transactions revenue. For a description of the composition of these income statement line items, refer to Notes 5 and 6. For further information, refer to Markets revenue on page 69 of JPMorgan Chase's 2018 Form 10-K.

For the periods presented below, the predominant source of principal transactions revenue was the amount recognized upon executing new transactions.

(in millions)	Three months ended June 30,			Three months ended June 30,		
	2019			2018		
	Fixed Income Markets	Equity Markets	Total Markets	Fixed Income Markets	Equity Markets	Total Markets
Principal transactions	\$ 2,431	\$ 1,608	\$ 4,039	\$ 2,214	\$ 1,664	\$ 3,878
Lending- and deposit-related fees	49	2	51	49	2	51
Asset management, administration and commissions	97	453	550	104	460	564
All other income	173	(19)	154	171	(6)	165
Noninterest revenue	2,750	2,044	4,794	2,538	2,120	4,658
Net interest income ^(a)	940	(316)	624	915	(161)	754
Total net revenue	\$ 3,690	\$ 1,728	\$ 5,418	\$ 3,453	\$ 1,959	\$ 5,412

(in millions)	Six months ended June 30,			Six months ended June 30,		
	2019			2018		
	Fixed Income Markets	Equity Markets	Total Markets	Fixed Income Markets	Equity Markets	Total Markets
Principal transactions	\$ 4,913	\$ 3,165	\$ 8,078	\$ 4,946	\$ 3,276	\$ 8,222
Lending- and deposit-related fees	98	4	102	96	3	99
Asset management, administration and commissions	200	887	1,087	217	918	1,135
All other income	392	(23)	369	731	11	742
Noninterest revenue	5,603	4,033	9,636	5,990	4,208	10,198
Net interest income ^(a)	1,812	(564)	1,248	2,016	(232)	1,784
Total net revenue	\$ 7,415	\$ 3,469	\$ 10,884	\$ 8,006	\$ 3,976	\$ 11,982

(a) Declines in Markets net interest income were driven by higher funding costs.

Selected metrics

(in millions, except where otherwise noted)	As of or for the three months ended June 30,			As of or for the six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Assets under custody ("AUC") by asset class (period-end) (in billions):						
Fixed Income	\$ 13,056	\$ 12,611	4%	\$ 13,056	\$ 12,611	4%
Equity	9,352	8,791	6	9,352	8,791	6
Other ^(a)	3,042	2,782	9	3,042	2,782	9
Total AUC	\$ 25,450	\$ 24,184	5	\$ 25,450	\$ 24,184	5
Client deposits and other third-party liabilities (average) ^(b)	\$ 458,237	\$ 433,646	6%	\$ 451,185	\$ 428,502	5%

(a) Consists of mutual funds, unit investment trusts, currencies, annuities, insurance contracts, options and other contracts.

(b) Client deposits and other third-party liabilities pertain to the Treasury Services and Securities Services businesses.

International metrics

(in millions, except where otherwise noted)	As of or for the three months ended June 30,			As of or for the six months ended June 30,		
	2019	2018 ^(c)	Change	2019	2018 ^(c)	Change
Total net revenue^(a)						
Europe/Middle East/Africa	\$ 2,910	\$ 3,470	(16)%	\$ 6,063	\$ 7,163	(15)%
Asia/Pacific	1,296	1,341	(3)	2,715	2,763	(2)
Latin America/Caribbean	398	369	8	801	805	—
Total international net revenue	4,604	5,180	(11)	9,579	10,731	(11)
North America	5,037	4,743	6	9,910	9,675	2
Total net revenue	\$ 9,641	\$ 9,923	(3)	\$ 19,489	\$ 20,406	(4)
Loans retained (period-end)^(a)						
Europe/Middle East/Africa	\$ 24,665	\$ 26,342	(6)	\$ 24,665	\$ 26,342	(6)
Asia/Pacific	15,302	16,983	(10)	15,302	16,983	(10)
Latin America/Caribbean	7,090	5,621	26	7,090	5,621	26
Total international loans	47,057	48,946	(4)	47,057	48,946	(4)
North America	76,017	67,699	12	76,017	67,699	12
Total loans retained	\$ 123,074	\$ 116,645	6	\$ 123,074	\$ 116,645	6
Client deposits and other third-party liabilities (average)^(b)						
Europe/Middle East/Africa	\$ 175,189	\$ 164,735	6	\$ 169,694	\$ 162,124	5
Asia/Pacific	86,889	81,465	7	85,990	82,526	4
Latin America/Caribbean	28,869	27,747	4	28,180	26,620	6
Total international	\$ 290,947	\$ 273,947	6	\$ 283,864	\$ 271,270	5
North America	167,290	159,699	5	167,321	157,232	6
Total client deposits and other third-party liabilities	\$ 458,237	\$ 433,646	6	\$ 451,185	\$ 428,502	5
AUC (period-end)^(b) (in billions)						
North America	\$ 15,875	\$ 14,942	6	\$ 15,875	\$ 14,942	6
All other regions	9,575	9,242	4	9,575	9,242	4
Total AUC	\$ 25,450	\$ 24,184	5%	\$ 25,450	\$ 24,184	5%

(a) Total net revenue and loans retained (excluding loans held-for-sale and loans at fair value) are based on the location of the trading desk, booking location, or domicile of the client, as applicable.

(b) Client deposits and other third-party liabilities pertaining to the Treasury Services and Securities Services businesses, and AUC, are based on the domicile of the client.

(c) The prior period amounts have been revised to conform with the current period presentation.

COMMERCIAL BANKING

For a discussion of the business profile of CB, refer to pages 71-73 of JPMorgan Chase's 2018 Form 10-K and Line of Business Metrics on page 174.

Selected income statement data

(in millions)	Three months ended June 30,			Six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Revenue						
Lending- and deposit-related fees	\$ 216	\$ 224	(4)%	\$ 443	\$ 450	(2)%
All other income ^(a)	333	409	(19)	764	732	4
Noninterest revenue	549	633	(13)	1,207	1,182	2
Net interest income	1,662	1,683	(1)	3,342	3,300	1
Total net revenue^(b)	2,211	2,316	(5)	4,549	4,482	1
Provision for credit losses	29	43	(33)	119	38	213
Noninterest expense						
Compensation expense	438	415	6	887	836	6
Noncompensation expense	426	429	(1)	850	852	—
Total noninterest expense	864	844	2	1,737	1,688	3
Income before income tax expense	1,318	1,429	(8)	2,693	2,756	(2)
Income tax expense	322	342	(6)	644	644	—
Net income	\$ 996	\$ 1,087	(8)%	\$ 2,049	\$ 2,112	(3)%

(a) Effective in the first quarter of 2019, includes revenue from investment banking products, commercial card transactions and asset management fees. The prior period amounts have been revised to conform with the current period presentation.

(b) Total net revenue included tax-equivalent adjustments from income tax credits related to equity investments in designated community development entities that provide loans to qualified businesses in low-income communities, as well as tax-exempt income related to municipal financing activities of \$100 million and \$106 million for the three months ended June 30, 2019 and 2018, respectively and \$194 million and \$209 million for the six months ended June 30, 2019 and 2018, respectively.

Quarterly results

Net income was \$1.0 billion, a decrease of 8%.

Net revenue was \$2.2 billion, down 5%. Net interest income was \$1.7 billion, down 1%, predominantly driven by lower deposit balances. Noninterest revenue was \$549 million, a decrease of 13%, largely driven by lower investment banking revenue due to the timing of large fee transactions.

Noninterest expense was \$864 million, up 2%, driven by continued investments in banker coverage and technology.

The provision for credit losses was \$29 million, compared with \$43 million in the prior year.

Year-to-date results

Net income was \$2.0 billion, a decrease of 3%.

Net revenue was \$4.5 billion, an increase of 1%. Net interest income was \$3.3 billion, an increase of 1%, driven by higher deposit margins partially offset by lower deposit balances. Noninterest revenue was \$1.2 billion, up 2% driven by higher investment banking revenue, partially offset by lower deposit fees.

Noninterest expense was \$1.7 billion, an increase of 3%, driven by continued investments in banker coverage and technology.

The provision for credit losses was \$119 million, predominantly driven by a net addition to the allowance for credit losses on select C&I client downgrades. The prior year was an expense of \$38 million.

Selected income statement data (continued)

(in millions, except ratios)	Three months ended June 30,			Six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Revenue by product						
Lending	\$ 1,012	\$ 1,026	(1)%	\$ 2,024	\$ 2,025	— %
Treasury services	989	1,026	(4)	2,018	1,998	1
Investment banking ^(a)	193	254	(24)	482	438	10
Other	17	10	70	25	21	19
Total Commercial Banking net revenue	\$ 2,211	\$ 2,316	(5)	\$ 4,549	\$ 4,482	1
Investment banking revenue, gross ^(b)	\$ 592	\$ 739	(20)	\$ 1,410	\$ 1,308	8
Revenue by client segments						
Middle Market Banking	\$ 939	\$ 919	2	\$ 1,890	\$ 1,814	4
Corporate Client Banking	709	807	(12)	1,525	1,494	2
Commercial Real Estate Banking ^(c)	538	559	(4)	1,085	1,119	(3)
Other ^(c)	25	31	(19)	49	55	(11)
Total Commercial Banking net revenue	\$ 2,211	\$ 2,316	(5)%	\$ 4,549	\$ 4,482	1 %
Financial ratios						
Return on equity	17%	21%		18%	20%	
Overhead ratio	39	36		38	38	

(a) Includes CB's share of revenue from investment banking products sold to CB clients through the CIB.

(b) For discussion of revenue sharing, refer to page 60 of the 2018 Form 10-K.

(c) Effective in the first quarter of 2019, client segment data includes Commercial Real Estate Banking which comprises the former Commercial Term Lending and Real Estate Banking client segments, and Community Development Banking (previously part of Other). The prior period amounts have been revised to conform with the current period presentation.

Selected metrics

(in millions, except headcount)	As of or for the three months ended June 30,			As of or for the six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Selected balance sheet data (period-end)						
Total assets	\$ 220,712	\$ 220,232	—%	\$ 220,712	\$ 220,232	—%
Loans:						
Loans retained	208,323	205,834	1	208,323	205,834	1
Loans held-for-sale and loans at fair value	1,284	1,576	(19)	1,284	1,576	(19)
Total loans	\$ 209,607	\$ 207,410	1	\$ 209,607	\$ 207,410	1
Core loans	209,475	207,238	1	209,475	207,238	1
Equity	22,000	20,000	10	22,000	20,000	10
Period-end loans by client segment						
Middle Market Banking	\$ 56,346	\$ 58,301	(3)	\$ 56,346	\$ 58,301	(3)
Corporate Client Banking	51,500	48,885	5	51,500	48,885	5
Commercial Real Estate Banking ^(a)	100,751	98,808	2	100,751	98,808	2
Other ^(a)	1,010	1,416	(29)	1,010	1,416	(29)
Total Commercial Banking loans	\$ 209,607	\$ 207,410	1	\$ 209,607	\$ 207,410	1
Selected balance sheet data (average)						
Total assets	\$ 218,760	\$ 218,396	—	\$ 218,530	\$ 217,781	—
Loans:						
Loans retained	206,771	204,239	1	205,623	203,109	1
Loans held-for-sale and loans at fair value	701	1,381	(49)	1,165	896	30
Total loans	\$ 207,472	\$ 205,620	1	\$ 206,788	\$ 204,005	1
Core loans	207,336	205,440	1	206,646	203,809	1
Average loans by client segment						
Middle Market Banking	\$ 57,155	\$ 57,346	—	\$ 56,940	\$ 57,052	—
Corporate Client Banking	48,656	48,150	1	48,400	46,962	3
Commercial Real Estate Banking ^(a)	100,671	98,601	2	100,469	98,500	2
Other ^(a)	990	1,523	(35)	979	1,491	(34)
Total Commercial Banking loans	\$ 207,472	\$ 205,620	1	\$ 206,788	\$ 204,005	1
Client deposits and other third-party liabilities	\$ 168,247	\$ 170,745	(1)	\$ 167,756	\$ 173,168	(3)
Equity	22,000	20,000	10	22,000	20,000	10
Headcount	11,248	10,579	6%	11,248	10,579	6%

(a) Effective in the first quarter of 2019, client segment data includes Commercial Real Estate Banking which comprises the former Commercial Term Lending and Real Estate Banking client segments, and Community Development Banking (previously part of Other). The prior period amounts have been revised to conform with the current period presentation.

Selected metrics (continued)

(in millions, except ratios)	As of or for the three months ended June 30,			As of or for the six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Credit data and quality statistics						
Net charge-offs/(recoveries)	\$ 15	\$ 34	(56)%	\$ 26	\$ 34	(24)%
Nonperforming assets						
Nonaccrual loans:						
Nonaccrual loans retained ^(a)	\$ 614	\$ 546	12 %	\$ 614	\$ 546	12 %
Nonaccrual loans held-for-sale and loans at fair value	—	—	—	—	—	—
Total nonaccrual loans	\$ 614	\$ 546	12	\$ 614	\$ 546	12
Assets acquired in loan satisfactions	20	2	NM	20	2	NM
Total nonperforming assets	\$ 634	\$ 548	16	\$ 634	\$ 548	16
Allowance for credit losses:						
Allowance for loan losses	\$ 2,756	\$ 2,622	5	\$ 2,756	\$ 2,622	5
Allowance for lending-related commitments	274	243	13	274	243	13
Total allowance for credit losses	\$ 3,030	\$ 2,865	6 %	\$ 3,030	\$ 2,865	6 %
Net charge-off/(recovery) rate ^(b)	0.03%	0.07%		0.03%	0.03%	
Allowance for loan losses to period-end loans retained	1.32	1.27		1.32	1.27	
Allowance for loan losses to nonaccrual loans retained ^(a)	449	480		449	480	
Nonaccrual loans to period-end total loans	0.29	0.26		0.29	0.26	

(a) Allowance for loan losses of \$125 million and \$126 million was held against nonaccrual loans retained at June 30, 2019 and 2018, respectively.

(b) Loans held-for-sale and loans at fair value were excluded when calculating the net charge-off/(recovery) rate.

ASSET & WEALTH MANAGEMENT

For a discussion of the business profile of AWM, refer to pages 74–76 of JPMorgan Chase’s 2018 Form 10-K and Line of Business Metrics on pages 174–175.

Selected income statement data

(in millions, except ratios)	Three months ended June 30,			Six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Revenue						
Asset management, administration and commissions	\$ 2,568	\$ 2,532	1 %	\$ 4,984	\$ 5,060	(2)%
All other income	115	155	(26)	292	257	14
Noninterest revenue	2,683	2,687	–	5,276	5,317	(1)
Net interest income	876	885	(1)	1,772	1,761	1
Total net revenue	3,559	3,572	–	7,048	7,078	–
Provision for credit losses	2	2	–	4	17	(76)
Noninterest expense						
Compensation expense	1,406	1,329	6	2,868	2,721	5
Noncompensation expense	1,190	1,237	(4)	2,375	2,426	(2)
Total noninterest expense	2,596	2,566	1	5,243	5,147	2
Income before income tax expense	961	1,004	(4)	1,801	1,914	(6)
Income tax expense	242	249	(3)	421	389	8
Net income	\$ 719	\$ 755	(5)	\$ 1,380	\$ 1,525	(10)
Revenue by line of business						
Asset Management	\$ 1,785	\$ 1,826	(2)	\$ 3,546	\$ 3,613	(2)
Wealth Management	1,774	1,746	2	3,502	3,465	1
Total net revenue	\$ 3,559	\$ 3,572	– %	\$ 7,048	\$ 7,078	– %
Financial ratios						
Return on equity	27%	33%		26%	33%	
Overhead ratio	73	72		74	73	
Pre-tax margin ratio:						
Asset Management	25	28		24	27	
Wealth Management	29	28		27	27	
Asset & Wealth Management	27	28		26	27	

Quarterly results

Net income was \$719 million, a decrease of 5%.

Net revenue of \$3.6 billion was flat. Net interest income was \$876 million, down 1%, driven by lower deposit revenue, largely offset by loan growth. Noninterest revenue of \$2.7 billion was flat, as the impact of higher average market levels was predominantly offset by lower net investment valuation gains.

Noninterest expense was \$2.6 billion, an increase of 1%, driven by continued investments in advisors and technology, partially offset by lower distribution fees.

Year-to-date results

Net income was \$1.4 billion, a decrease of 10%.

Net revenue of \$7 billion was flat. Net interest income was \$1.8 billion, up 1%, predominantly driven by loan growth, offset by lower deposit revenue. Noninterest revenue was \$5.3 billion, down 1%, driven by a shift in the mix toward lower fee products and lower average market levels, predominantly offset by higher net investment valuation gains.

Noninterest expense was \$5.2 billion, an increase of 2%, largely driven by continued investments in technology and advisors, partially offset by lower distribution fees.

Selected metrics

(in millions, except ranking data, headcount and ratios)	As of or for the three months ended June 30,			As of or for the six months ended June 30,		
	2019	2018	Change	2019	2018	Change
% of JPM mutual fund assets rated as 4- or 5-star ^(a)	63 %	59 %		63%	59 %	
% of JPM mutual fund assets ranked in 1 st or 2 nd quartile: ^(b)						
1 year	78	65		78	65	
3 years	75	71		75	71	
5 years	82	85		82	85	
Selected balance sheet data (period-end)						
Total assets	\$ 172,149	\$ 161,474	7%	\$ 172,149	\$ 161,474	7%
Loans	149,877	138,606	8	149,877	138,606	8
Core loans	149,877	138,606	8	149,877	138,606	8
Deposits	136,225	131,511	4	136,225	131,511	4
Equity	10,500	9,000	17	10,500	9,000	17
Selected balance sheet data (average)						
Total assets	\$ 167,544	\$ 158,244	6	\$ 167,452	\$ 156,305	7
Loans	146,494	136,710	7	145,953	134,683	8
Core loans	146,494	136,710	7	145,953	134,683	8
Deposits	140,317	139,557	1	139,282	141,865	(2)
Equity	10,500	9,000	17	10,500	9,000	17
Headcount	23,683	23,141	2	23,683	23,141	2
Number of Wealth Management client advisors	2,735	2,644	3	2,735	2,644	3
Credit data and quality statistics						
Net charge-offs	\$ (3)	\$ (5)	40	\$ 1	\$ (4)	NM
Nonaccrual loans	127	323	(61)	127	323	(61)
Allowance for credit losses:						
Allowance for loan losses	\$ 331	\$ 304	9	\$ 331	\$ 304	9
Allowance for lending-related commitments	17	15	13	17	15	13
Total allowance for credit losses	\$ 348	\$ 319	9%	\$ 348	\$ 319	9%
Net charge-off rate	(0.01)%	(0.01)%		—%	(0.01)%	
Allowance for loan losses to period-end loans	0.22	0.22		0.22	0.22	
Allowance for loan losses to nonaccrual loans	261	94		261	94	
Nonaccrual loans to period-end loans	0.08	0.23		0.08	0.23	

(a) Represents the “overall star rating” derived from Morningstar for the U.S., the U.K., Luxembourg, Hong Kong and Taiwan domiciled funds; and Nomura “star rating” for Japan domiciled funds. Includes only Asset Management retail open-ended mutual funds that have a rating. Excludes money market funds, Undiscovered Managers Fund, and Brazil and India domiciled funds.

(b) Quartile ranking sourced from: Lipper for the U.S. and Taiwan domiciled funds; Morningstar for the U.K., Luxembourg and Hong Kong domiciled funds; Nomura for Japan domiciled funds and Fund Doctor for South Korea domiciled funds. Includes only Asset Management retail open-ended mutual funds that are ranked by the aforementioned sources. Excludes money market funds, Undiscovered Managers Fund, and Brazil and India domiciled funds.

Client assets

Client assets of \$3.0 trillion and assets under management of \$2.2 trillion were both up 7%, predominantly driven by net inflows into long-term and liquidity products as well as higher market levels globally.

Client assets

(in billions)	June 30,		
	2019	2018	Change
Assets by asset class			
Liquidity	\$ 481	\$ 448	7%
Fixed income	543	452	20
Equity	441	435	1
Multi-asset and alternatives	713	693	3
Total assets under management	2,178	2,028	7
Custody/brokerage/administration/deposits	820	771	6
Total client assets	\$ 2,998	\$ 2,799	7
Memo:			
Alternatives client assets ^(a)	\$ 177	\$ 172	3
Assets by client segment			
Private Banking	\$ 617	\$ 551	12
Institutional	991	934	6
Retail	570	543	5
Total assets under management	\$ 2,178	\$ 2,028	7
Private Banking	\$ 1,410	\$ 1,298	9
Institutional	1,013	956	6
Retail	575	545	6
Total client assets	\$ 2,998	\$ 2,799	7%

(a) Represents assets under management, as well as client balances in brokerage accounts

Client assets (continued)

(in billions)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Assets under management rollforward				
Beginning balance	\$ 2,096	\$ 2,016	\$ 1,987	\$ 2,034
Net asset flows:				
Liquidity	4	17	(1)	(4)
Fixed income	37	(7)	56	(12)
Equity	(1)	2	(7)	7
Multi-asset and alternatives	—	9	(3)	25
Market/performance/other impacts	42	(9)	146	(22)
Ending balance, June 30	\$ 2,178	\$ 2,028	\$ 2,178	\$ 2,028
Client assets rollforward				
Beginning balance	\$ 2,897	\$ 2,788	\$ 2,733	\$ 2,789
Net asset flows	52	11	61	25
Market/performance/other impacts	49	—	204	(15)
Ending balance, June 30	\$ 2,998	\$ 2,799	\$ 2,998	\$ 2,799

International metrics

(in millions)	As of or for the three months ended June 30,			As of or for the six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Total net revenue ^(a)						
Europe/Middle East/Africa	\$ 680	\$ 692	(2)%	\$ 1,342	\$ 1,418	(5)%
Asia/Pacific	370	391	(5)	728	784	(7)
Latin America/Caribbean	219	234	(6)	440	461	(5)
Total international net revenue	1,269	1,317	(4)	2,510	2,663	(6)
North America	2,290	2,255	2	4,538	4,415	3
Total net revenue ^(a)	\$ 3,559	\$ 3,572	—%	\$ 7,048	\$ 7,078	—%

(a) Regional revenue is based on the domicile of the client.

(in billions)	As of or for the three months ended June 30,			As of or for the six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Assets under management						
Europe/Middle East/Africa	\$ 381	\$ 371	3%	\$ 381	\$ 371	3%
Asia/Pacific	182	164	11	182	164	11
Latin America/Caribbean	68	65	5	68	65	5
Total international assets under management	631	600	5	631	600	5
North America	1,547	1,428	8	1,547	1,428	8
Total assets under management	\$ 2,178	\$ 2,028	7	\$ 2,178	\$ 2,028	7
Client assets						
Europe/Middle East/Africa	\$ 448	\$ 431	4	\$ 448	\$ 431	4
Asia/Pacific	252	229	10	252	229	10
Latin America/Caribbean	171	160	7	171	160	7
Total international client assets	871	820	6	871	820	6
North America	2,127	1,979	7	2,127	1,979	7
Total client assets	\$ 2,998	\$ 2,799	7%	\$ 2,998	\$ 2,799	7%

CORPORATE

For a discussion of Corporate, refer to pages 77–78 of JPMorgan Chase’s 2018 Form 10-K.

Selected income statement and balance sheet data

(in millions, except headcount)	As of or for the three months ended June 30,			As of or for the six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Revenue						
Principal transactions	\$ (175)	\$ 83	NM	\$ (237)	\$ (61)	(289)%
Investment securities gains/(losses)	44	(80)	NM	57	(325)	NM
All other income	6	139	(96)%	63	343	(82)%
Noninterest revenue	(125)	142	NM	(117)	(43)	(172)
Net interest income	447	(62)	NM	864	(109)	NM
Total net revenue^(a)	322	80	303 %	747	(152)	NM
Provision for credit losses	(2)	(1)	(100)%	–	(5)	NM
Noninterest expense^(b)	232	279	(17)%	443	366	21 %
Income/(loss) before income tax expense/(benefit)	92	(198)	NM	304	(513)	NM
Income tax expense/(benefit)	(736)	(62)	NM	(775)	6	NM
Net income/(loss)	\$ 828	\$ (136)	NM	\$ 1,079	\$ (519)	NM
Total net revenue						
Treasury and CIO	\$ 618	\$ 87	NM	\$ 1,129	\$ 49	NM
Other Corporate	(296)	(7)	NM	(382)	(201)	(90)%
Total net revenue	\$ 322	\$ 80	303 %	\$ 747	\$ (152)	NM
Net income/(loss)						
Treasury and CIO	\$ 462	\$ (153)	NM	\$ 796	\$ (340)	NM
Other Corporate	366	17	NM	283	(179)	NM
Total net income/(loss)	\$ 828	\$ (136)	NM	\$ 1,079	\$ (519)	NM
Total assets (period-end)	\$ 821,330	\$ 746,716	10 %	\$ 821,330	\$ 746,716	10 %
Loans (period-end)	1,695	1,720	(1)%	1,695	1,720	(1)%
Core loans ^(c)	1,695	1,720	(1)%	1,695	1,720	(1)%
Headcount	37,361	35,877	4 %	37,361	35,877	4 %

(a) Included tax-equivalent adjustments, driven by tax-exempt income from municipal bond investments, of \$81 million and \$95 million for the three months ended June 30, 2019 and 2018, respectively, and \$167 million and \$193 million for the six months ended June 30, 2019 and 2018, respectively.

(b) Included a net legal benefit of \$(67) million and \$(8) million for the three months ended June 30, 2019 and 2018, respectively, and \$(157) million and \$(50) million for the six months ended June 30, 2019 and 2018, respectively.

(c) Average core loans were \$1.7 billion for both the three months ended June 30, 2019 and 2018, and \$1.6 billion and \$1.7 billion for the six months ended June 30, 2019 and 2018, respectively.

Quarterly results

Net income was \$828 million, compared with a net loss of \$136 million in the prior year.

Net revenue was \$322 million, compared with \$80 million in the prior year. This increase was driven by higher net interest income on higher rates and change in balance sheet mix, as well as an increase in investment securities gains due to the repositioning of the investment securities portfolio, partially offset by approximately \$100 million of net valuation losses on certain legacy private equity investments compared to net gains in the prior year.

Noninterest expense was \$232 million, compared with \$279 million in the prior year. The current period included investments in technology as well as a contribution to the Firm’s Foundation, whereas all prior-year contributions were made in the fourth quarter. The prior year included a \$174 million pretax loss on the liquidation of a legal entity.

The current period included tax benefits of \$742 million related to the resolution of certain tax audits. The prior period reflected a benefit of \$189 million resulting from a change in the estimate for the deemed repatriation tax on non-U.S. earnings, as well as other net tax adjustments that were predominantly offset by changes to certain tax reserves.

Year-to-date results

Net income was \$1,079 million, compared with a net loss of \$519 million in the prior year.

Net revenue was \$747 million, compared with a net loss of \$152 million in the prior year. This increase was driven by higher net interest income on higher rates and change in balance sheet mix, as well as an increase in investment securities gains due to the repositioning of the investment securities portfolio.

Noninterest expense was \$443 million, compared with \$366 million in the prior year. The current period included investments in technology and real estate as well as contributions to the Firm’s Foundation, whereas all prior-year contributions were made in the fourth quarter. The prior year included a \$174 million pretax loss on the liquidation of a legal entity.

The current period included tax benefits of \$825 million related to the resolution of certain tax audits. The prior period reflected changes to certain tax reserves, largely offset by changes in the estimate for the deemed repatriation tax on non-U.S. earnings and other tax adjustments.

Treasury and CIO overview

At June 30, 2019, the average credit rating of the Treasury and CIO investment securities comprising the portfolio in the table below was AA+ (based upon external ratings where available and, where not available, based primarily upon internal ratings that correspond to ratings as defined by S&P and Moody's). Refer to Note 9 for further information on the Firm's investment securities portfolio.

For further information on liquidity and funding risk, refer to Liquidity Risk Management on pages 49-53. For information on interest rate, foreign exchange and other risks, refer to Market Risk Management on pages 70-74.

Selected income statement and balance sheet data

(in millions)	As of or for the three months ended June 30,			As of or for the six months ended June 30,		
	2019	2018	Change	2019	2018	Change
Investment securities gains/(losses)	\$ 44	\$ (80)	NM	\$ 57	\$ (325)	NM
Available-for-sale ("AFS") investment securities (average)	\$ 248,612	\$ 200,232	24%	\$ 237,669	\$ 202,266	18%
Held-to-maturity ("HTM") investment securities (average)	30,929	30,304	2	31,005	32,152	(4)
Investment securities portfolio (average)	\$ 279,541	\$ 230,536	21	\$ 268,674	\$ 234,418	15
AFS investment securities (period-end)	\$ 274,533	\$ 200,434	37	\$ 274,533	\$ 200,434	37
HTM investment securities (period-end)	30,907	31,006	—	30,907	31,006	—
Investment securities portfolio (period-end)	\$ 305,440	\$ 231,440	32%	\$ 305,440	\$ 231,440	32%

ENTERPRISE-WIDE RISK MANAGEMENT

Risk is an inherent part of JPMorgan Chase's business activities. When the Firm extends a consumer or wholesale loan, advises customers on their investment decisions, makes markets in securities, or offers other products or services, the Firm takes on some degree of risk. The Firm's overall objective is to manage its businesses and the associated risks in a manner that balances serving the interests of its clients, customers and investors and protects the safety and soundness of the Firm.

The Firm believes that effective risk management requires:

- Acceptance of responsibility, including identification and escalation of risk issues, by all individuals within the Firm;
- Ownership of risk identification, assessment, data and management within each of the lines of business and Corporate; and
- Firmwide structures for risk governance.

The Firm strives for continual improvement through efforts to enhance controls, ongoing employee training and development, talent retention, and other measures. The Firm follows a disciplined and balanced compensation framework with strong internal governance and independent Board oversight. The impact of risk and control issues are carefully considered in the Firm's performance evaluation and incentive compensation processes.

Firmwide Risk Management is overseen and managed on an enterprise-wide basis. The Firm's risk management governance and oversight framework involves understanding drivers of risks, types of risks, and impacts of risks.



For a further discussion of Enterprise-wide risk management governance and oversight, refer to pages 79-83 of JPMorgan Chase's 2018 Form 10-K.

Effective July 2019, the Board of Directors' Risk Policy Committee ("DRPC") was renamed the Risk Committee. The committee's responsibilities were not changed. For a further discussion of the committee, refer to page 81 of JPMorgan Chase's 2018 Form 10-K.

Governance and Oversight Functions

The following sections of this Form 10-Q and the 2018 Form 10-K discuss the risk governance and oversight functions in place to manage the risks inherent in the Firm's business activities.

Risk governance and oversight functions	Form 10-Q page reference	Form 10-K page reference
Strategic risk		84
Capital risk	44-48	85-94
Liquidity risk	49-53	95-100
Reputation risk		101
Consumer credit risk	55-59	106-111
Wholesale credit risk	60-66	112-119
Investment portfolio risk	69	123
Market risk	70-74	124-131
Country risk	75	132-133
Operational risk		134-136
Compliance risk		137
Conduct risk		138
Legal risk		139
Estimations and Model risk		140

CAPITAL RISK MANAGEMENT

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.

For a further discussion of the Firm's Capital Risk Management, including capital planning and stress testing, refer to pages 85-94 of JPMorgan Chase's 2018 Form 10-K, Note 21 of this Form 10-Q, and the Firm's Pillar 3 Regulatory Capital Disclosures reports, which are available on the Firm's website (<https://jpmorganchaseco.gcs-web.com/financial-information/basel-pillar-3-us-lcr-disclosures>).

The capital rules under Basel III establish minimum capital ratios and overall capital adequacy standards for large and internationally active U.S. bank holding companies ("BHC") and banks, including the Firm and its insured depository institution ("IDI") subsidiaries, including JPMorgan Chase Bank, N.A. Two comprehensive approaches are prescribed for calculating RWA: a standardized approach ("Basel III Standardized"), and an advanced approach ("Basel III Advanced"). Effective January 1, 2019, the capital

adequacy of the Firm is evaluated against the fully phased-in measures under Basel III and represents the lower of the Standardized or Advanced approaches. During 2018, the required capital measures were subject to the transitional rules and as of December 31, 2018 were the same on a fully phased-in and on a transitional basis. The Firm's Basel III Standardized risk-based ratios are currently more binding than the Basel III Advanced risk-based ratios, and the Firm expects that this will remain the case for the foreseeable future.

Basel III also includes a requirement for Advanced Approach banking organizations, including the Firm, to calculate the SLR. For additional information on SLR, refer to page 91 of JPMorgan Chase's 2018 Form 10-K.

In addition to meeting the capital ratio requirements of Basel III, the Firm and its IDI subsidiaries also must maintain minimum capital and leverage ratios in order to be "well-capitalized" under the regulations issued by the Federal Reserve and the Prompt Corrective Action requirements of the FDIC Improvement Act respectively.

The following tables present the Firm's risk-based and leverage-based capital metrics under both the Basel III Standardized and Advanced Approaches. The Firm's Basel III ratios exceeded regulatory minimums as of June 30, 2019 and December 31, 2018. For a further discussion of these capital metrics, refer to Capital Risk Management on pages 85-94 of JPMorgan Chase's 2018 Form 10-K.

(in millions)	June 30, 2019			December 31, 2018		
	Standardized	Advanced	Minimum capital ratios	Standardized ^(b)	Advanced ^(b)	Minimum capital ratios
Risk-based capital metrics:						
CET1 capital	\$ 189,169	\$ 189,169		\$ 183,474	\$ 183,474	
Tier 1 capital	215,808	215,808		209,093	209,093	
Total capital	244,490	234,507		237,511	227,435	
Risk-weighted assets	1,545,101	1,449,211		1,528,916	1,421,205	
CET1 capital ratio	12.2%	13.1%	10.5%	12.0%	12.9%	9.0%
Tier 1 capital ratio	14.0	14.9	12.0	13.7	14.7	10.5
Total capital ratio	15.8	16.2	14.0	15.5	16.0	12.5
Leverage-based capital metrics:						
Adjusted average assets ^(a)	\$ 2,692,225	\$ 2,692,225		\$ 2,589,887	\$ 2,589,887	
Tier 1 leverage ratio	8.0%	8.0%	4.0%	8.1%	8.1%	4.0%
Total leverage exposure	NA	\$ 3,367,154		NA	\$ 3,269,988	
SLR	NA	6.4%	5.0%	NA	6.4%	5.0%

(a) Adjusted average assets, for purposes of calculating the Tier 1 leverage ratio, includes total quarterly average assets adjusted for on-balance sheet assets that are subject to deduction from Tier 1 capital, predominantly goodwill and other intangible assets.

(b) The Firm's capital ratios as of December 31, 2018 were equivalent whether calculated on a transitional or fully phased-in basis.

Capital components

The following table presents reconciliations of total stockholders' equity to Basel III CET1 capital, Tier 1 capital and Total capital as of June 30, 2019 and December 31, 2018.

(in millions)	June 30, 2019	December 31, 2018
Total stockholders' equity	\$ 263,215	\$ 256,515
Less: Preferred stock	26,993	26,068
Common stockholders' equity	236,222	230,447
Less:		
Goodwill	47,477	47,471
Other intangible assets	732	748
Other CET1 capital adjustments	1,160	1,034
Add:		
Deferred tax liabilities ^(a)	2,316	2,280
Standardized/Advanced CET1 capital	189,169	183,474
Preferred stock	26,993	26,068
Less: Other Tier 1 adjustments	354	449
Standardized/Advanced Tier 1 capital	\$ 215,808	\$ 209,093
Long-term debt and other instruments qualifying as Tier 2 capital	\$ 14,263	\$ 13,772
Qualifying allowance for credit losses	14,295	14,500
Other	124	146
Standardized Tier 2 capital	\$ 28,682	\$ 28,418
Standardized Total capital	\$ 244,490	\$ 237,511
Adjustment in qualifying allowance for credit losses for Advanced Tier 2 capital	(9,983)	(10,076)
Advanced Tier 2 capital	\$ 18,699	\$ 18,342
Advanced Total capital	\$ 234,507	\$ 227,435

(a) Represents certain deferred tax liabilities related to tax-deductible goodwill and identifiable intangibles created in nontaxable transactions, which are netted against goodwill and other intangibles when calculating CET1 capital.

Capital rollforward

The following table presents the changes in Basel III CET1 capital, Tier 1 capital and Tier 2 capital for the six months ended June 30, 2019.

Six months ended June 30, (in millions)	2019
Standardized/Advanced CET1 capital at December 31, 2018	\$ 183,474
Net income applicable to common equity	18,053
Dividends declared on common stock	(5,224)
Net purchase of treasury stock	(8,934)
Changes in additional paid-in capital	(803)
Changes related to AOCI	2,386
Adjustment related to DVA ^(a)	458
Changes related to other CET1 capital adjustments	(241)
Change in Standardized/Advanced CET1 capital	5,695
Standardized/Advanced CET1 capital at June 30, 2019	\$ 189,169
Standardized/Advanced Tier 1 capital at December 31, 2018	\$ 209,093
Change in CET1 capital	5,695
Net issuance of noncumulative perpetual preferred stock	925
Other	95
Change in Standardized/Advanced Tier 1 capital	6,715
Standardized/Advanced Tier 1 capital at June 30, 2019	\$ 215,808
Standardized Tier 2 capital at December 31, 2018	\$ 28,418
Change in long-term debt and other instruments qualifying as Tier 2	491
Change in qualifying allowance for credit losses	(204)
Other	(23)
Change in Standardized Tier 2 capital	264
Standardized Tier 2 capital at June 30, 2019	\$ 28,682
Standardized Total capital at June 30, 2019	\$ 244,490
Advanced Tier 2 capital at December 31, 2018	\$ 18,342
Change in long-term debt and other instruments qualifying as Tier 2	491
Change in qualifying allowance for credit losses	(111)
Other	(23)
Change in Advanced Tier 2 capital	357
Advanced Tier 2 capital at June 30, 2019	\$ 18,699
Advanced Total capital at June 30, 2019	\$ 234,507

(a) Includes DVA related to structured notes recorded in AOCI.

RWA rollforward

The following table presents changes in the components of RWA under Basel III Standardized and Advanced for the six months ended June 30, 2019. The amounts in the rollforward categories are estimates, based on the predominant driver of the change.

Six months ended June 30, 2019 (in millions)	Standardized			Advanced			
	Credit risk RWA	Market risk RWA	Total RWA	Credit risk RWA	Market risk RWA	Operational risk RWA	Total RWA
December 31, 2018	\$ 1,423,053	\$ 105,863	\$ 1,528,916	\$ 926,647	\$ 105,976	\$ 388,582	\$ 1,421,205
Model & data changes ^(a)	(2,906)	(8,941)	(11,847)	4,858	(8,941)	—	(4,083)
Portfolio runoff ^(b)	(2,900)	—	(2,900)	(3,000)	—	—	(3,000)
Movement in portfolio levels ^(c)	27,668	3,264	30,932	35,857	2,992	(3,760)	35,089
Changes in RWA	21,862	(5,677)	16,185	37,715	(5,949)	(3,760)	28,006
June 30, 2019	\$ 1,444,915	\$ 100,186	\$ 1,545,101	\$ 964,362	\$ 100,027	\$ 384,822	\$ 1,449,211

(a) Model & data changes refer to movements in levels of RWA as a result of revised methodologies and/or treatment per regulatory guidance (exclusive of rule changes).

(b) Portfolio runoff for credit risk RWA primarily reflects reduced risk from position rollofs in legacy portfolios in Home Lending.

(c) Movement in portfolio levels (inclusive of rule changes) refers to: changes in book size, composition, credit quality, and market movements for credit risk RWA; changes in position and market movements for market risk RWA; and updates to cumulative losses for operational risk RWA.

Supplementary leverage ratio

For additional information, refer to Capital Risk Management on page 88 of JPMorgan Chase's 2018 Form 10-K.

The following table presents the components of the Firm's SLR as of June 30, 2019 and December 31, 2018.

(in millions, except ratio)	June 30, 2019	December 31, 2018
Tier 1 capital	\$ 215,808	\$ 209,093
Total average assets	2,739,055	2,636,505
Less: Adjustments for deductions from Tier 1 capital	46,830	46,618
Total adjusted average assets ^(a)	2,692,225	2,589,887
Off-balance sheet exposures ^(b)	674,929	680,101
Total leverage exposure	\$ 3,367,154	\$ 3,269,988
SLR	6.4%	6.4%

(a) Adjusted average assets, for purposes of calculating the SLR, includes total quarterly average assets adjusted for on-balance sheet assets that are subject to deduction from Tier 1 capital, predominantly goodwill and other intangible assets.

(b) Off-balance sheet exposures are calculated as the average of the three month-end spot balances during the quarter.

For JPMorgan Chase Bank, N.A.'s SLR ratios, refer to Note 21.

Line of business equity

Each business segment is allocated capital by taking into consideration a variety of factors including capital levels of similarly rated peers and applicable regulatory capital requirements. Effective January 1, 2019, line of business capital allocations have increased due to a combination of changes in the relative weights, with greater emphasis on Standardized RWA and stress, a higher capitalization rate, updated stress simulations, and general business growth. For additional information, refer to page 91 of JPMorgan Chase's 2018 Form 10-K.

The following table represents the capital allocated to each business segment:

(in billions)	June 30, 2019	December 31, 2018
Consumer & Community Banking	\$ 52.0	\$ 51.0
Corporate & Investment Bank	80.0	70.0
Commercial Banking	22.0	20.0
Asset & Wealth Management	10.5	9.0
Corporate	71.7	80.4
Total common stockholders' equity	\$ 236.2	\$ 230.4

Planning and stress testing

Comprehensive Capital Analysis and Review ("CCAR")

The Federal Reserve requires large bank holding companies, including the Firm, to submit on an annual basis a capital plan that has been reviewed and approved by the Board of Directors. Through CCAR, the Federal Reserve evaluates each bank holding company's ("BHC") capital adequacy and internal capital adequacy assessment processes ("ICAAP"), as well as its plans to make capital distributions, such as dividend payments or stock repurchases.

On June 27, 2019, the Federal Reserve informed the Firm that it did not object to the Firm's 2019 capital plan.

Capital actions

Preferred stock

Preferred stock dividends declared were \$404 million and \$778 million for the three and six months ended June 30, 2019.

On July 31, 2019, the Firm issued \$2.25 billion of fixed-to-floating rate non-cumulative preferred stock, Series FF, and on August 2, 2019, the Firm announced that it will redeem all \$880 million of its 6.30% non-cumulative preferred stock, Series W on September 1, 2019.

For additional information on the Firm's preferred stock, refer to Note 17 of this Form 10-Q and Note 20 of JPMorgan Chase's 2018 Form 10-K.

Common stock dividends

The Firm's second quarter common stock dividend was \$0.80 per share. On June 27, 2019, the Firm announced that its Board of Directors intends to increase the quarterly common stock dividend to \$0.90 per share, effective the third quarter of 2019. The Firm's dividends are subject to the Board of Directors' approval on a quarterly basis.

Common equity

Effective June 27, 2019, the Firm's Board of Directors authorized the repurchase of up to \$29.4 billion of gross common equity between July 1, 2019 and June 30, 2020, as part of the Firm's annual capital plan.

The following table sets forth the Firm's repurchases of common equity, on a settlement-date basis, for the three and six months ended June 30, 2019 and 2018.

(in millions)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Total shares of common stock repurchased	47.5	45.3	97.0	86.7
Aggregate common stock repurchases	\$ 5,210	\$ 4,968	\$10,301	\$ 9,639

For additional information regarding repurchases of the Firm's equity securities, refer to Part II, Item 2: Unregistered Sales of Equity Securities and Use of Proceeds and Part II, Item 5: Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities on page 176 of this Form 10-Q and page 30 of JPMorgan Chase's 2018 Form 10-K, respectively.

Other capital requirements

TLAC

The Federal Reserve's TLAC rule requires the top-tier U.S. GSIB holding companies, including the Firm, to maintain minimum levels of external TLAC and eligible LTD effective January 1, 2019.

For additional information, refer to page 93 of JPMorgan Chase's 2018 Form 10-K.

The following table presents the eligible external TLAC and LTD amounts, as well as a representation of the amounts as a percentage of the Firm's total RWA and total leverage exposure.

June 30, 2019			
(in billions, except ratio)	Eligible External TLAC		Eligible LTD
Total eligible TLAC & LTD	\$	388.6	\$ 160.8
% of RWA		25.1%	10.4%
Minimum requirement		23.0	9.5
Surplus/(shortfall)	\$	33.2	\$ 14.1
% of total leverage exposure		11.5%	4.8%
Minimum requirement		9.5	4.5
Surplus/(shortfall)	\$	68.7	\$ 9.3

For information on the financial consequences to holders of the Firm's debt and equity securities in a resolution scenario, refer to Part I, Item 1A: Risk Factors on pages 7-28 of JPMorgan Chase's 2018 Form 10-K.

Broker-dealer regulatory capital

J.P. Morgan Securities

JPMorgan Chase's principal U.S. broker-dealer subsidiary is J.P. Morgan Securities. J.P. Morgan Securities is subject to Rule 15c3-1 under the Securities Exchange Act of 1934 (the "Net Capital Rule"). J.P. Morgan Securities is also registered as a futures commission merchant and subject to Rule 1.17 of the Commodity Futures Trading Commission ("CFTC").

For a discussion on J.P. Morgan Securities' capital requirements, refer to Capital risk management on pages 85-94 of JPMorgan Chase's 2018 Form 10-K.

The following table presents J.P. Morgan Securities' net capital:

June 30, 2019			
(in millions)		Actual	Minimum
Net Capital	\$	20,858	\$ 3,446

J.P. Morgan Securities plc

J.P. Morgan Securities plc is a wholly-owned subsidiary of JPMorgan Chase Bank, N.A. and has authority to engage in banking, investment banking and broker-dealer activities. J.P. Morgan Securities plc is jointly regulated by the U.K. Prudential Regulation Authority ("PRA") and the Financial Conduct Authority ("FCA").

For a further discussion on J.P. Morgan Securities plc, refer to Capital risk management on pages 85-94 of JPMorgan Chase's 2018 Form 10-K.

Effective January 1, 2019, the Bank of England requires, on a transitional basis, that U.K. banks, including U.K. regulated subsidiaries of overseas groups, maintain a minimum requirement for own funds and eligible liabilities ("MREL"). As of June 30, 2019, J.P. Morgan Securities plc was compliant with the requirements of the MREL rule. For additional information on MREL, refer to Supervision and Regulation on pages 1-6 of JPMorgan Chase's 2018 Form 10-K.

The following table presents J.P. Morgan Securities plc's capital metrics:

June 30, 2019			
(in millions, except ratios)		Estimated	Minimum ratios
Total capital	\$	55,598	
CET1 ratio		17.9%	4.5%
Total capital ratio		22.9%	8.0%

LIQUIDITY RISK MANAGEMENT

Liquidity risk is the 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. For a further discussion of the Firm's Liquidity Risk Management, refer to pages 95-100 of JPMorgan Chase's 2018 Form 10-K and the Firm's US LCR Disclosure reports, which are available on the Firm's website at: (<https://jpmorganchaseco.gcs-web.com/financial-information/basel-pillar-3-us-lcr-disclosures>).

LCR and HQLA

The LCR rule requires the Firm to maintain an amount of unencumbered HQLA that is sufficient to meet its estimated total net cash outflows over a prospective 30 calendar-day period of significant stress. HQLA is the amount of liquid assets that qualify for inclusion in the LCR. HQLA primarily consist of unencumbered cash and certain high-quality liquid securities as defined in the LCR rule. The LCR is required to be a minimum of 100%.

Under the LCR rule, the amount of HQLA held by JPMorgan Chase Bank N.A. that is in excess of its standalone 100% minimum LCR requirement, and that is not transferable to non-bank affiliates, must be excluded from the Firm's reported HQLA.

The following table summarizes the Firm's average LCR for the three months ended June 30, 2019, March 31, 2019 and June 30, 2018 based on the Firm's interpretation of the finalized LCR framework.

Average amount (in millions)	Three months ended		
	June 30, 2019	March 31, 2019	June 30, 2018
HQLA			
Eligible cash ^(a)	\$ 219,838	\$ 216,787	\$ 362,608
Eligible securities ^{(b)(c)}	317,439	303,249	166,427
Total HQLA^(d)	\$ 537,277	\$ 520,036	\$ 529,035
Net cash outflows	\$ 477,442	\$ 467,329	\$ 458,432
LCR	113%	111%	115%
Net excess HQLA^(d)	\$ 59,835	\$ 52,707	\$ 70,603

(a) Represents cash on deposit at central banks, primarily the Federal Reserve Banks.

(b) Predominantly U.S. Treasuries, U.S. Agency MBS, and sovereign bonds net of applicable haircuts under the LCR rules.

(c) HQLA eligible securities may be reported in securities borrowed or purchased under resale agreements, trading assets, or investment securities on the Firm's Consolidated balance sheets.

(d) Excludes average excess HQLA at JPMorgan Chase Bank, N.A. that are not transferable to non-bank affiliates.

The Firm's average LCR increased during the three months ended June 30, 2019, compared with the three-month period ended March 31, 2019, primarily from an increase in cash from unsecured long-term debt issuances. Additionally, liquidity in JPMorgan Chase Bank, N.A. increased during the quarter due to growth in stable deposits and a reduction in loans, however this increase in excess liquidity is excluded from the Firm's reported LCR under the LCR rule.

The Firm's average LCR decreased during the three months ended June 30, 2019, compared with the prior year period. The decrease in the LCR was driven by a decrease in the amount of HQLA in JPMorgan Chase Bank, N.A. that was determined to be transferable to non-bank affiliates based on a change in the Firm's interpretation of amounts available for transfer during the three months ended December 31, 2018. This change in interpretation had no impact on the HQLA in JPMorgan Chase Bank, N.A. which had increased over the period.

The Firm's average LCR may fluctuate from period to period, due to changes in its HQLA and estimated net cash outflows under the LCR as a result of ongoing business activity.

Other liquidity sources

As of June 30, 2019, in addition to assets reported in the Firm's HQLA under the LCR rule, the Firm had approximately \$277 billion of unencumbered marketable securities, such as equity securities and fixed income debt securities, available to raise liquidity, if required. This includes HQLA-eligible securities included as part of the excess liquidity at JPMorgan Chase Bank, N.A. that are not transferable to non-bank affiliates.

As of June 30, 2019, the Firm also had approximately \$314 billion of available borrowing capacity at FHLBs, the discount window at the Federal Reserve Bank, and various other central banks as a result of collateral pledged by the Firm to such banks. This borrowing capacity excludes the benefit of securities reported in the Firm's HQLA or other unencumbered securities that are currently pledged at the Federal Reserve Bank discount window. Although available, the Firm does not view the borrowing capacity at the Federal Reserve Bank discount window and the various other central banks as a primary source of liquidity.

Funding

Sources of funds

Management believes that the Firm's unsecured and secured funding capacity is sufficient to meet its on- and off-balance sheet obligations.

The Firm funds its global balance sheet through diverse sources of funding including stable deposits as well as secured and unsecured funding in the capital markets. The Firm's loan portfolio is funded with a portion of the Firm's deposits, through securitizations and, with respect to a portion of the Firm's real estate-related loans, with secured borrowings from the FHLBs. Deposits in excess of the amount utilized to fund loans are primarily invested by Treasury and CIO in the Firm's investment securities portfolio or deployed in cash or other short-term liquid investments based on their interest rate and liquidity risk

characteristics. Securities borrowed or purchased under resale agreements and trading assets-debt and equity instruments are primarily funded by the Firm's securities loaned or sold under agreements to repurchase, trading liabilities-debt and equity instruments, and a portion of the Firm's long-term debt and stockholders' equity. In addition to funding securities borrowed or purchased under resale agreements and trading assets-debt and equity instruments, proceeds from the Firm's debt and equity issuances are used to fund certain loans and other financial and non-financial assets, or may be invested in the Firm's investment securities portfolio. Refer to the discussion below for additional information relating to Deposits, Short-term funding, and Long-term funding and issuance.

Deposits

The table below summarizes, by line of business, the deposit balances as of June 30, 2019, and December 31, 2018, and the average deposit balances for the three and six months ended June 30, 2019 and 2018, respectively.

Deposits (in millions)	June 30, 2019	December 31, 2018	Three months ended June 30,		Six months ended June 30,	
			Average		Average	
			2019	2018	2019	2018
Consumer & Community Banking	\$ 695,100	\$ 678,854	\$ 690,892	\$ 673,761	\$ 685,980	\$ 666,719
Corporate & Investment Bank	523,364	482,084	512,098	475,697	502,280	470,788
Commercial Banking	169,100	170,859	168,194	170,665	167,688	173,081
Asset & Wealth Management	136,225	138,546	140,317	139,557	139,282	141,865
Corporate	572	323	793	815	878	839
Total Firm	\$ 1,524,361	\$ 1,470,666	\$ 1,512,294	\$ 1,460,495	\$ 1,496,108	\$ 1,453,292

Deposits provide a stable source of funding and reduce the Firm's reliance on the wholesale funding markets. A significant portion of the Firm's deposits are consumer and wholesale operating deposits, which are both considered to be stable sources of liquidity. Wholesale operating deposits are considered to be stable sources of liquidity because they are generated from customers that maintain operating service relationships with the Firm.

The table below shows the loan and deposit balances, the loans-to-deposits ratios, and deposits as a percentage of total liabilities, as of June 30, 2019 and December 31, 2018.

(in billions except ratios)	June 30, 2019	December 31, 2018
Deposits	\$ 1,524.4	\$ 1,470.7
Deposits as a % of total liabilities	62%	62%
Loans	\$ 956.9	\$ 984.6
Loans-to-deposits ratio	63%	67%

The Firm believes that average deposit balances are generally more representative of deposit trends than period-end deposit balances.

Average deposits increased for the three months ended June 30, 2019 in CIB, CCB and AWM, partially offset by a decline in CB.

- The increase in CIB reflects an increase in deposits in Treasury Services and Securities Services driven by growth in client activity, and an increase in the net issuances of structured notes in Markets. The increase in CCB was driven by growth in new accounts. The increase in AWM was driven by growth in time deposits, partially offset by migration predominantly into the Firm's investment-related products.
- The decrease in CB was primarily driven by lower non-operating deposits.

Average deposits increased for the six months ended June 30, 2019 in CIB and CCB, partially offset by declines in CB and AWM.

- The increase in CIB reflects an increase in deposits in Treasury Services driven by growth in client activity, and an increase in the net issuances of structured notes in Markets. The increase in CCB was driven by growth in new accounts.
- The decrease in CB was primarily driven by lower non-operating deposits. The decrease in AWM was largely driven by migration predominantly into the Firm's investment-related products.

For further information on deposit and liability balance trends, refer to the discussion of the Firm's Business Segment Results and the Consolidated Balance Sheets Analysis on pages 21-42 and pages 15-17, respectively.

The following table summarizes short-term and long-term funding, excluding deposits, as of June 30, 2019, and December 31, 2018, and average balances for the three and six months ended June 30, 2019 and 2018, respectively. For additional information, refer to the Consolidated Balance Sheets Analysis on pages 15-17 and Note 10.

Sources of funds (excluding deposits) (in millions)	June 30, 2019	December 31, 2018	Three months ended June 30,		Six months ended June 30,	
			Average		Average	
			2019	2018	2019	2018
Commercial paper	\$ 25,268	\$ 30,059	\$ 26,030	\$ 27,143	\$ 27,373	\$ 26,571
Other borrowed funds ^(a)	9,762	8,789	11,818	11,840	11,037	11,993
Total short-term unsecured funding^(a)	\$ 35,030	\$ 38,848	\$ 37,848	\$ 38,983	\$ 38,410	\$ 38,564
Securities sold under agreements to repurchase ^(b)	\$ 192,837	\$ 171,975	\$ 218,057	\$ 178,064	\$ 207,812	\$ 181,212
Securities loaned ^(b)	7,799	9,481	8,090	13,058	9,428	11,799
Other borrowed funds ^{(a)(c)}	24,860	30,428	27,840	23,356	31,690	21,420
Obligations of Firm-administered multi-seller conduits ^(d)	\$ 14,734	\$ 4,843	\$ 13,356	\$ 2,993	\$ 10,387	\$ 3,054
Total short-term secured funding^(a)	\$ 240,230	\$ 216,727	\$ 267,343	\$ 217,471	\$ 259,317	\$ 217,485
Senior notes	\$ 170,626	\$ 162,733	\$ 167,376	\$ 151,047	\$ 165,176	\$ 150,635
Trust preferred securities	—	—	—	684	—	686
Subordinated debt	17,540	16,743	17,056	16,010	16,890	16,120
Structured notes ^(e)	66,377	53,090	62,284	48,674	59,853	47,842
Total long-term unsecured funding	\$ 254,543	\$ 232,566	\$ 246,716	\$ 216,415	\$ 241,919	\$ 215,283
Credit card securitization ^(d)	\$ 9,302	\$ 13,404	\$ 11,671	\$ 16,181	\$ 12,535	\$ 17,416
Federal Home Loan Bank (“FHLB”) advances	29,649	44,455	34,541	54,232	39,227	57,291
Other long-term secured funding ^(f)	4,677	5,010	4,680	4,998	4,785	4,741
Total long-term secured funding	\$ 43,628	\$ 62,869	\$ 50,892	\$ 75,411	\$ 56,547	\$ 79,448
Preferred stock^(g)	\$ 26,993	\$ 26,068	\$ 26,993	\$ 26,068	\$ 27,059	\$ 26,068
Common stockholders’ equity^(g)	\$ 236,222	\$ 230,447	\$ 233,026	\$ 228,901	\$ 231,547	\$ 228,261

(a) The prior period amounts have been revised to conform with the current period presentation.

(b) Primarily consists of short-term securities loaned or sold under agreements to repurchase.

(c) Includes FHLB advances with original maturities of less than one year of \$5.6 billion and \$11.4 billion as of June 30, 2019 and December 31, 2018, respectively.

(d) Included in beneficial interests issued by consolidated variable interest entities on the Firm’s Consolidated balance sheets.

(e) Includes certain TLAC-eligible long-term unsecured debt issued by the Parent Company.

(f) Includes long-term structured notes which are secured.

(g) For additional information on preferred stock and common stockholders’ equity refer to Capital Risk Management on pages 44-48, Consolidated statements of changes in stockholders’ equity, and Note 20 and Note 21 of JPMorgan Chase’s 2018 Form 10-K.

Short-term funding

The Firm’s sources of short-term secured funding primarily consist of securities loaned or sold under agreements to repurchase. These instruments are secured predominantly by high-quality securities collateral, including government-issued debt and agency MBS, and constitute a significant portion of the federal funds purchased and securities loaned or sold under repurchase agreements on the Consolidated balance sheets. The increase at June 30, 2019, from December 31, 2018, reflected higher secured financing of trading assets-debt and equity instruments and client-driven market-making activities in CIB.

The balances associated with securities loaned or sold under agreements to repurchase fluctuate over time due to customers’ investment and financing activities, the Firm’s demand for financing, the ongoing management of the mix of the Firm’s liabilities, including its secured and unsecured financing (for both the investment securities and market-making portfolios), and other market and portfolio factors.

The Firm’s sources of short-term unsecured funding primarily consist of issuance of wholesale commercial paper. The decrease in commercial paper at June 30, 2019, from December 31, 2018, was due to lower net issuance primarily for short-term liquidity management.

Long-term funding and issuance

Long-term funding provides additional sources of stable funding and liquidity for the Firm. The Firm's long-term funding plan is driven primarily by expected client activity, liquidity considerations, and regulatory requirements, including TLAC. Long-term funding objectives include maintaining diversification, maximizing market access and optimizing funding costs. The Firm evaluates various funding markets, tenors and currencies in creating its optimal long-term funding plan.

The significant majority of the Firm's long-term unsecured funding is issued by the Parent Company to provide maximum flexibility in support of both bank and nonbank subsidiary funding needs. The Parent Company advances substantially all net funding proceeds to its subsidiary, the Intermediate Holding Company ("IHC"). The IHC does not issue debt to external counterparties. The following table summarizes long-term unsecured issuance and maturities or redemptions for the three and six months ended June 30, 2019 and 2018. For additional information on the IHC and long-term debt, refer to Liquidity Risk Management and Note 19 of JPMorgan Chase's 2018 Form 10-K.

Long-term unsecured funding

	Three months ended June 30,		Six months ended June 30,		Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018	2019	2018	2019	2018
	Parent Company ^(b)				Subsidiaries ^(b)			
(Notional in millions)								
Issuance								
Senior notes issued in the U.S. market	\$ 4,000	\$ 7,000	\$ 8,250	\$ 11,000	\$ —	\$ 3,500	\$ 1,750	\$ 7,511
Senior notes issued in non-U.S. markets	—	1,175	2,248	1,175	—	—	—	—
Total senior notes	4,000	8,175	10,498	12,175	—	3,500	1,750	7,511
Structured notes ^(a)	631	829	1,816	1,660	9,016	7,267	15,132	14,225
Total long-term unsecured funding – issuance	\$ 4,631	\$ 9,004	\$ 12,314	\$ 13,835	\$ 9,016	\$ 10,767	\$ 16,882	\$ 21,736
Maturities/redemptions								
Senior notes	\$ 4,157	\$ 3,928	\$ 7,907	\$ 17,987	\$ 1	\$ 2,899	\$ 1,816	\$ 2,964
Subordinated debt	—	—	146	—	—	—	—	—
Structured notes	331	1,068	959	1,883	4,327	3,918	8,160	8,630
Total long-term unsecured funding – maturities/redemptions	\$ 4,488	\$ 4,996	\$ 9,012	\$ 19,870	\$ 4,328	\$ 6,817	\$ 9,976	\$ 11,594

(a) Includes certain TLAC-eligible long-term unsecured debt issued by the Parent Company.

(b) The prior period amounts have been revised to conform with the current period presentation.

The Firm raises secured long-term funding through securitization of consumer credit card loans and advances from the FHLBs. The following table summarizes the securitization issuance and FHLB advances and their respective maturities or redemptions for the three and six months ended June 30, 2019 and 2018, respectively.

Long-term secured funding

(in millions)	Three months ended June 30,				Six months ended June 30,			
	Issuance		Maturities/Redemptions		Issuance		Maturities/Redemptions	
	2019	2018	2019	2018	2019	2018	2019	2018
Credit card securitization	\$ —	\$ 1,396	\$ 4,125	\$ 1,725	\$ —	\$ 1,396	\$ 4,125	\$ 6,125
FHLB advances	—	—	12,804	4,702	—	4,000	14,805	12,453
Other long-term secured funding ^(a)	18	74	207	6	53	195	453	22
Total long-term secured funding	\$ 18	\$ 1,470	\$ 17,136	\$ 6,433	\$ 53	\$ 5,591	\$ 19,383	\$ 18,600

(a) Includes long-term structured notes which are secured.

The Firm's wholesale businesses also securitize loans for client-driven transactions; those client-driven loan securitizations are not considered to be a source of funding for the Firm and are not included in the table above. For further description of the client-driven loan securitizations, refer to Note 14 of JPMorgan Chase's 2018 Form 10-K.

Credit ratings

The cost and availability of financing are influenced by credit ratings. Reductions in these ratings could have an adverse effect on the Firm's access to liquidity sources, increase the cost of funds, trigger additional collateral or funding requirements and decrease the number of investors and counterparties willing to lend to the Firm. The nature and magnitude of the impact of ratings downgrades depends on numerous contractual and behavioral factors, which the Firm believes are incorporated in its liquidity risk and stress testing metrics. The Firm believes that it maintains sufficient liquidity to withstand a potential decrease in funding capacity due to ratings downgrades.

Additionally, the Firm's funding requirements for VIEs and other third-party commitments may be adversely affected by a decline in credit ratings. For additional information on the impact of a credit ratings downgrade on the funding requirements for VIEs, and on derivatives and collateral agreements, refer to SPEs on page 18, and liquidity risk and credit-related contingent features in Note 4.

The credit ratings of the Parent Company and the Firm's principal bank and non-bank subsidiaries as of June 30, 2019, were as follows.

June 30, 2019	JPMorgan Chase & Co.			JPMorgan Chase Bank, N.A. ^(a)			J.P. Morgan Securities LLC J.P. Morgan Securities plc		
	Long-term issuer	Short-term issuer	Outlook	Long-term issuer	Short-term issuer	Outlook	Long-term issuer	Short-term issuer	Outlook
Moody's Investors Service	A2	P-1	Stable	Aa2	P-1	Stable	Aa3	P-1	Stable
Standard & Poor's	A-	A-2	Stable	A+	A-1	Stable	A+	A-1	Stable
Fitch Ratings	AA-	F1+	Stable	AA	F1+	Stable	AA	F1+	Stable

(a) On May 18, 2019, the Firm merged Chase Bank USA, N.A. with and into JPMorgan Chase Bank, N.A., with JPMorgan Chase Bank, N.A. as the surviving bank. The credit rating for JPMorgan Chase Bank, N.A. reflects the credit rating of the merged entity.

For a discussion of the factors that could affect credit ratings of the Parent Company and the Firm's principal bank and non-bank subsidiaries, refer to page 100 of JPMorgan Chase's 2018 Form 10-K.

CREDIT AND INVESTMENT RISK MANAGEMENT

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. For a further discussion of Credit Risk refer to pages 54-69. For a further discussion of Investment Portfolio Risk, refer to page 69. For a further discussion of the Firm's Credit and Investment Risk Management framework and organization, and the identification, monitoring and management, refer to Credit and Investment Risk Management on pages 102-123 of JPMorgan Chase's 2018 Form 10-K.

CREDIT PORTFOLIO

Credit risk is the risk associated with the default or change in credit profile of a client, counterparty or customer.

In the following tables, reported loans include loans retained (i.e., held-for-investment); loans held-for-sale; and certain loans accounted for at fair value. The following tables do not include loans which the Firm accounts for at fair value and classifies as trading assets. For further information regarding these loans, refer to Notes 2 and 3. For additional information on the Firm's loans, lending-related commitments and derivative receivables, including the Firm's accounting policies, refer to Notes 11, 22, and 4, respectively.

For further information regarding the credit risk inherent in the Firm's cash placed with banks, refer to Wholesale credit exposure - industry exposures on pages 62-64; for information regarding the credit risk inherent in the Firm's investment securities portfolio, refer to Note 9 of this Form 10-Q, and Note 10 of JPMorgan Chase's 2018 Form 10-K; and for information regarding the credit risk inherent in the securities financing portfolio, refer to Note 10 of this Form 10-Q, and Note 11 of JPMorgan Chase's 2018 Form 10-K.

For a further discussion of the consumer credit environment and consumer loans, refer to Consumer Credit Portfolio on pages 106-111 of JPMorgan Chase's 2018 Form 10-K and Note 11 of this Form 10-Q. For a further discussion of the wholesale credit environment and wholesale loans, refer to Wholesale Credit Portfolio on pages 112-119 of JPMorgan Chase's 2018 Form 10-K and Note 11 of this Form 10-Q.

Total credit portfolio

(in millions)	Credit exposure		Nonperforming ^{(d)(e)}	
	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018
Loans retained	\$ 947,728	\$ 969,415	\$ 4,469	\$ 4,611
Loans held-for-sale	4,852	11,988	221	—
Loans at fair value	4,309	3,151	180	220
Total loans-reported	956,889	984,554	4,870	4,831
Derivative receivables	52,878	54,213	39	60
Receivables from customers and other ^(a)	27,414	30,217	—	—
Total credit-related assets	1,037,181	1,068,984	4,909	4,891
Assets acquired in loan satisfactions				
Real estate owned	NA	NA	325	269
Other	NA	NA	26	30
Total assets acquired in loan satisfactions	NA	NA	351	299
Lending-related commitments	1,079,762	1,039,258	465	469
Total credit portfolio	\$ 2,116,943	\$ 2,108,242	\$ 5,725	\$ 5,659
Credit derivatives used in credit portfolio management activities ^(b)	\$ (15,292)	\$ (12,682)	\$ —	\$ —
Liquid securities and other cash collateral held against derivatives ^(c)	(14,676)	(15,322)	NA	NA

(in millions, except ratios)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Net charge-offs	\$ 1,403	\$ 1,252	\$ 2,764	\$ 2,587
Average retained loans				
Loans	945,209	932,042	950,852	926,268
Loans - reported, excluding residential real estate PCI loans	922,495	903,263	927,681	896,856
Net charge-off rates				
Loans	0.60%	0.54%	0.59%	0.56%
Loans - excluding PCI	0.61	0.56	0.60	0.58

- (a) Receivables from customers and other primarily represents prime brokerage-related held-for-investment customer receivables.
- (b) Represents the net notional amount of protection purchased and sold through credit derivatives used to manage both performing and nonperforming wholesale credit exposures; these derivatives do not qualify for hedge accounting under U.S. GAAP. For additional information, refer to Credit derivatives on page 66 and Note 4.
- (c) Includes collateral related to derivative instruments where an appropriate legal opinion has not been either sought or obtained.
- (d) Excludes PCI loans. The Firm is recognizing interest income on each pool of PCI loans as each of the pools is performing.
- (e) At June 30, 2019, and December 31, 2018, nonperforming assets excluded mortgage loans 90 or more days past due and insured by U.S. government agencies of \$1.8 billion and \$2.6 billion, respectively, and real estate owned ("REO") insured by U.S. government agencies of \$56 million and \$75 million, respectively. These amounts have been excluded based upon the government guarantee. In addition, the Firm's policy is generally to exempt credit card loans from being placed on nonaccrual status as permitted by regulatory guidance issued by the Federal Financial Institutions Examination Council ("FFIEC").

CONSUMER CREDIT PORTFOLIO

The Firm's retained consumer portfolio consists primarily of residential real estate loans, credit card loans, auto loans, and business banking loans, as well as associated lending-related commitments. The Firm's focus is on serving primarily the prime segment of the consumer credit market. For further information on consumer loans, refer to Note 11 of this Form 10-Q and Consumer Credit Portfolio on pages 106-111 and Note 12 of JPMorgan Chase's 2018 Form 10-K. For further information on lending-related commitments, refer to Note 22 of this Form 10-Q and Note 27 of JPMorgan Chase's 2018 Form 10-K.

The following table presents consumer credit-related information with respect to the credit portfolio held by CCB, prime mortgage and home equity loans held by AWM, and prime mortgage loans held by Corporate. For further information about the Firm's nonaccrual and charge-off accounting policies, refer to Note 12 of JPMorgan Chase's 2018 Form 10-K.

Consumer credit portfolio

(in millions, except ratios)	Credit exposure		Nonaccrual loans ^{(d)(g)}		Three months ended June 30,				Six months ended June 30,			
					Net charge-offs/(recoveries) ^(h)		Net charge-off/(recoveries) rate ^{(h)(i)}		Net charge-offs/(recoveries) ^(h)		Net charge-off/(recoveries) rate ^{(h)(i)}	
	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018	2019	2018	2019	2018	2019	2018	2019	2018
Consumer, excluding credit card												
Loans, excluding PCI loans and loans held-for-sale												
Residential mortgage	\$ 214,744	\$ 231,078	\$ 1,691	\$ 1,765	\$ (13)	\$ (151)	(0.02)%	(0.27)%	\$ (16)	\$ (151)	(0.01)%	(0.14)%
Home equity	26,017	28,340	1,209	1,323	(16)	(7)	(0.24)	(0.09)	(15)	10	(0.11)	0.06
Auto ^{(a)(b)}	62,073	63,573	108	128	42	50	0.27	0.31	100	126	0.32	0.39
Consumer & Business Banking ^{(b)(c)}	26,616	26,612	223	245	66	50	1.00	0.77	125	103	0.95	0.80
Total loans, excluding PCI loans and loans held-for-sale	329,450	349,603	3,231	3,461	79	(58)	0.09	(0.07)	194	88	0.11	0.05
Loans - PCI												
Home equity	8,149	8,963	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Prime mortgage	4,343	4,690	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Subprime mortgage	1,857	1,945	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Option ARMs	7,893	8,436	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total loans - PCI	22,242	24,034	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total loans - retained	351,692	373,637	3,231	3,461	79	(58)	0.09	(0.06)	194	88	0.11	0.05
Loans held-for-sale	1,030	95	31	—	NA	NA	NA	NA	NA	NA	NA	NA
Total consumer, excluding credit card loans	352,722	373,732	3,262	3,461	79	(58)	0.09	(0.06)	194	88	0.11	0.05
Lending-related commitments ^(d)	51,491	46,066										
Receivables from customers	21	154										
Total consumer exposure, excluding credit card	404,234	419,952										
Credit card												
Loans retained ^(e)	157,568	156,616	—	—	1,240	1,164	3.24	3.27	2,442	2,334	3.23	3.30
Loans held-for-sale	8	16	—	—	NA	NA	NA	NA	NA	NA	NA	NA
Total credit card loans	157,576	156,632	—	—	1,240	1,164	3.24	3.27	2,442	2,334	3.23	3.30
Lending-related commitments ^(d)	633,970	605,379										
Total credit card exposure	791,546	762,011										
Total consumer credit portfolio	\$ 1,195,780	\$ 1,181,963	\$ 3,262	\$ 3,461	\$ 1,319	\$ 1,106	1.04 %	0.86 %	\$ 2,636	\$ 2,422	1.03 %	0.95 %
Memo: Total consumer credit portfolio, excluding PCI	\$ 1,173,538	\$ 1,157,929	\$ 3,262	\$ 3,461	\$ 1,319	\$ 1,106	1.09 %	0.91 %	\$ 2,636	\$ 2,422	1.08 %	1.00 %

- (a) At June 30, 2019, and December 31, 2018, excluded operating lease assets of \$21.5 billion and \$20.5 billion, respectively. These operating lease assets are included in other assets on the Firm's Consolidated balance sheets. For further information, refer to Note 16.
- (b) Includes certain business banking and auto dealer risk-rated loans that apply the wholesale methodology for determining the allowance for loan losses; these loans are managed by CCB, and therefore, for consistency in presentation, are included within the consumer portfolio.
- (c) Predominantly includes Business Banking loans.
- (d) Credit card and home equity lending-related commitments represent the total available lines of credit for these products. The Firm has not experienced, and does not anticipate, that all available lines of credit would be used at the same time. For credit card commitments, and if certain conditions are met, home equity commitments, the Firm can reduce or cancel these lines of credit by providing the borrower notice or, in some cases as permitted by law, without notice. For further information, refer to Note 22.
- (e) Includes billed interest and fees net of an allowance for uncollectible interest and fees.
- (f) At June 30, 2019 and December 31, 2018, nonaccrual loans excluded mortgage loans 90 or more days past due and insured by U.S. government agencies of \$1.8 billion and \$2.6 billion, respectively. These amounts have been excluded from nonaccrual loans based upon the government guarantee. In addition, the Firm's policy is generally to exempt credit card loans from being placed on nonaccrual status, as permitted by regulatory guidance issued by the FFIEC.
- (g) Excludes PCI loans. The Firm is recognizing interest income on each pool of PCI loans as each of the pools is performing.
- (h) Net charge-offs/(recoveries) and the net charge-off/(recovery) rates excluded write-offs in the PCI portfolio of \$39 million and \$73 million for the three months ended June 30, 2019 and 2018, respectively, and \$89 million and \$93 million for the six months ended June 30, 2019 and 2018, respectively. These write-offs decreased the allowance for loan losses for PCI loans. Refer to Allowance for Credit Losses on pages 67-68 for further information.
- (i) Average consumer loans held-for-sale were \$1.2 billion and \$291 million for the three months ended June 30, 2019 and 2018, respectively, and \$1.2 billion and \$263 million for the six months ended June 30, 2019 and 2018, respectively. These amounts were excluded when calculating net charge-off/(recovery) rates.

Consumer, excluding credit card

Portfolio analysis

Loan balances decreased from December 31, 2018 due to lower consumer loans in the residential real estate portfolio, predominantly driven by loan sales in Home Lending. The credit performance of the portfolio continues to benefit from a strong labor market and continued improvement in home prices.

The following discussions provide information concerning individual loan products, excluding PCI loans which are addressed separately. For further information about this portfolio, including information about delinquencies, loan modifications and other credit quality indicators, refer to Note 11 of this Form 10-Q.

Residential mortgage: The residential mortgage portfolio, including loans held-for-sale, predominantly consists of prime mortgage loans. The portfolio decreased from December 31, 2018 driven by loan sales in Home Lending as well as paydowns, partially offset by originations of prime mortgage loans that have been retained on the balance sheet. Net recoveries for the three and six months ended June 30, 2019 were lower when compared with the same periods in the prior year as the prior year benefited from a recovery on a loan sale.

At June 30, 2019, and December 31, 2018, the Firm's residential mortgage portfolio included \$21.8 billion and \$21.6 billion, respectively, of interest-only loans. These loans have an interest-only payment period generally followed by an adjustable-rate or fixed-rate fully amortizing payment period to maturity and are typically originated as higher-balance loans to higher-income borrowers, predominantly in AWM. Performance of this portfolio for the three and six months ended June 30, 2019 was in line with the performance of the broader residential mortgage portfolio for the same period.

The following table provides a summary of the Firm's residential mortgage portfolio insured and/or guaranteed by U.S. government agencies, including loans held-for-sale. The Firm monitors its exposure to certain potential unrecoverable claim payments related to government-insured loans and considers this exposure in estimating the allowance for loan losses.

(in millions)		June 30, 2019		December 31, 2018
Current	\$	2,319	\$	2,884
30-89 days past due		1,080		1,528
90 or more days past due		1,809		2,600
Total government guaranteed loans	\$	5,208	\$	7,012

Home equity: The home equity portfolio declined from December 31, 2018 primarily reflecting loan paydowns.

At June 30, 2019, approximately 90% of the Firm's home equity portfolio consisted of home equity lines of credit ("HELOCs") and the remainder consisted of home equity loans ("HELOANS"). The carrying value of HELOCs outstanding was \$24 billion at June 30, 2019. This amount

included \$10 billion of HELOCs that have recast from interest-only to fully amortizing payments or have been modified and \$4 billion of interest-only balloon HELOCs, which primarily mature after 2030. The Firm manages the risk of HELOCs during their revolving period by closing or reducing the undrawn line to the extent permitted by law when borrowers are exhibiting a material deterioration in their credit risk profile.

For further information on the Firm's home equity portfolio, refer to Note 11 of this Form 10-Q and Consumer Credit Portfolio on pages 106-111 of JPMorgan Chase's 2018 Form 10-K.

Auto: The auto loan portfolio predominantly consists of prime-quality loans. The portfolio declined when compared with December 31, 2018, as paydowns and charge-offs or liquidation of delinquent loans were predominantly offset by new originations.

Consumer & Business Banking: Consumer & Business Banking loans were flat when compared with December 31, 2018 as loan originations were offset by paydowns and charge-offs of delinquent loans. Net charge-offs for the three and six months ended June 30, 2019 increased when compared with the same period in the prior year due primarily to higher deposit overdraft losses.

Purchased credit-impaired loans: PCI loans represent certain loans that were acquired and deemed to be credit-impaired on the acquisition date. PCI loans decreased from December 31, 2018 due to portfolio run off. As of June 30, 2019, approximately 10% of the option ARM PCI loans were delinquent and approximately 70% of the portfolio had been modified into fixed-rate, fully amortizing loans. The borrowers for substantially all of the remaining option ARM loans are making amortizing payments, although such payments are not necessarily fully amortizing. This latter group of loans is subject to the risk of payment shock due to future payment recast. Default rates generally increase on option ARM loans when payment recast results in a payment increase. The expected increase in default rates is considered in the Firm's quarterly impairment assessment.

The following table provides a summary of lifetime principal loss estimates included in either the nonaccretable difference or the allowance for loan losses.

Summary of PCI loans lifetime principal loss estimates

(in billions)	Lifetime loss estimates ^(a)		Life-to-date liquidation losses ^(b)	
	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018
Home equity	\$ 13.9	\$ 14.1	\$ 13.0	\$ 13.0
Prime mortgage	4.1	4.1	3.9	3.9
Subprime mortgage	3.3	3.3	3.2	3.2
Option ARMs	10.2	10.3	9.9	9.9
Total	\$ 31.5	\$ 31.8	\$ 30.0	\$ 30.0

(a) Includes the original nonaccretable difference established in purchase accounting of \$30.5 billion for principal losses plus additional principal losses recognized subsequent to acquisition through the provision and allowance for loan losses. The remaining nonaccretable difference for principal losses was \$487 million and \$512 million at June 30, 2019, and December 31, 2018, respectively.

(b) Represents both realization of loss upon loan resolution and any principal forgiven upon modification.

Geographic composition of residential real estate loans

For information on the geographic composition of the Firm's residential real estate loans, refer to Note 11.

Current estimated loan-to-value ratio of residential real estate loans

Average current estimated loan-to-value ("LTV") ratios have declined consistent with recent improvements in home prices, customer paydowns, and charge-offs or liquidations of higher LTV loans. For information on current estimated LTVs of the Firm's residential real estate loans, refer to Note 11.

Loan modification activities for residential real estate loans

The performance of modified loans generally differs by product type due to differences in both the credit quality and the types of modifications provided. Performance metrics for modifications to the residential real estate portfolios as measured through redefault rates, were not materially different from December 31, 2018. For further information on the Firm's redefault rates, refer to Consumer Credit Portfolio on pages 106–111 of JPMorgan Chase's 2018 Form 10-K.

Certain modified loans have interest rate reset provisions ("step-rate modifications") where the interest rates on these loans generally began to increase commencing in 2014 by 1% per year, and will continue to do so, until the rate reaches a specified cap. The cap on these loans is typically at a prevailing market interest rate for a fixed-rate mortgage loan as of the modification date. At June 30, 2019, the carrying value of non-PCI loans and the unpaid principal balance of PCI loans modified in step-rate modifications, which have not yet met their specified caps, were \$1.4 billion and \$2.6 billion, respectively. The Firm continues to monitor this risk exposure and the impact of these potential interest rate increases is considered in the Firm's allowance for loan losses.

The following table presents information as of June 30, 2019, and December 31, 2018, relating to modified retained residential real estate loans for which concessions have been granted to borrowers experiencing financial difficulty. For further information on modifications for the three and six months ended June 30, 2019 and 2018, refer to Note 11.

Modified residential real estate loans

(in millions)	June 30, 2019		December 31, 2018	
	Retained loans	Non-accrual retained loans ^(d)	Retained loans	Non-accrual retained loans ^(d)
Modified residential real estate loans, excluding PCI loans^{(a)(b)}				
Residential mortgage	\$ 4,381	\$ 1,436	\$ 4,565	\$ 1,459
Home equity	1,954	946	2,012	955
Total modified residential real estate loans, excluding PCI loans	\$ 6,335	\$ 2,382	\$ 6,577	\$ 2,414
Modified PCI loans^(c)				
Home equity	\$ 2,012	NA	\$ 2,086	NA
Prime mortgage	3,024	NA	3,179	NA
Subprime mortgage	1,971	NA	2,041	NA
Option ARMs	6,080	NA	6,410	NA
Total modified PCI loans	\$ 13,087	NA	\$ 13,716	NA

(a) Amounts represent the carrying value of modified residential real estate loans.

(b) At June 30, 2019, and December 31, 2018, \$2.6 billion and \$4.1 billion, respectively, of loans modified subsequent to repurchase from Ginnie Mae in accordance with the standards of the appropriate government agency (i.e., Federal Housing Administration ("FHA"), U.S. Department of Veterans Affairs ("VA"), Rural Housing Service of the U.S. Department of Agriculture ("RHS")) are not included in the table above. When such loans perform subsequent to modification in accordance with Ginnie Mae guidelines, they are generally sold back into Ginnie Mae loan pools. Modified loans that do not re-perform become subject to foreclosure. For additional information about sales of loans in securitization transactions with Ginnie Mae, refer to Note 13.

(c) Amounts represent the unpaid principal balance of modified PCI loans.

(d) At both June 30, 2019, and December 31, 2018, nonaccrual loans included \$2.0 billion of troubled debt restructurings ("TDRs") for which the borrowers were less than 90 days past due. For additional information about loans modified in a TDR that are on nonaccrual status, refer to Note 11.

Nonperforming assets

The following table presents information as of June 30, 2019, and December 31, 2018, about consumer, excluding credit card, nonperforming assets.

Nonperforming assets^(a)

(in millions)	June 30, 2019	December 31, 2018
Nonaccrual loans^(b)		
Residential real estate	\$ 2,931	\$ 3,088
Other consumer	331	373
Total nonaccrual loans	3,262	3,461
Assets acquired in loan satisfactions		
Real estate owned	247	210
Other	26	30
Total assets acquired in loan satisfactions	273	240
Total nonperforming assets	\$ 3,535	\$ 3,701

(a) At June 30, 2019, and December 31, 2018, nonperforming assets excluded mortgage loans 90 or more days past due and insured by U.S. government agencies of \$1.8 billion and \$2.6 billion, respectively, and REO insured by U.S. government agencies of \$56 million and \$75 million, respectively. These amounts have been excluded based upon the government guarantee.

(b) Excludes PCI loans, which are accounted for on a pool basis. Since each pool is accounted for as a single asset with a single composite interest rate and an aggregate expectation of cash flows, the past-due status of the pools, or that of individual loans within the pools, is not meaningful. The Firm is recognizing interest income on each pool of loans as each of the pools is performing.

Nonaccrual loans in the residential real estate portfolio at June 30, 2019 decreased to \$2.9 billion from \$3.1 billion at December 31, 2018, of which 23% and 24% were greater than 150 days past due, respectively. In the aggregate, the unpaid principal balance of residential real estate loans greater than 150 days past due was charged down by approximately 31% and 32% to the estimated net realizable value of the collateral at June 30, 2019, and December 31, 2018, respectively.

Nonaccrual loans: The following table presents changes in consumer, excluding credit card, nonaccrual loans for the six months ended June 30, 2019 and 2018.

Nonaccrual loan activity

Six months ended June 30, (in millions)	2019	2018
Beginning balance	\$ 3,461	\$ 4,209
Additions	1,082	1,575
Reductions:		
Principal payments and other ^(a)	508	738
Charge-offs	209	246
Returned to performing status	435	666
Foreclosures and other liquidations	129	155
Total reductions	1,281	1,805
Net changes	(199)	(230)
Ending balance	\$ 3,262	\$ 3,979

(a) Other reductions includes loan sales.

Active and suspended foreclosure: For information on loans that were in the process of active or suspended foreclosure, refer to Note 11.

Credit card

Total credit card loans were relatively flat from December 31, 2018 reflecting increased sales volumes from existing customers and new account growth, offset by the impact of seasonality. The June 30, 2019 30+ day delinquency rate decreased to 1.71% from 1.83% at December 31, 2018, and the June 30, 2019 90+ day delinquency rate decreased to 0.87% from 0.92% at December 31, 2018, in line with expectations. Net charge-offs increased for the three and six months ended June 30, 2019 when compared with the same period in the prior year primarily due to loan growth.

Consistent with the Firm's policy, all credit card loans typically remain on accrual status until charged off. However, the Firm establishes an allowance, which is offset against loans and reduces interest income, for the estimated uncollectible portion of accrued and billed interest and fee income.

Geographic and FICO composition of credit card loans

For information on the geographic and FICO composition of the Firm's credit card loans, refer to Note 11.

Modifications of credit card loans

At June 30, 2019 and December 31, 2018, the Firm had \$1.4 billion and \$1.3 billion, respectively, of credit card loans outstanding that have been modified in TDRs. For additional information about loan modification programs to borrowers, refer to Note 11.

WHOLESALE CREDIT PORTFOLIO

In its wholesale businesses, the Firm is exposed to credit risk primarily through its underwriting, lending, market-making, and hedging activities with and for clients and counterparties, as well as through various operating services (such as cash management and clearing activities), securities financing activities and cash placed with banks. A portion of the loans originated or acquired by the Firm's wholesale businesses is generally retained on the balance sheet. The Firm distributes a significant percentage of the loans that it originates into the market as part of its syndicated loan business and to manage portfolio concentrations and credit risk.

The credit performance of the wholesale portfolio remained favorable for the six months ended June 30, 2019, characterized by continued low levels of criticized exposure, nonaccrual loans and charge-offs. Refer to the industry discussion on pages 62-64 for further information. Loans held-for-sale decreased, driven by a loan syndication in CIB. The wholesale portfolio is actively managed, in part by conducting ongoing, in-depth reviews of client credit quality and transaction structure inclusive of collateral where applicable, and of industry, product and client concentrations.

In the following tables, the Firm's wholesale credit portfolio includes exposure held in CIB, CB, AWM and Corporate, and excludes all exposure managed by CCB.

Wholesale credit portfolio

(in millions)	Credit exposure		Nonperforming ^(c)	
	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018
Loans retained	\$ 438,468	\$ 439,162	\$ 1,238	\$ 1,150
Loans held-for-sale	3,814	11,877	190	—
Loans at fair value	4,309	3,151	180	220
Loans - reported	446,591	454,190	1,608	1,370
Derivative receivables	52,878	54,213	39	60
Receivables from customers and other ^(a)	27,393	30,063	—	—
Total wholesale credit-related assets	526,862	538,466	1,647	1,430
Lending-related commitments	394,301	387,813	465	469
Total wholesale credit exposure	\$ 921,163	\$ 926,279	\$ 2,112	\$ 1,899
Credit derivatives used in credit portfolio management activities ^(b)	\$ (15,292)	\$ (12,682)	\$ —	\$ —
Liquid securities and other cash collateral held against derivatives	(14,676)	(15,322)	NA	NA

(a) Receivables from customers and other include \$27.3 billion and \$30.1 billion of prime brokerage-related held-for-investment customer receivables at June 30, 2019, and December 31, 2018, respectively, to customers in CIB and AWM; these are classified in accrued interest and accounts receivable on the Consolidated balance sheets.

(b) Represents the net notional amount of protection purchased and sold through credit derivatives used to manage both performing and nonperforming wholesale credit exposures; these derivatives do not qualify for hedge accounting under U.S. GAAP. For additional information, refer to Credit derivatives on page 66, and Note 4.

(c) Excludes assets acquired in loan satisfactions.

The following tables present the maturity and ratings profiles of the wholesale credit portfolio as of June 30, 2019, and December 31, 2018. The ratings scale is based on the Firm's internal risk ratings, which generally correspond to the ratings assigned by S&P and Moody's. For additional information on wholesale loan portfolio risk ratings, refer to Note 12 of JPMorgan Chase's 2018 Form 10-K.

Wholesale credit exposure - maturity and ratings profile

June 30, 2019 (in millions, except ratios)	Maturity profile ^(d)				Ratings profile			
	Due in 1 year or less	Due after 1 year through 5 years	Due after 5 years	Total	Investment- grade	Noninvestment- grade	Total	Total % of IG
					AAA/Aaa to BBB-/Baa3	BB+/Ba1 & below		
Loans retained	\$ 131,542	\$ 203,512	\$ 103,414	\$ 438,468	\$ 337,188	\$ 101,280	\$ 438,468	77%
Derivative receivables				52,878			52,878	
Less: Liquid securities and other cash collateral held against derivatives				(14,676)			(14,676)	
Total derivative receivables, net of all collateral	8,089	8,444	21,669	38,202	30,956	7,246	38,202	81
Lending-related commitments	79,456	304,412	10,433	394,301	286,247	108,054	394,301	73
Subtotal	219,087	516,368	135,516	870,971	654,391	216,580	870,971	75
Loans held-for-sale and loans at fair value ^(a)				8,123			8,123	
Receivables from customers and other				27,393			27,393	
Total exposure - net of liquid securities and other cash collateral held against derivatives				\$ 906,487			\$ 906,487	
Credit derivatives used in credit portfolio management activities ^{(b)(c)}	\$ (1,741)	\$ (10,747)	\$ (2,804)	\$ (15,292)	\$ (14,271)	\$ (1,021)	\$ (15,292)	93%

December 31, 2018 (in millions, except ratios)	Maturity profile ^(d)				Ratings profile			
	Due in 1 year or less	Due after 1 year through 5 years	Due after 5 years	Total	Investment- grade	Noninvestment- grade	Total	Total % of IG
					AAA/Aaa to BBB-/Baa3	BB+/Ba1 & below		
Loans retained	\$ 138,458	\$ 196,974	\$ 103,730	\$ 439,162	\$ 339,729	\$ 99,433	\$ 439,162	77%
Derivative receivables				54,213			54,213	
Less: Liquid securities and other cash collateral held against derivatives				(15,322)			(15,322)	
Total derivative receivables, net of all collateral	11,038	9,169	18,684	38,891	31,794	7,097	38,891	82
Lending-related commitments	79,400	294,855	13,558	387,813	288,724	99,089	387,813	74
Subtotal	228,896	500,998	135,972	865,866	660,247	205,619	865,866	76
Loans held-for-sale and loans at fair value ^(a)				15,028			15,028	
Receivables from customers and other				30,063			30,063	
Total exposure - net of liquid securities and other cash collateral held against derivatives				\$ 910,957			\$ 910,957	
Credit derivatives used in credit portfolio management activities ^{(b)(c)}	\$ (447)	\$ (9,318)	\$ (2,917)	\$ (12,682)	\$ (11,213)	\$ (1,469)	\$ (12,682)	88%

(a) Represents loans held-for-sale, primarily related to syndicated loans and loans transferred from the retained portfolio, and loans at fair value.

(b) These derivatives do not qualify for hedge accounting under U.S. GAAP.

(c) The notional amounts are presented on a net basis by underlying reference entity and the ratings profile shown is based on the ratings of the reference entity on which protection has been purchased. Predominantly all of the credit derivatives entered into by the Firm where it has purchased protection used in credit portfolio management activities are executed with investment-grade counterparties.

(d) The maturity profile of retained loans, lending-related commitments and derivative receivables is based on the remaining contractual maturity. Derivative contracts that are in a receivable position at June 30, 2019, may become payable prior to maturity based on their cash flow profile or changes in market conditions.

Wholesale credit exposure – industry exposures

The Firm focuses on the management and diversification of its industry exposures, and pays particular attention to industries with actual or potential credit concerns.

Exposures deemed criticized align with the U.S. banking regulators' definition of criticized exposures, which consist

of the special mention, substandard and doubtful categories. The total criticized component of the portfolio, excluding loans held-for-sale and loans at fair value, was approximately \$12 billion at both June 30, 2019, and December 31, 2018.

Below are summaries of the Firm's exposures as of June 30, 2019, and December 31, 2018. The industry of risk category is generally based on the client or counterparty's primary business activity. For additional information on industry concentrations, refer to Note 4 of JPMorgan Chase's 2018 Form 10-K.

Wholesale credit exposure – industries^(a)

As of or for the six months ended June 30, 2019 (in millions)	Credit exposure ^(f)	Investment-grade	Noninvestment-grade			Selected metrics			
			Noncriticized	Criticized performing	Criticized nonperforming	30 days or more past due and accruing loans	Net charge-offs/(recoveries)	Credit derivative hedges ^(g)	Liquid securities and other cash collateral held against derivative receivables
Real Estate	\$ 144,699	\$ 119,826	\$ 23,637	\$ 1,143	\$ 93	\$ 103	\$ –	\$ (44)	\$ –
Individuals and Individual Entities ^(b)	97,637	86,094	11,041	300	202	764	3	–	(586)
Consumer & Retail	97,121	54,267	40,876	1,874	104	151	49	(231)	(8)
Technology, Media & Telecommunications	65,859	38,262	25,062	2,415	120	10	20	(746)	(32)
Industrials	58,230	38,179	18,654	1,213	184	148	–	(507)	(45)
Banks & Finance Cos	50,598	35,203	15,012	378	5	26	–	(636)	(2,175)
Healthcare	46,669	34,880	11,097	605	87	74	12	(190)	(156)
Oil & Gas	46,209	27,476	17,149	869	715	7	17	(499)	(11)
Asset Managers	45,514	39,966	5,523	4	21	5	–	–	(4,985)
Utilities	29,101	23,355	5,486	159	101	–	37	(361)	(70)
State & Municipal Govt ^(c)	27,286	26,754	529	3	–	3	–	–	(24)
Metals & Mining	17,706	8,480	8,918	282	26	5	(1)	(207)	(3)
Central Govt	16,947	16,534	413	–	–	1	–	(8,993)	(2,486)
Automotive	16,856	10,820	5,672	364	–	8	–	(157)	–
Chemicals & Plastics	16,386	11,329	5,021	36	–	28	–	(10)	–
Transportation	14,870	9,644	4,827	329	70	172	–	(37)	(37)
Insurance	12,913	10,079	2,800	20	14	1	–	(36)	(2,453)
Financial Markets Infrastructure	6,009	5,917	92	–	–	–	–	–	(36)
Securities Firms	4,662	2,965	1,672	25	–	–	–	(49)	(662)
All other ^(d)	70,375	67,444	2,643	288	–	2	(9)	(2,589)	(907)
Subtotal	\$ 885,647	\$ 667,474	\$ 206,124	\$ 10,307	\$ 1,742	\$ 1,508	\$ 128	\$ (15,292)	\$ (14,676)
Loans held-for-sale and loans at fair value	8,123								
Receivables from customers and other	27,393								
Total^(e)	\$ 921,163								

(continued from previous page)

As of or for the year ended December 31, 2018 (in millions)	Credit exposure ^(f)	Investment- grade	Noninvestment-grade			Selected metrics			
			Noncriticized	Criticized performing	Criticized nonperforming	30 days or more past due and accruing loans	Net charge-offs/ (recoveries)	Credit derivative hedges ^(g)	Liquid securities and other cash collateral held against derivative receivables
Real Estate	\$ 143,316	\$ 117,988	\$ 24,174	\$ 1,019	\$ 135	\$ 70	\$ (20)	\$ (2)	\$ (1)
Individuals and Individual Entities ^(b)	97,077	86,581	10,164	174	158	703	12	—	(915)
Consumer & Retail	94,815	60,678	31,901	2,033	203	43	55	(248)	(14)
Technology, Media & Telecommunications	72,646	46,334	24,081	2,170	61	8	12	(1,011)	(12)
Industrials	58,528	38,487	18,594	1,311	136	171	20	(207)	(29)
Banks & Finance Cos	49,920	34,120	15,496	299	5	11	—	(575)	(2,290)
Healthcare	48,142	36,687	10,625	761	69	23	(5)	(150)	(133)
Oil & Gas	42,600	23,356	17,451	1,158	635	6	36	(248)	—
Asset Managers	42,807	36,722	6,067	4	14	10	—	—	(5,829)
Utilities	28,172	23,558	4,326	138	150	—	38	(142)	(60)
State & Municipal Govt ^(c)	27,351	26,746	603	2	—	18	(1)	—	(42)
Metals & Mining	15,359	8,188	6,767	385	19	1	—	(174)	(22)
Central Govt	18,456	18,251	124	81	—	4	—	(7,994)	(2,130)
Automotive	17,339	9,637	7,310	392	—	1	—	(125)	—
Chemicals & Plastics	16,035	11,490	4,427	118	—	4	—	—	—
Transportation	15,660	10,508	4,699	393	60	21	6	(31)	(112)
Insurance	12,639	9,777	2,830	—	32	—	—	(36)	(2,080)
Financial Markets Infrastructure	7,484	6,746	738	—	—	—	—	—	(26)
Securities Firms	4,558	3,099	1,459	—	—	—	—	(158)	(823)
All other ^(d)	68,284	64,664	3,606	12	2	2	2	(1,581)	(804)
Subtotal	\$ 881,188	\$ 673,617	\$ 195,442	\$ 10,450	\$ 1,679	\$ 1,096	\$ 155	\$ (12,682)	\$ (15,322)
Loans held-for-sale and loans at fair value	15,028								
Receivables from customers and other	30,063								
Total^(e)	\$ 926,279								

(a) The industry rankings presented in the table as of December 31, 2018, are based on the industry rankings of the corresponding exposures at June 30, 2019, not actual rankings of such exposures at December 31, 2018.

(b) Individuals and Individual Entities predominantly consists of Wealth Management clients within AWM and includes exposure to personal investment companies and personal and testamentary trusts.

(c) In addition to the credit risk exposure to states and municipal governments (both U.S. and non-U.S.) at June 30, 2019, and December 31, 2018, noted above, the Firm held: \$7.3 billion and \$7.8 billion, respectively, of trading securities; \$31.9 billion and \$37.7 billion, respectively, of AFS securities; and \$4.8 billion at both periods of held-to-maturity ("HTM") securities, issued by U.S. state and municipal governments. For further information, refer to Note 2 and Note 9.

(d) All other includes: SPEs and Private education and civic organizations, representing approximately 91% and 9%, respectively, at June 30, 2019, and 92% and 8%, respectively, at December 31, 2018.

(e) Excludes cash placed with banks of \$259.7 billion and \$268.1 billion, at June 30, 2019, and December 31, 2018, respectively, which is predominantly placed with various central banks, primarily Federal Reserve Banks.

(f) Credit exposure is net of risk participations and excludes the benefit of credit derivatives used in credit portfolio management activities held against derivative receivables or loans and liquid securities and other cash collateral held against derivative receivables.

(g) Represents the net notional amounts of protection purchased and sold through credit derivatives used to manage the credit exposures; these derivatives do not qualify for hedge accounting under U.S. GAAP. The All other category includes purchased credit protection on certain credit indices.

Real Estate

Presented below is additional information on the Real Estate industry, to which the Firm has significant exposure.

Real Estate exposure, and the investment grade percentage of the portfolio remained relatively flat for the six months ended June 30, 2019 at \$144.7 billion and 83% respectively. For further information on Real Estate loans, refer to Note 11.

(in millions, except ratios)	June 30, 2019				
	Loans and Lending-related Commitments	Derivative Receivables	Credit exposure	% Investment-grade	% Drawn ^(c)
Multifamily ^(a)	\$ 85,195	\$ 66	\$ 85,261	89%	92%
Other	58,940	498	59,438	73	62
Total Real Estate Exposure^(b)	144,135	564	144,699	83	80

(in millions, except ratios)	December 31, 2018				
	Loans and Lending-related Commitments	Derivative Receivables	Credit exposure	% Investment-grade	% Drawn ^(c)
Multifamily ^(a)	\$ 85,683	\$ 33	\$ 85,716	89%	92%
Other	57,469	131	57,600	72	63
Total Real Estate Exposure^(b)	143,152	164	143,316	82	81

(a) Multifamily exposure is largely in California.

(b) Real Estate exposure is predominantly secured; unsecured exposure is predominantly investment-grade.

(c) Represents drawn exposure as a percentage of credit exposure.

Loans

In the normal course of its wholesale business, the Firm provides loans to a variety of clients, ranging from large corporate and institutional clients to high-net-worth individuals. For a further discussion on loans, including information on credit quality indicators and sales of loans, refer to Note 11.

The following table presents the change in the nonaccrual loan portfolio for the six months ended June 30, 2019 and 2018.

Wholesale nonaccrual loan activity

Six months ended June 30, (in millions)	2019	2018
Beginning balance	\$ 1,370	\$ 1,734
Additions	1,201	505
Reductions:		
Paydowns and other	738	394
Gross charge-offs	143	231
Returned to performing status	25	176
Sales	57	107
Total reductions	963	908
Net changes	238	(403)
Ending balance	\$ 1,608	\$ 1,331

The following table presents net charge-offs/recoveries, which are defined as gross charge-offs less recoveries, for the three and six months ended June 30, 2019 and 2018. The amounts in the table below do not include gains or losses from sales of nonaccrual loans.

Wholesale net charge-offs/ (recoveries)

(in millions, except ratios)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Loans - reported				
Average loans retained	\$ 434,905	\$ 414,980	\$ 434,783	\$ 409,949
Gross charge-offs	98	176	150	241
Gross recoveries	(14)	(30)	(22)	(76)
Net charge-offs/ (recoveries)	84	146	128	165
Net charge-off/ (recovery) rate	0.08%	0.14%	0.06%	0.08%

Lending-related commitments

The Firm uses lending-related financial instruments, such as commitments (including revolving credit facilities) and guarantees, to address the financing needs of its clients. The contractual amounts of these financial instruments represent the maximum possible credit risk should the clients draw down on these commitments or the Firm fulfill its obligations under these guarantees, and the clients subsequently fail to perform according to the terms of these contracts. Most of these commitments and guarantees are refinanced, extended, cancelled, or expire without being drawn upon or a default occurring. In the Firm's view, the total contractual amount of these wholesale lending-related commitments is not representative of the Firm's expected future credit exposure or funding requirements. For further information on wholesale lending-related commitments, refer to Note 22.

Derivative contracts

Derivatives enable clients and counterparties to manage risks including credit risk and risks arising from fluctuations in interest rates, foreign exchange, equities, and commodities. The Firm makes markets in derivatives in order to meet these needs and uses derivatives to manage certain risks associated with net open risk positions from its market-making activities, including the counterparty credit risk arising from derivative receivables. The Firm also uses derivative instruments to manage its own credit and other market risk exposure. For a further discussion of derivative contracts, refer to Note 4.

The following table summarizes the net derivative receivables for the periods presented.

Derivative receivables

(in millions)	June 30, 2019	December 31, 2018
Total, net of cash collateral	52,878	54,213
Liquid securities and other cash collateral held against derivative receivables ^(a)	(14,676)	(15,322)
Total, net of collateral	\$ 38,202	\$ 38,891

(a) Includes collateral related to derivative instruments where appropriate legal opinions have not been either sought or obtained with respect to master netting agreements.

The fair value of derivative receivables reported on the Consolidated balance sheets were \$52.9 billion and \$54.2 billion at June 30, 2019, and December 31, 2018, respectively. Derivative receivables represent the fair value of the derivative contracts after giving effect to legally enforceable master netting agreements and cash collateral held by the Firm. However, in management's view, the appropriate measure of current credit risk should also take into consideration additional liquid securities (primarily U.S. government and agency securities and other group of seven nations ("G7") government securities) and other cash collateral held by the Firm aggregating \$14.7 billion and \$15.3 billion at June 30, 2019, and December 31, 2018, respectively, that may be used as security when the fair value of the client's exposure is in the Firm's favor.

In addition to the collateral described in the preceding paragraph, the Firm also holds additional collateral (primarily cash, G7 government securities, other liquid government-agency and guaranteed securities, and corporate debt and equity securities) delivered by clients at the initiation of transactions, as well as collateral related to contracts that have a non-daily call frequency and collateral that the Firm has agreed to return but has not yet settled as of the reporting date. Although this collateral does not reduce the balances and is not included in the table above, it is available as security against potential exposure that could arise should the fair value of the client's derivative contracts move in the Firm's favor. The derivative receivables fair value, net of all collateral, also does not include other credit enhancements, such as letters of credit. For additional information on the Firm's use of collateral agreements, refer to Note 4.

The following table summarizes the ratings profile of the Firm's derivative receivables, including credit derivatives, net of all collateral, at the dates indicated. The ratings scale is based on the Firm's internal ratings, which generally correspond to the ratings as assigned by S&P and Moody's.

Ratings profile of derivative receivables

Rating equivalent (in millions, except ratios)	June 30, 2019		December 31, 2018	
	Exposure net of all collateral	% of exposure net of all collateral	Exposure net of all collateral	% of exposure net of all collateral
AAA/Aaa to AA-/Aa3	\$ 10,435	27%	\$ 11,831	31%
A+/A1 to A-/A3	5,154	13	7,428	19
BBB+/Baa1 to BBB-/Baa3	15,367	41	12,536	32
BB+/Ba1 to B-/B3	6,674	17	6,373	16
CCC+/Caa1 and below	572	2	723	2
Total	\$ 38,202	100%	\$ 38,891	100%

As previously noted, the Firm uses collateral agreements to mitigate counterparty credit risk. The percentage of the Firm's over-the-counter derivative contracts subject to collateral agreements – excluding foreign exchange spot trades, which are not typically covered by collateral agreements due to their short maturity and centrally cleared trades that are settled daily – was approximately 90% at both June 30, 2019, and December 31, 2018.

Credit derivatives

The Firm uses credit derivatives for two primary purposes: first, in its capacity as a market-maker, and second, as an end-user, to manage the Firm's own credit risk associated with various exposures.

Credit portfolio management activities

Included in the Firm's end-user activities are credit derivatives used to mitigate the credit risk associated with traditional lending activities (loans and unfunded commitments) and derivatives counterparty exposure in the Firm's wholesale businesses (collectively, "credit portfolio management" activities). Information on credit portfolio management activities is provided in the table below.

Credit derivatives used in credit portfolio management activities

(in millions)	Notional amount of protection purchased and sold ^(a)	
	June 30, 2019	December 31, 2018
Credit derivatives used to manage:		
Loans and lending-related commitments	\$ 1,819	\$ 1,272
Derivative receivables	13,473	11,410
Credit derivatives used in credit portfolio management activities	\$ 15,292	\$ 12,682

(a) Amounts are presented net, considering the Firm's net protection purchased or sold with respect to each underlying reference entity or index.

For further information on credit derivatives and derivatives used in credit portfolio management activities, refer to Credit derivatives in Note 4 of this Form 10-Q, and Note 5 of JPMorgan Chase's 2018 Form 10-K.

ALLOWANCE FOR CREDIT LOSSES

The Firm's allowance for credit losses covers the retained consumer and wholesale loan portfolios, as well as the Firm's wholesale and certain consumer lending-related commitments.

For further information on the components of the allowance for credit losses and related management judgments, refer to Critical Accounting Estimates Used by the Firm on pages 76-77 and Note 12 of this Form 10-Q, and Critical Accounting Estimates Used by the Firm on pages 141-143 and Note 13 of JPMorgan Chase's 2018 Form 10-K.

At least quarterly, the allowance for credit losses is reviewed by the CRO, the CFO and the Controller of the Firm. As of June 30, 2019, JPMorgan Chase deemed the allowance for credit losses to be appropriate and sufficient to absorb probable credit losses inherent in the portfolio.

The allowance for credit losses decreased compared with December 31, 2018, largely driven by Consumer due to a \$400 million reduction in the allowance for loan losses in the PCI residential real estate portfolio, reflecting continued improvement in home prices and delinquencies, partially offset by a \$200 million addition to the allowance in the credit card portfolio, due to loan growth and higher loss rates, as anticipated.

For additional information on the consumer and wholesale credit portfolios, refer to Consumer Credit Portfolio on pages 55-59, Wholesale Credit Portfolio on pages 60-66 and Note 11.

Summary of changes in the allowance for credit losses

Six months ended June 30, (in millions, except ratios)	2019				2018			
	Consumer, excluding credit card	Credit card	Wholesale	Total	Consumer, excluding credit card	Credit card	Wholesale	Total
Allowance for loan losses								
Beginning balance at January 1,	\$ 4,146	\$ 5,184	\$ 4,115	\$ 13,445	\$ 4,579	\$ 4,884	\$ 4,141	\$ 13,604
Gross charge-offs	471	2,725	150	3,346	539	2,578	241	3,358
Gross recoveries	(277)	(283)	(22)	(582)	(451)	(244)	(76)	(771)
Net charge-offs	194	2,442	128	2,764	88	2,334	165	2,587
Write-offs of PCI loans ^(a)	89	—	—	89	93	—	—	93
Provision for loan losses	(204)	2,642	131	2,569	90	2,334	(98)	2,326
Other	—	(1)	6	5	—	—	—	—
Ending balance at June 30,	\$ 3,659	\$ 5,383	\$ 4,124	\$ 13,166	\$ 4,488	\$ 4,884	\$ 3,878	\$ 13,250
Impairment methodology								
Asset-specific ^(b)	\$ 145	\$ 472	\$ 288	\$ 905	\$ 226	\$ 402	\$ 318	\$ 946
Formula-based	2,215	4,911	3,836	10,962	2,130	4,482	3,560	10,172
PCI	1,299	—	—	1,299	2,132	—	—	2,132
Total allowance for loan losses	\$ 3,659	\$ 5,383	\$ 4,124	\$ 13,166	\$ 4,488	\$ 4,884	\$ 3,878	\$ 13,250
Allowance for lending-related commitments								
Beginning balance at January 1,	\$ 33	\$ —	\$ 1,022	\$ 1,055	\$ 33	\$ —	\$ 1,035	\$ 1,068
Provision for lending-related commitments	—	—	75	75	—	—	49	49
Other	—	—	(1)	(1)	—	—	—	—
Ending balance at June 30,	\$ 33	\$ —	\$ 1,096	\$ 1,129	\$ 33	\$ —	\$ 1,084	\$ 1,117
Impairment methodology								
Asset-specific	\$ —	\$ —	\$ 136	\$ 136	\$ —	\$ —	\$ 139	\$ 139
Formula-based	33	—	960	993	33	—	945	978
Total allowance for lending-related commitments^(c)	\$ 33	\$ —	\$ 1,096	\$ 1,129	\$ 33	\$ —	\$ 1,084	\$ 1,117
Total allowance for credit losses	\$ 3,692	\$ 5,383	\$ 5,220	\$ 14,295	\$ 4,521	\$ 4,884	\$ 4,962	\$ 14,367
Memo:								
Retained loans, end of period	\$351,692	\$ 157,568	\$ 438,468	\$947,728	\$374,587	\$145,221	\$ 420,632	\$940,440
Retained loans, average	363,634	152,435	434,783	950,852	373,562	142,757	409,949	926,268
PCI loans, end of period	22,242	—	—	22,242	26,977	—	3	26,980
Credit ratios								
Allowance for loan losses to retained loans	1.04%	3.42%	0.94%	1.39%	1.20%	3.36%	0.92%	1.41%
Allowance for loan losses to retained nonaccrual loans ^(d)	113	NM	333	295	113	NM	335	258
Allowance for loan losses to retained nonaccrual loans excluding credit card	113	NM	333	174	113	NM	335	163
Net charge-off rates	0.11	3.23	0.06	0.59	0.05	3.30	0.08	0.56
Credit ratios, excluding residential real estate PCI loans								
Allowance for loan losses to retained loans	0.72	3.42	0.94	1.28	0.68	3.36	0.92	1.22
Allowance for loan losses to retained nonaccrual loans ^(d)	73	NM	333	266	59	NM	335	217
Allowance for loan losses to retained nonaccrual loans excluding credit card	73	NM	333	145	59	NM	335	121
Net charge-off rates	0.11%	3.23%	0.06%	0.60%	0.05%	3.30%	0.08%	0.58%

Note: In the table above, the financial measures which exclude the impact of PCI loans are non-GAAP financial measures.

- (a) Write-offs of PCI loans are recorded against the allowance for loan losses when actual losses for a pool exceed estimated losses that were recorded as purchase accounting adjustments at the time of acquisition. A write-off of a PCI loan is recognized when the underlying loan is removed from a pool.
- (b) Includes risk-rated loans that have been placed on nonaccrual status and loans that have been modified in a TDR. The asset-specific credit card allowance for loan losses modified in a TDR is calculated based on the loans' original contractual interest rates and does not consider any incremental penalty rates.
- (c) The allowance for lending-related commitments is reported in accounts payable and other liabilities on the Consolidated balance sheets.
- (d) The Firm's policy is generally to exempt credit card loans from being placed on nonaccrual status as permitted by regulatory guidance.

INVESTMENT PORTFOLIO RISK MANAGEMENT

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 CIO in connection with the Firm's balance sheet or asset-liability management objectives or from principal investments managed in the LOBs and Corporate in predominantly privately-held financial instruments. Investments are typically intended to be held over extended periods and, accordingly, the Firm has no expectation for short-term realized gains with respect to these investments.

Investment securities risk

Investment securities risk includes the exposure associated with a default in the payment of principal and interest. This risk is mitigated given that Treasury and CIO substantially invest in high-quality securities. At June 30, 2019, the investment securities portfolio was \$305.4 billion, and the average credit rating of the securities comprising the portfolio was AA+ (based upon external ratings where available and where not available, based primarily upon internal ratings that correspond to ratings as defined by S&P and Moody's). For further information on the investment securities portfolio, refer to Corporate segment results on pages 41–42 and Note 9. For further information on the market risk inherent in the portfolio, refer to Market Risk Management on pages 70–74. For further information on related liquidity risk, refer to Liquidity Risk on pages 49–53.

Principal investment risk

Principal investments are typically private non-traded financial instruments representing ownership or other forms of junior capital. Principal investments cover multiple asset classes and are made either in stand-alone investing businesses or as part of a broader business platform. In general, new principal investments include tax-oriented investments, as well as investments made to enhance or accelerate LOB and Corporate strategic business initiatives. The Firm's principal investments are managed by the LOBs and Corporate and are reflected within their respective financial results.

As of June 30, 2019 and December 31, 2018, the aggregate carrying values of the principal investment portfolios were \$22.0 billion and \$22.2 billion, respectively, which included tax-oriented investments (e.g., affordable housing and alternative energy investments) of \$16.0 billion and \$16.6 billion, respectively, and private equity, various debt and equity instruments, and real assets of \$6.0 billion and \$5.6 billion, respectively.

For a discussion of the Firm's Investment Portfolio Risk Management governance and oversight, refer to page 123 of JPMorgan Chase's 2018 Form 10-K.

MARKET RISK MANAGEMENT

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. For a discussion of the Firm's Market Risk Management organization, market risk measurement, risk monitoring and control, and predominant business activities that give rise to market risk, refer to Market Risk Management on pages 124-131 of JPMorgan Chase's 2018 Form 10-K.

Value-at-risk

JPMorgan Chase utilizes value-at-risk ("VaR"), a statistical risk measure, to estimate the potential loss from adverse market moves in the current market environment. The Firm has a single VaR framework used as a basis for calculating Risk Management VaR and Regulatory VaR.

The Firm's Risk Management VaR is calculated assuming a one-day holding period and an expected tail-loss methodology which approximates a 95% confidence level. For risk management purposes, the Firm believes this methodology provides a daily measure of risk that is closely aligned to risk management decisions made by the lines of business and Corporate and, along with other market risk measures, provides the appropriate information needed to respond to risk events. The Firm calculates separately a daily aggregated VaR in accordance with regulatory rules ("Regulatory VaR"), which is used to derive the Firm's regulatory VaR-based capital requirements under Basel III.

The Firm's VaR model calculations are periodically evaluated and enhanced in response to changes in the composition of the Firm's portfolios, changes in market conditions, improvements in the Firm's modeling techniques and measurements, and other factors. Such changes may affect historical comparisons of VaR results. For information regarding model reviews and approvals, refer to Estimations and Model Risk Management on page 140 of JPMorgan Chase's 2018 Form 10-K.

For further information regarding VaR, including the inherent limitations, and the key differences between Risk Management VaR and Regulatory VaR, refer to page 126 of JPMorgan Chase's 2018 Form 10-K. For additional information on Regulatory VaR and the other components of market risk regulatory capital for the Firm (e.g., VaR-based measure, stressed VaR-based measure and the respective backtesting), refer to JPMorgan Chase's Basel III Pillar 3 Regulatory Capital Disclosures reports, which are available on the Firm's website at: (<http://investor.shareholder.com/jpmorganchase/basel.cfm>). For further information regarding nonstatistical market risk measures used by the Firm, refer to Other risk measures on pages 129-131 of JPMorgan Chase's 2018 Form 10-K.

The table below shows the results of the Firm's Risk Management VaR measure using a 95% confidence level. VaR can vary significantly as positions change, market volatility fluctuates, and diversification benefits change.

Total VaR

(in millions)	Three months ended								
	June 30, 2019			March 31, 2019			June 30, 2018		
	Avg.	Min	Max	Avg.	Min	Max	Avg.	Min	Max
CIB trading VaR by risk type									
Fixed income	\$ 39	\$ 33	\$ 45	\$ 44	\$ 38	\$ 50	\$ 31	\$ 26	\$ 36
Foreign exchange	7	5	12	9	4	15	6	4	10
Equities	25	14	31	16	13	22	15	13	18
Commodities and other	9	7	10	10	9	12	7	5	9
Diversification benefit to CIB trading VaR	(36) ^(a)	NM ^(b)	NM ^(b)	(32) ^(a)	NM ^(b)	NM ^(b)	(27) ^(a)	NM ^(b)	NM ^(b)
CIB trading VaR	44	34 ^(b)	55 ^(b)	47	36 ^(b)	61 ^(b)	32	26 ^(b)	42 ^(b)
Credit portfolio VaR	5	4	7	5	4	6	4	3	4
Diversification benefit to CIB VaR	(5) ^(a)	NM ^(b)	NM ^(b)	(4) ^(a)	NM ^(b)	NM ^(b)	(3) ^(a)	NM ^(b)	NM ^(b)
CIB VaR	44	35 ^(b)	55 ^(b)	48	37 ^(b)	63 ^(b)	33	26 ^(b)	42 ^(b)
CCB VaR	4	2	7	2	1	3	1	1	3
Corporate VaR	10	9	10	10	9	12	12	10	13
Diversification benefit to other VaR	(5) ^(a)	NM ^(b)	NM ^(b)	(2) ^(a)	NM ^(b)	NM ^(b)	(1) ^(a)	NM ^(b)	NM ^(b)
Other VaR	9	8 ^(b)	11 ^(b)	10	9 ^(b)	11 ^(b)	12	10 ^(b)	14 ^(b)
Diversification benefit to CIB and other VaR	(7) ^(a)	NM ^(b)	NM ^(b)	(6) ^(a)	NM ^(b)	NM ^(b)	(10) ^(a)	NM ^(b)	NM ^(b)
Total VaR	\$ 46	\$ 36 ^(b)	\$ 57 ^(b)	\$ 52	\$ 40 ^(b)	\$ 65 ^(b)	\$ 35	\$ 28 ^(b)	\$ 44 ^(b)

- (a) Average portfolio VaR is less than the sum of the VaR of the components described above, which is due to portfolio diversification. The diversification effect reflects that the risks are not perfectly correlated.
- (b) Diversification benefit represents the difference between the total VaR and each reported level and the sum of its individual components. Diversification benefit reflects the non-additive nature of VaR due to imperfect correlation across lines of business, Corporate, and risk types. The maximum and minimum VaR for each portfolio may have occurred on different trading days than the components and consequently diversification benefit is not meaningful.

Quarter over quarter results

Average total VaR decreased by \$6 million for the three months ended June 30, 2019 as compared with the prior quarter. This reflects a reduction in risk across Fixed Income and Foreign Exchange risk types, partially offset by Equities risk type, driven by the inclusion of a CIB strategic investment in Tradeweb following the IPO in the second quarter of 2019.

Year over year results

Average total VaR increased by \$11 million for the three months ended June 30, 2019, compared with the same period in the prior year. The increase in average total VaR is primarily due to the Equities risk type, driven by the inclusion of a CIB strategic investment in Tradeweb following the IPO in the second quarter of 2019, changes in the risk profile for Fixed Income risk type and increased volatility.

VaR back-testing

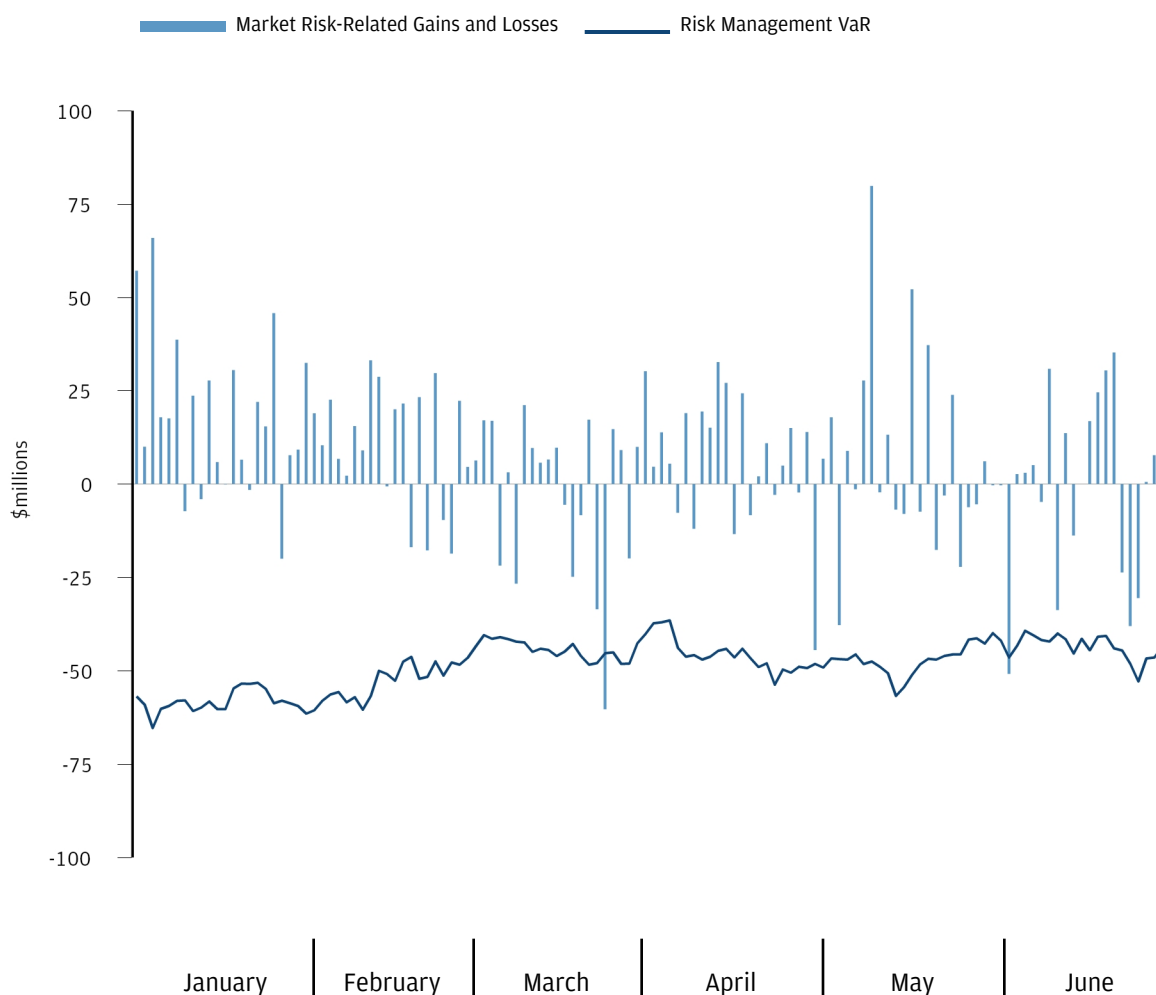
The Firm performs daily VaR model back-testing, which compares the daily Risk Management VaR results with the daily gains and losses actually recognized on market-risk related revenue.

The Firm's definition of market risk-related gains and losses is consistent with the definition used by the banking regulators under Basel III. Under this definition market risk-related gains and losses are defined as: gains and losses on the positions included in the Firm's Risk Management VaR excluding fees, commissions, certain valuation adjustments, net interest income, and gains and losses arising from intraday trading.

The following chart compares actual daily market risk-related gains and losses with the Firm's Risk Management VaR for the six months ended June 30, 2019. As the chart presents market risk-related gains and losses related to those positions included in the Firm's Risk Management VaR, the results in the table below differ from the results of back-testing disclosed in the Market Risk section of the Firm's Basel III Pillar 3 Regulatory Capital Disclosures reports, which are based on Regulatory VaR applied to CIB's covered positions. The chart shows that for the six months ended June 30, 2019, the Firm observed two VaR back-testing exceptions and posted market risk-related gains on 82 of the 128 days. The Firm observed one VaR back-testing exception and posted market risk-related gains on 37 of the 65 days for the three months ended June 30, 2019.

Daily Market Risk-Related Gains and Losses vs. Risk Management VaR (1-day, 95% Confidence level)

Six months ended June 30, 2019



Earnings-at-risk

The VaR and sensitivity measures illustrate the economic sensitivity of the Firm's Consolidated balance sheets to changes in market variables.

The effect of interest rate exposure on the Firm's reported net income is also important as interest rate risk represents one of the Firm's significant market risks. Interest rate risk arises not only from trading activities but also from the Firm's traditional banking activities, which include extension of loans and credit facilities, taking deposits and issuing debt as well as from the investment securities portfolio. One way the Firm evaluates its structural interest rate risk exposure is through earnings-at-risk, which estimates the sensitivity of the Firm's net interest income and interest rate-sensitive fees to changes in rates. For a summary by line of business and Corporate, identifying positions included in earnings-at-risk, refer to the table on page 125 of JPMorgan Chase's 2018 Form 10-K.

The Firm generates a baseline for net interest income and certain interest rate-sensitive fees, and then conducts simulations of changes for interest rate-sensitive assets and liabilities denominated in U.S. dollars and other currencies ("non-U.S. dollar" currencies). This simulation primarily includes retained loans, deposits, deposits with banks, investment securities, long term debt and any related interest rate hedges, and excludes other positions in risk management VaR and other sensitivity-based measures as described on page 125 of JPMorgan Chase's 2018 Form 10-K.

Earnings-at-risk scenarios estimate the potential change in this baseline, over the following 12 months utilizing multiple assumptions. These scenarios include a parallel shift involving changes to both short-term and long-term rates by an equal amount; a steeper yield curve involving holding short-term rates constant and increasing long-term rates or decreasing short-term rates and holding long-term rates constant; and a flatter yield curve involving holding short-term rates constant and decreasing long-term rates or increasing short-term rates and holding long-term rates constant. These scenarios consider the impact on exposures as a result of changes in interest rates from baseline rates, as well as pricing sensitivities of deposits, optionality and changes in product mix. The scenarios include forecasted balance sheet changes, as well as modeled prepayment and reinvestment behavior, but do not include assumptions about actions that could be taken by the Firm in response to any such instantaneous rate changes. Mortgage prepayment assumptions are based on the interest rates used in the scenarios compared with underlying contractual rates, the time since origination, and other factors which are updated periodically based on historical experience. The pricing sensitivity of deposits in the baseline and scenarios use assumed rates paid which may differ from actual rates paid due to timing lags and other factors. The Firm's earnings-at-risk scenarios are periodically evaluated and enhanced in response to changes in the composition of the Firm's balance sheet, changes in market conditions, improvements in the Firm's simulation and other factors.

The Firm's U.S. dollar sensitivities are presented in the table below.

(in billions)	June 30, 2019	December 31, 2018
Parallel shift:		
+100 bps shift in rates	\$ 1.1	\$ 0.9
-100 bps shift in rates	(2.7)	(2.1)
Steeper yield curve:		
+100 bps shift in long-term rates	0.8	0.5
-100 bps shift in short-term rates	(1.2)	(1.2)
Flatter yield curve:		
+100 bps shift in short-term rates	0.3	0.4
-100 bps shift in long-term rates	(1.5)	(0.9)

The Firm's sensitivity to rates is largely a result of assets repricing at a faster pace than deposits.

The Firm's net U.S. dollar parallel sensitivities as of June 30, 2019 increased when compared to December 31, 2018 primarily as a result of updating the Firm's baseline to reflect lower interest rates largely offset by impacts from a net change in the Firm's spot and forecasted balance sheet.

The Firm's non-U.S. dollar sensitivities are presented in the table below.

(in billions)	June 30, 2019	December 31, 2018
Parallel shift:		
+100 bps shift in rates	\$ 0.6	\$ 0.5
Flatter yield curve:		
+100 bps shift in short-term rates	0.6	0.5

The results of the non-U.S. dollar interest rate scenario involving a steeper yield curve with long-term rates rising by 100 basis points and short-term rates staying at current levels were not material to the Firm's earnings-at-risk at June 30, 2019 and December 31, 2018.

Other sensitivity-based measures

The Firm quantifies the market risk of certain investment and funding activities by assessing the potential impact on net revenue and OCI due to changes in relevant market variables. For additional information on the positions

captured in other sensitivity-based measures, refer to the table Predominant business activities that give rise to market risk on page 125 of JPMorgan Chase's 2018 Form 10-K.

The table below represents the potential impact to net revenue or OCI for market risk-sensitive instruments that are not included in VaR or earnings-at-risk. Where appropriate, instruments used for hedging purposes are reported along with the positions being hedged. The sensitivities disclosed in the table below may not be representative of the actual gain or loss that would have been realized at June 30, 2019 and December 31, 2018, as the movement in market parameters across maturities may vary and are not intended to imply management's expectation of future deterioration in these sensitivities.

Gain/(loss) (in millions)				
Activity	Description	Sensitivity measure	June 30, 2019	December 31, 2018
Investment activities^(a)				
Investment management activities	Consists of seed capital and related hedges; and fund co-investments	10% decline in market value	\$ (89)	\$ (102)
Other investments	Consists of privately held equity and other investments held at fair value	10% decline in market value	(208)	(218)
Funding activities				
Non-USD LTD cross-currency basis	Represents the basis risk on derivatives used to hedge the foreign exchange risk on the non-USD LTD ^(b)	1 basis point parallel tightening of cross currency basis	(14)	(13)
Non-USD LTD hedges foreign currency ("FX") exposure	Primarily represents the foreign exchange revaluation on the fair value of the derivative hedges ^(b)	10% depreciation of currency	7	17
Derivatives - funding spread risk	Impact of changes in the spread related to derivatives FVA	1 basis point parallel increase in spread	(5)	(4)
Fair value option elected liabilities - funding spread risk	Impact of changes in the spread related to fair value option elected liabilities DVA ^(b)	1 basis point parallel increase in spread	30	30
Fair value option elected liabilities - interest rate sensitivity	Interest rate sensitivity on fair value option liabilities resulting from a change in the Firm's own credit spread ^(b)	1 basis point parallel increase in spread	1	1

(a) Excludes equity securities without readily determinable fair values that are measured under the measurement alternative. Refer to Note 2 for additional information.

(b) Impact recognized through OCI.

COUNTRY RISK MANAGEMENT

The Firm, through its lines of business and Corporate, may be exposed to country risk resulting from financial, economic, political or other significant developments which adversely affect the value of the Firm's exposures related to a particular country or set of countries. The Country Risk Management group actively monitors the various portfolios which may be impacted by these developments and measures the extent to which the Firm's exposures are diversified given the Firm's strategy and risk tolerance relative to a country.

For a further discussion of the Firm's country risk management, refer to pages 132-133 of JPMorgan Chase's 2018 Form 10-K.

The following table presents the Firm's top 20 exposures by country (excluding the U.S.) as of June 30, 2019 and their comparative exposures as of December 31, 2018. The selection of countries represents the Firm's largest total exposures by country, based on the Firm's internal country risk management approach, and does not represent the Firm's view of any actual or potentially adverse credit conditions. Country exposures may fluctuate from period to period due to client activity and market flows.

The increase in exposure to Japan is predominantly due to increased cash balances placed with the central bank of Japan, driven by client activity.

Top 20 country exposures (excluding the U.S.)^(a)

(in billions)	June 30, 2019				December 31, 2018 ^(e)
	Lending and deposits ^(b)	Trading and investing ^(c)	Other ^(d)	Total exposure	Total exposure
Germany	\$ 52.3	\$ 7.3	\$ 0.4	\$ 60.0	\$ 62.1
Japan	40.8	5.5	0.4	46.7	29.1
United Kingdom	31.8	10.5	1.1	43.4	40.7
Switzerland	11.9	0.8	5.0	17.7	12.8
China	9.5	5.9	1.9	17.3	19.3
France	11.2	4.1	1.1	16.4	17.9
Canada	11.9	1.2	0.1	13.2	14.3
India	5.4	4.5	2.5	12.4	11.8
Luxembourg	11.6	0.5	—	12.1	11.0
Australia	6.2	4.9	0.6	11.7	13.0
Netherlands	5.3	1.2	3.0	9.5	5.8
Italy	3.2	4.1	0.2	7.5	6.4
Singapore	4.1	1.6	1.8	7.5	6.8
Brazil	4.4	2.7	—	7.1	7.3
Mexico	4.6	1.7	—	6.3	5.5
South Korea	3.9	1.9	0.3	6.1	7.6
Spain	3.6	2.0	—	5.6	5.1
Saudi Arabia	4.8	0.7	—	5.5	5.3
Hong Kong	2.5	1.3	0.9	4.7	5.4
Belgium	4.4	(0.1)	—	4.3	2.3

- (a) Top 20 country exposures reflect approximately 88% and 86% of total firmwide non-U.S. exposure, where exposure is attributed to a specific country, at June 30, 2019, and December 31, 2018 respectively.
- (b) Lending and deposits includes loans and accrued interest receivable (net of eligible collateral and the allowance for loan losses), deposits with banks (including central banks), acceptances, other monetary assets, issued letters of credit net of participations, and unused commitments to extend credit. Excludes intra-day and operating exposures, such as those from settlement and clearing activities.
- (c) Includes market-making inventory, AFS securities, and counterparty exposure on derivative and securities financings net of eligible collateral and hedging. Includes exposure from single reference entity ("single-name"), index and other multiple reference entity transactions for which one or more of the underlying reference entities is in a country listed in the above table.
- (d) Predominantly includes physical commodity inventory.
- (e) The country rankings presented in the table as of December 31, 2018, are based on the country rankings of the corresponding exposures at June 30, 2019, not actual rankings of such exposures at December 31, 2018.

CRITICAL ACCOUNTING ESTIMATES USED BY THE FIRM

JPMorgan Chase's accounting policies and use of estimates are integral to understanding its reported results. The Firm's most complex accounting estimates require management's judgment to ascertain the appropriate carrying value of assets and liabilities. The Firm has established policies and control procedures intended to ensure that estimation methods, including any judgments made as part of such methods, are well-controlled, independently reviewed and applied consistently from period to period. The methods used and judgments made reflect, among other factors, the nature of the assets or liabilities and the related business and risk management strategies, which may vary across the Firm's businesses and portfolios. In addition, the policies and procedures are intended to ensure that the process for changing methodologies occurs in an appropriate manner. The Firm believes its estimates for determining the carrying value of its assets and liabilities are appropriate. The following is a brief description of the Firm's critical accounting estimates involving significant judgments.

Allowance for credit losses

The Firm's allowance for credit losses covers the retained consumer and wholesale loan portfolios, as well as the Firm's wholesale and certain consumer lending-related commitments. The allowance for loan losses is intended to adjust the carrying value of the Firm's loan assets to reflect probable credit losses inherent in the loan portfolio as of the balance sheet date. Similarly, the allowance for lending-related commitments is established to cover probable credit losses inherent in the lending-related commitments portfolio as of the balance sheet date.

The allowance for credit losses includes a formula-based component, an asset-specific component, and a component related to PCI loans. The determination of each of these components involves significant judgment on a number of matters. For further information on these components, areas of judgment and methodologies used in establishing the Firm's allowance for credit losses, refer to pages 120-122, page 141 and Note 13 of JPMorgan Chase's 2018 Form 10-K; and refer to Allowance for credit losses on pages 67-68 and Note 12 of this Form 10-Q.

As noted in the discussion on page 141 of JPMorgan Chase's 2018 Form 10-K, the Firm's allowance for credit losses is sensitive to numerous factors, which may differ depending on the portfolio. Changes in economic conditions or in the Firm's assumptions and estimates could affect its estimate of probable credit losses inherent in the portfolio at the balance sheet date. The Firm uses its best judgment to assess these economic conditions and loss data in estimating the allowance for credit losses and these estimates are subject to periodic refinement based on changes to underlying external or Firm-specific historical data. For further information, refer to Note 12.

To illustrate the potential magnitude of certain alternate judgments, the Firm estimates that changes in the following inputs would have the following effects on the Firm's modeled credit loss estimates as of June 30, 2019, without

consideration of any offsetting or correlated effects of other inputs in the Firm's allowance for loan losses:

- A combined 5% decline in housing prices and a 100 basis point increase in unemployment rates from expectations could imply:
 - an increase to modeled credit loss estimates of approximately \$250 million for PCI loans.
 - an increase to modeled annual credit loss estimates of approximately \$50 million for residential real estate loans, excluding PCI loans.
- For credit card loans, a 100 basis point increase in unemployment rates from expectations could imply an increase to modeled annual credit loss estimates of approximately \$800 million.
- An increase in probability of default ("PD") factors consistent with a one-notch downgrade in the Firm's internal risk ratings for its entire wholesale loan portfolio could imply an increase in the Firm's modeled credit loss estimates of approximately \$1.7 billion.
- A 100 basis point increase in estimated loss given default ("LGD") for the Firm's entire wholesale loan portfolio could imply an increase in the Firm's modeled credit loss estimates of approximately \$175 million.

The purpose of these sensitivity analyses is to provide an indication of the isolated impacts of hypothetical alternative assumptions on modeled loss estimates. The changes in the inputs presented above are not intended to imply management's expectation of future deterioration of those risk factors. In addition, these analyses are not intended to estimate changes in the overall allowance for loan losses, which would also be influenced by the judgment management applies to the modeled loss estimates to reflect the uncertainty and imprecision of these modeled loss estimates based on then-current circumstances and conditions.

It is difficult to estimate how potential changes in specific factors might affect the overall allowance for credit losses because management considers a variety of factors and inputs in estimating the allowance for credit losses. Changes in these factors and inputs may not occur at the same rate and may not be consistent across all geographies or product types, and changes in factors may be directionally inconsistent, such that improvement in one factor may offset deterioration in other factors. In addition, it is difficult to predict how changes in specific economic conditions or assumptions could affect borrower behavior or other factors considered by management in estimating the allowance for credit losses. Given the process the Firm follows and the judgments made in evaluating the risk factors related to its loss estimates, management believes that its current estimate of the allowance for credit losses is appropriate.

Fair value

Assets measured at fair value

The following table includes the Firm's assets measured at fair value and the portion of such assets that are classified within level 3 of the valuation hierarchy. For further information, refer to Note 2.

June 30, 2019 (in billions, except ratios)	Total assets at fair value	Total level 3 assets
Trading-debt and equity instruments	\$ 470.4	\$ 4.4
Derivative receivables ^(a)	52.9	6.2
Trading assets	523.3	10.6
AFS securities	276.4	—
Loans	4.3	—
MSRs	5.1	5.1
Other	28.5	0.8
Total assets measured at fair value on a recurring basis	\$ 837.6	\$ 16.5
Total assets measured at fair value on a nonrecurring basis	1.6	0.9
Total assets measured at fair value	\$ 839.2	\$ 17.4
Total Firm assets	\$ 2,727.4	
Level 3 assets as a percentage of total Firm assets ^(a)		0.6%
Level 3 assets as a percentage of total Firm assets at fair value ^(a)		2.1%

(a) For purposes of the table above, the derivative receivables total reflects the impact of netting adjustments; however, the \$6.2 billion of derivative receivables classified as level 3 does not reflect the netting adjustment as such netting is not relevant to a presentation based on the transparency of inputs to the valuation of an asset. The level 3 balances would be reduced if netting were applied, including the netting benefit associated with cash collateral.

Valuation

Estimating fair value requires the application of judgment. The type and level of judgment required is largely dependent on the amount of observable market information available to the Firm. For instruments valued using internally developed valuation models and other valuation techniques that use significant unobservable inputs and are therefore classified within level 3 of the valuation hierarchy, judgments used to estimate fair value are more significant than those required when estimating the fair value of instruments classified within levels 1 and 2.

In arriving at an estimate of fair value for an instrument within level 3, management must first determine the appropriate valuation technique to use. Second, the lack of observability of certain significant inputs requires management to assess all relevant empirical data in deriving valuation inputs including, for example, transaction details, yield curves, interest rates, prepayment rates, default rates, volatilities, correlations, equity or debt prices, valuations of comparable instruments, foreign exchange rates and credit curves. For a further discussion of the valuation of level 3 instruments, including unobservable inputs used, refer to Note 2.

For instruments classified in levels 2 and 3, management judgment must be applied to assess the appropriate level of valuation adjustments to reflect counterparty credit quality, the Firm's creditworthiness, market funding rates, liquidity considerations, unobservable parameters, and for portfolios that meet specified criteria, the size of the net open risk position. The judgments made are typically affected by the type of product and its specific contractual terms, and the level of liquidity for the product or within the market as a whole. For a further discussion of valuation adjustments applied by the Firm refer to Note 2.

Imprecision in estimating unobservable market inputs or other factors can affect the amount of gain or loss recorded for a particular position. Furthermore, while the Firm believes its valuation methods are appropriate and consistent with those of other market participants, the methods and assumptions used reflect management judgment and may vary across the Firm's businesses and portfolios.

The Firm uses various methodologies and assumptions in the determination of fair value. The use of methodologies or assumptions different than those used by the Firm could result in a different estimate of fair value at the reporting date. For a detailed discussion of the Firm's valuation process and hierarchy, and its determination of fair value for individual financial instruments, refer to Note 2.

Goodwill impairment

Management applies significant judgment when testing goodwill for impairment. The goodwill associated with each business combination is allocated to the related reporting units for goodwill impairment testing. For a description of the significant valuation judgments associated with goodwill impairment, refer to Goodwill impairment on page 142 of JPMorgan Chase's 2018 Form 10-K.

For additional information on goodwill, including the goodwill impairment assessment as of June 30, 2019, refer to Note 14.

Credit card rewards liability

The credit card rewards liability was \$6.0 billion and \$5.8 billion at June 30, 2019 and December 31, 2018, respectively, and is recorded in accounts payable and other liabilities on the Consolidated balance sheets. For a description of the significant assumptions and judgments associated with the Firm's credit card rewards liability, refer to page 143 of JPMorgan Chase's 2018 Form 10-K.

Income taxes

For a description of the significant assumptions, judgments and interpretations associated with the accounting for income taxes, refer to Income taxes on page 143 of JPMorgan Chase's 2018 Form 10-K.

Litigation reserves

For a description of the significant estimates and judgments associated with establishing litigation reserves, refer to Note 24 of this Form 10-Q, and Note 29 of JPMorgan Chase's 2018 Form 10-K.

ACCOUNTING AND REPORTING DEVELOPMENTS

Financial Accounting Standards Board (“FASB”) Standards Adopted January 1, 2019

Standard	Summary of guidance	Effects on financial statements
Leases <i>Issued February 2016</i>	<ul style="list-style-type: none"> Requires lessees to recognize all leases longer than twelve months on the Consolidated balance sheets as a lease liability with a corresponding right-of-use asset. Requires lessees and lessors to classify most leases using principles similar to existing lease accounting, but eliminates the “bright line” classification tests. Expands qualitative and quantitative leasing disclosures. 	<ul style="list-style-type: none"> Adopted January 1, 2019. The Firm elected the available practical expedient to not reassess whether existing contracts contain a lease or whether classification or unamortized initial lease costs would be different under the new lease guidance. The Firm elected the modified retrospective transition method, through a cumulative-effect adjustment to retained earnings without revising prior periods. For further information, refer to Note 16.

FASB Standards Issued but not yet Adopted

Standard	Summary of guidance	Effects on financial statements
Financial instruments – credit losses <i>Issued June 2016</i>	<ul style="list-style-type: none"> Replaces existing incurred loss impairment guidance and establishes a single allowance framework for financial assets carried at amortized cost, which will reflect management’s estimate of credit losses over the full remaining expected life of the financial assets and will consider expected future changes in macroeconomic conditions. Eliminates existing guidance for PCI loans, and requires recognition of the nonaccretable difference as an increase to the allowance for expected credit losses on financial assets purchased with more than insignificant credit deterioration since origination, which will be offset by an increase in the recorded investment of the related loans. Requires inclusion of expected recoveries, limited to the cumulative amount of prior write-offs, when estimating the allowance for credit losses for in scope financial assets (including collateral dependent assets). Amends existing impairment guidance for AFS securities to incorporate an allowance, which will allow for reversals of credit impairments in the event that the credit of an issuer improves. Requires a cumulative-effect adjustment to retained earnings as of the beginning of the reporting period of adoption. 	<ul style="list-style-type: none"> Required effective date: January 1, 2020.^(a) The Firm has established a Firmwide, cross-discipline governance structure, which provides implementation oversight. The Firm continues to test and refine its current expected credit loss models that satisfy the requirements of the new standard. Oversight and testing, as well as efforts to meet expanded disclosure requirements, will extend through the remainder of 2019. The Firm expects that the allowance related to the Firm’s loans and commitments will increase as it will cover credit losses over the full remaining expected life of the portfolios. The Firm currently intends to estimate losses over a two-year forecast period using the weighted-average of a range of macroeconomic scenarios (established on a Firmwide basis), and then revert to longer term historical loss experience to estimate losses over more extended periods. The Firm currently expects the increase in the allowance to be in the range of \$4-6 billion, primarily driven by Card. This estimate is subject to further refinement based on continuing reviews and approvals of models, methodologies and judgments. The ultimate impact will depend upon the nature and characteristics of the Firm’s portfolio at the adoption date, the macroeconomic conditions and forecasts at that date, and other management judgments. The Firm plans to adopt the new guidance on January 1, 2020.
Goodwill <i>Issued January 2017</i>	<ul style="list-style-type: none"> Requires an impairment loss to be recognized when the estimated fair value of a reporting unit falls below its carrying value. Eliminates the second condition in the current guidance that requires an impairment loss to be recognized only if the estimated implied fair value of the goodwill is below its carrying value. 	<ul style="list-style-type: none"> Required effective date: January 1, 2020.^(a) Based on current impairment test results, the Firm does not expect a material effect on the Consolidated Financial Statements. However, the impact of the new accounting guidance will depend on the performance of the reporting units and the market conditions at the time of adoption. After adoption, the guidance may result in more frequent goodwill impairment losses due to the removal of the second condition. The Firm plans to adopt the new guidance on January 1, 2020.

(a) Early adoption is permitted.

FORWARD-LOOKING STATEMENTS

From time to time, the Firm has made and will make forward-looking statements. These statements can be identified by the fact that they do not relate strictly to historical or current facts. Forward-looking statements often use words such as “anticipate,” “target,” “expect,” “estimate,” “intend,” “plan,” “goal,” “believe,” or other words of similar meaning. Forward-looking statements provide JPMorgan Chase’s current expectations or forecasts of future events, circumstances, results or aspirations. JPMorgan Chase’s disclosures in this Form 10-Q contain forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. The Firm also may make forward-looking statements in its other documents filed or furnished with the SEC. In addition, the Firm’s senior management may make forward-looking statements orally to investors, analysts, representatives of the media and others.

All forward-looking statements are, by their nature, subject to risks and uncertainties, many of which are beyond the Firm’s control. JPMorgan Chase’s actual future results may differ materially from those set forth in its forward-looking statements. While there is no assurance that any list of risks and uncertainties or risk factors is complete, below are certain factors which could cause actual results to differ from those in the forward-looking statements:

- Local, regional and global business, economic and political conditions and geopolitical events;
- Changes in laws and regulatory requirements, including capital and liquidity requirements affecting the Firm’s businesses, and the ability of the Firm to address those requirements;
- Heightened regulatory and governmental oversight and scrutiny of JPMorgan Chase’s business practices, including dealings with retail customers;
- Changes in trade, monetary and fiscal policies and laws;
- Changes in income tax laws and regulations;
- Securities and capital markets behavior, including changes in market liquidity and volatility;
- Changes in investor sentiment or consumer spending or savings behavior;
- Ability of the Firm to manage effectively its capital and liquidity, including approval of its capital plans by banking regulators;
- Changes in credit ratings assigned to the Firm or its subsidiaries;
- Damage to the Firm’s reputation;
- Ability of the Firm to appropriately address social and environmental concerns that may arise from its business activities;
- Ability of the Firm to deal effectively with an economic slowdown or other economic or market disruption;
- Technology changes instituted by the Firm, its counterparties or competitors;
- The effectiveness of the Firm’s control agenda;
- Ability of the Firm to develop or discontinue products and services, and the extent to which products or services previously sold by the Firm (including but not limited to mortgages and asset-backed securities) require the Firm to incur liabilities or absorb losses not contemplated at their initiation or origination;
- Acceptance of the Firm’s new and existing products and services by the marketplace and the ability of the Firm to innovate and to increase market share;
- Ability of the Firm to attract and retain qualified employees;
- Ability of the Firm to control expenses;
- Competitive pressures;
- Changes in the credit quality of the Firm’s customers and counterparties;
- Adequacy of the Firm’s risk management framework, disclosure controls and procedures and internal control over financial reporting;
- Adverse judicial or regulatory proceedings;
- Changes in applicable accounting policies, including the introduction of new accounting standards;
- Ability of the Firm to determine accurate values of certain assets and liabilities;
- Occurrence of natural or man-made disasters or calamities or conflicts and the Firm’s ability to deal effectively with disruptions caused by the foregoing;
- Ability of the Firm to maintain the security of its financial, accounting, technology, data processing and other operational systems and facilities;
- Ability of the Firm to withstand disruptions that may be caused by any failure of its operational systems or those of third parties;
- Ability of the Firm to effectively defend itself against cyberattacks and other attempts by unauthorized parties to access information of the Firm or its customers or to disrupt the Firm’s systems; and
- The other risks and uncertainties detailed in Part I, Item 1A: Risk Factors in JPMorgan Chase’s 2018 Form 10-K.

Any forward-looking statements made by or on behalf of the Firm speak only as of the date they are made, and JPMorgan Chase does not undertake to update any forward-looking statements. The reader should, however, consult any further disclosures of a forward-looking nature the Firm may make in any subsequent Form 10-Ks, Form 10-Qs, or Current Reports on Form 8-K.

JPMorgan Chase & Co.
Consolidated statements of income (unaudited)

(in millions, except per share data)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Revenue				
Investment banking fees	\$ 1,851	\$ 2,168	\$ 3,691	\$ 3,904
Principal transactions	3,714	3,782	7,790	7,734
Lending- and deposit-related fees	1,535	1,495	3,017	2,972
Asset management, administration and commissions	4,353	4,304	8,467	8,613
Investment securities gains/(losses)	44	(80)	57	(325)
Mortgage fees and related income	279	324	675	789
Card income	1,366	1,020	2,640	2,295
Other income	1,292	1,255	2,767	2,881
Noninterest revenue	14,434	14,268	29,104	28,863
Interest income ^(a)	21,603	18,566	42,992	36,060
Interest expense ^(a)	7,205	5,081	14,141	9,263
Net interest income	14,398	13,485	28,851	26,797
Total net revenue	28,832	27,753	57,955	55,660
Provision for credit losses	1,149	1,210	2,644	2,375
Noninterest expense				
Compensation expense	8,547	8,338	17,484	17,200
Occupancy expense	1,060	981	2,128	1,869
Technology, communications and equipment expense	2,378	2,168	4,742	4,222
Professional and outside services	2,212	2,126	4,251	4,247
Marketing	862	798	1,741	1,598
Other expense	1,282	1,560	2,390	2,915
Total noninterest expense	16,341	15,971	32,736	32,051
Income before income tax expense	11,342	10,572	22,575	21,234
Income tax expense	1,690	2,256	3,744	4,206
Net income	\$ 9,652	\$ 8,316	\$ 18,831	\$ 17,028
Net income applicable to common stockholders	\$ 9,192	\$ 7,880	\$ 17,945	\$ 16,119
Net income per common share data				
Basic earnings per share	\$ 2.83	\$ 2.31	\$ 5.48	\$ 4.69
Diluted earnings per share	2.82	2.29	5.46	4.66
Weighted-average basic shares	3,250.6	3,415.2	3,274.3	3,436.7
Weighted-average diluted shares	3,259.7	3,434.7	3,283.9	3,457.1

(a) In the second quarter of 2019, the Firm implemented certain presentation changes that impacted interest income and interest expense, but had no effect on net interest income. These changes were applied retrospectively and, accordingly, prior period amounts were revised to conform with the current presentation. For additional information, refer to Note 6.

The Notes to Consolidated Financial Statements (unaudited) are an integral part of these statements.

JPMorgan Chase & Co.
Consolidated statements of comprehensive income (unaudited)

(in millions)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Net income	\$ 9,652	\$ 8,316	\$ 18,831	\$ 17,028
Other comprehensive income/(loss), after-tax				
Unrealized gains/(losses) on investment securities	1,093	(227)	2,507	(1,461)
Translation adjustments, net of hedges	99	88	75	115
Fair value hedges	86	(68)	88	(108)
Cash flow hedges	97	(166)	235	(239)
Defined benefit pension and OPEB plans	41	38	77	59
DVA on fair value option elected liabilities	256	260	(361)	527
Total other comprehensive income/(loss), after-tax	1,672	(75)	2,621	(1,107)
Comprehensive income	\$ 11,324	\$ 8,241	\$ 21,452	\$ 15,921

The Notes to Consolidated Financial Statements (unaudited) are an integral part of these statements.

JPMorgan Chase & Co.
Consolidated balance sheets (unaudited)

(in millions, except share data)	June 30, 2019	December 31, 2018
Assets		
Cash and due from banks	\$ 23,164	\$ 22,324
Deposits with banks	244,874	256,469
Federal funds sold and securities purchased under resale agreements (included \$13,982 and \$13,235 at fair value)	267,864	321,588
Securities borrowed (included \$5,685 and \$5,105 at fair value)	130,661	111,995
Trading assets (included assets pledged of \$141,563 and \$89,073)	523,373	413,714
Investment securities (included \$276,357 and \$230,394 at fair value and assets pledged of \$10,654 and \$11,432)	307,264	261,828
Loans (included \$4,309 and \$3,151 at fair value)	956,889	984,554
Allowance for loan losses	(13,166)	(13,445)
Loans, net of allowance for loan losses	943,723	971,109
Accrued interest and accounts receivable	88,399	73,200
Premises and equipment	24,665	14,934
Goodwill, MSRs and other intangible assets	53,302	54,349
Other assets (included \$9,544 and \$9,630 at fair value and assets pledged of \$2,753 and \$3,457)	120,090	121,022
Total assets^(a)	\$ 2,727,379	\$ 2,622,532
Liabilities		
Deposits (included \$32,924 and \$23,217 at fair value)	\$ 1,524,361	\$ 1,470,666
Federal funds purchased and securities loaned or sold under repurchase agreements (included \$981 and \$935 at fair value)	201,683	182,320
Short-term borrowings (included \$7,736 and \$7,130 at fair value)	59,890	69,276
Trading liabilities	147,639	144,773
Accounts payable and other liabilities (included \$2,873 and \$3,269 at fair value)	216,137	196,710
Beneficial interests issued by consolidated VIEs (included \$0 and \$28 at fair value)	25,585	20,241
Long-term debt (included \$67,828 and \$54,886 at fair value)	288,869	282,031
Total liabilities^(a)	2,464,164	2,366,017
Commitments and contingencies (refer to Notes 22, 23 and 24)		
Stockholders' equity		
Preferred stock (\$1 par value; authorized 200,000,000 shares; issued 2,699,250 and 2,606,750 shares)	26,993	26,068
Common stock (\$1 par value; authorized 9,000,000,000 shares; issued 4,104,933,895 shares)	4,105	4,105
Additional paid-in capital	88,359	89,162
Retained earnings	212,093	199,202
Accumulated other comprehensive income/(loss)	1,114	(1,507)
Shares held in restricted stock units ("RSU") Trust, at cost (472,953 shares)	(21)	(21)
Treasury stock, at cost (907,448,906 and 829,167,674 shares)	(69,428)	(60,494)
Total stockholders' equity	263,215	256,515
Total liabilities and stockholders' equity	\$ 2,727,379	\$ 2,622,532

(a) The following table presents information on assets and liabilities related to VIEs that are consolidated by the Firm at June 30, 2019, and December 31, 2018. The assets of the consolidated VIEs are used to settle the liabilities of those entities. The holders of the beneficial interests generally do not have recourse to the general credit of JPMorgan Chase. The assets and liabilities in the table below include third-party assets and liabilities of consolidated VIEs and exclude intercompany balances that eliminate in consolidation. For a further discussion, refer to Note 13.

(in millions)	June 30, 2019	December 31, 2018
Assets		
Trading assets	\$ 1,422	\$ 1,966
Loans	53,883	59,456
All other assets	987	1,013
Total assets	\$ 56,292	\$ 62,435
Liabilities		
Beneficial interests issued by consolidated VIEs	\$ 25,585	\$ 20,241
All other liabilities	291	312
Total liabilities	\$ 25,876	\$ 20,553

The Notes to Consolidated Financial Statements (unaudited) are an integral part of these statements.

JPMorgan Chase & Co.
Consolidated statements of changes in stockholders' equity (unaudited)

(in millions, except per share data)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Preferred stock				
Balance at the beginning of the period	\$ 26,993	\$ 26,068	\$ 26,068	\$ 26,068
Issuance	—	—	1,850	—
Redemption	—	—	(925)	—
Balance at June 30	26,993	26,068	26,993	26,068
Common stock				
Balance at the beginning and end of the period	4,105	4,105	4,105	4,105
Additional paid-in capital				
Balance at the beginning of the period	88,170	89,211	89,162	90,579
Shares issued and commitments to issue common stock for employee shared-based compensation awards, and related tax effects	189	231	(760)	(1,076)
Other	—	(50)	(43)	(111)
Balance at June 30	88,359	89,392	88,359	89,392
Retained earnings				
Balance at the beginning of the period	205,437	183,855	199,202	177,676
Cumulative effect of changes in accounting principles	—	—	62	(183)
Net income	9,652	8,316	18,831	17,028
Dividends declared:				
Preferred stock	(404)	(379)	(778)	(788)
Common stock (\$0.80 and \$0.56 per share and \$1.60 and \$1.12 per share, respectively)	(2,592)	(1,911)	(5,224)	(3,852)
Balance at June 30	212,093	189,881	212,093	189,881
Accumulated other comprehensive income/(loss)				
Balance at the beginning of the period	(558)	(1,063)	(1,507)	(119)
Cumulative effect of changes in accounting principles	—	—	—	88
Other comprehensive income/(loss), after-tax	1,672	(75)	2,621	(1,107)
Balance at June 30	1,114	(1,138)	1,114	(1,138)
Shares held in RSU Trust, at cost				
Balance at the beginning and end of the period	(21)	(21)	(21)	(21)
Treasury stock, at cost				
Balance at the beginning of the period	(64,289)	(45,954)	(60,494)	(42,595)
Repurchase	(5,210)	(4,968)	(10,301)	(9,639)
Reissuance	71	93	1,367	1,405
Balance at June 30	(69,428)	(50,829)	(69,428)	(50,829)
Total stockholders' equity	\$ 263,215	\$ 257,458	\$ 263,215	\$ 257,458

The Notes to Consolidated Financial Statements (unaudited) are an integral part of these statements.

JPMorgan Chase & Co.
Consolidated statements of cash flows (unaudited)

(in millions)	Six months ended June 30,	
	2019	2018
Operating activities		
Net income	\$ 18,831	\$ 17,028
Adjustments to reconcile net income to net cash used in operating activities:		
Provision for credit losses	2,644	2,375
Depreciation and amortization	4,084	3,724
Deferred tax (benefit)/expense	(42)	(216)
Other	1,164	1,611
Originations and purchases of loans held-for-sale	(35,908)	(43,141)
Proceeds from sales, securitizations and paydowns of loans held-for-sale	44,995	41,657
Net change in:		
Trading assets	(111,562)	(42,859)
Securities borrowed	(18,586)	(3,132)
Accrued interest and accounts receivable	(15,416)	(8,083)
Other assets	(10,146)	(716)
Trading liabilities	12,765	21,997
Accounts payable and other liabilities	8,790	12,574
Other operating adjustments	3,653	(2,243)
Net cash provided by/(used in) operating activities	(94,734)	576
Investing activities		
Net change in:		
Federal funds sold and securities purchased under resale agreements	53,757	(28,109)
Held-to-maturity securities:		
Proceeds from paydowns and maturities	1,315	1,458
Purchases	(818)	(7,426)
Available-for-sale securities:		
Proceeds from paydowns and maturities	30,547	19,718
Proceeds from sales	35,983	25,228
Purchases	(106,085)	(27,453)
Proceeds from sales and securitizations of loans held-for-investment	31,291	12,963
Other changes in loans, net	(16,903)	(33,441)
All other investing activities, net	(1,663)	(1,912)
Net cash provided by/(used in) investing activities	27,424	(38,974)
Financing activities		
Net change in:		
Deposits	62,795	10,100
Federal funds purchased and securities loaned or sold under repurchase agreements	19,343	16,396
Short-term borrowings	(9,907)	12,151
Beneficial interests issued by consolidated VIEs	9,346	(165)
Proceeds from long-term borrowings	29,159	41,166
Payments of long-term borrowings	(38,384)	(50,171)
Proceeds from issuance of preferred stock	1,850	—
Redemption of preferred stock	(925)	—
Treasury stock repurchased	(10,301)	(9,639)
Dividends paid	(6,081)	(4,716)
All other financing activities, net	(426)	(1,356)
Net cash provided by financing activities	56,469	13,766
Effect of exchange rate changes on cash and due from banks and deposits with banks	86	(1,492)
Net decrease in cash and due from banks and deposits with banks	(10,755)	(26,124)
Cash and due from banks and deposits with banks at the beginning of the period	278,793	431,304
Cash and due from banks and deposits with banks at the end of the period	\$ 268,038	\$ 405,180
Cash interest paid	\$ 13,794	\$ 9,151
Cash income taxes paid, net	2,892	3,906

The Notes to Consolidated Financial Statements (unaudited) are an integral part of these statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (unaudited)

Note 1 – Basis of presentation

JPMorgan Chase & Co. (“JPMorgan Chase” or “the Firm”), a financial holding company incorporated under Delaware law in 1968, is a leading global financial services firm and one of the largest banking institutions in the U.S., with operations worldwide. The Firm is a leader in investment banking, financial services for consumers and small businesses, commercial banking, financial transaction processing and asset management. For a further discussion of the Firm’s business segments, refer to Note 25.

The accounting and financial reporting policies of JPMorgan Chase and its subsidiaries conform to U.S. GAAP. Additionally, where applicable, the policies conform to the accounting and reporting guidelines prescribed by regulatory authorities.

The unaudited Consolidated Financial Statements prepared in conformity with U.S. GAAP require management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue and expense, and the disclosures of contingent assets and liabilities. Actual results could be different from these estimates. In the opinion of management, all normal, recurring adjustments have been included such that this interim financial information is fairly presented.

These unaudited Consolidated Financial Statements should be read in conjunction with the audited Consolidated Financial Statements, and related notes thereto, included in JPMorgan Chase’s 2018 Form 10-K.

Certain amounts reported in prior periods have been reclassified to conform with the current presentation.

Consolidation

The Consolidated Financial Statements include the accounts of JPMorgan Chase and other entities in which the Firm has a controlling financial interest. All material intercompany balances and transactions have been eliminated.

Assets held for clients in an agency or fiduciary capacity by the Firm are not assets of JPMorgan Chase and are not included on the Consolidated balance sheets.

The Firm determines whether it has a controlling financial interest in an entity by first evaluating whether the entity is a voting interest entity or a variable interest entity.

For a further description of JPMorgan Chase’s accounting policies regarding consolidation, refer to Notes 1 and 14 of JPMorgan Chase’s 2018 Form 10-K.

Offsetting assets and liabilities

U.S. GAAP permits entities to present derivative receivables and derivative payables with the same counterparty and the related cash collateral receivables and payables on a net

basis on the Consolidated balance sheets when a legally enforceable master netting agreement exists. U.S. GAAP also permits securities financing activities to be presented on a net basis when specified conditions are met, including the existence of a legally enforceable master netting agreement. The Firm has elected to net such balances when the specified conditions are met. For further information on offsetting assets and liabilities, refer to Note 1 of JPMorgan Chase’s 2018 Form 10-K.

Income tax expense

The Firm’s effective tax rate was 14.9% and 16.6% in the three and six months ended June 30, 2019, respectively, and 21.3% and 19.8% in the respective 2018 periods. The effective tax rate reflects the recognition of tax benefits related to the resolution of certain tax audits of \$768 million and \$874 million, in the three and six months ended June 30, 2019, respectively, which reduced the Firm’s effective tax rate by 6.8% and 3.9% respectively. For further information, refer to Note 24 of JPMorgan Chase’s 2018 Form 10-K.

Note 2 – Fair value measurement

For a discussion of the Firm’s valuation methodologies for assets, liabilities and lending-related commitments measured at fair value and the fair value hierarchy, refer to Note 2 of JPMorgan Chase’s 2018 Form 10-K.

The following table presents the assets and liabilities reported at fair value as of June 30, 2019, and December 31, 2018, by major product category and fair value hierarchy.

Assets and liabilities measured at fair value on a recurring basis

June 30, 2019 (in millions)	Fair value hierarchy			Derivative netting adjustments ^(f)	Total fair value
	Level 1	Level 2	Level 3		
Federal funds sold and securities purchased under resale agreements	\$ —	\$ 13,982	\$ —	\$ —	\$ 13,982
Securities borrowed	—	5,685	—	—	5,685
Trading assets:					
Debt instruments:					
Mortgage-backed securities:					
U.S. government agencies ^(a)	—	104,186	617	—	104,803
Residential - nonagency	—	2,102	42	—	2,144
Commercial - nonagency	—	1,708	9	—	1,717
Total mortgage-backed securities	—	107,996	668	—	108,664
U.S. Treasury and government agencies ^(a)	88,502	9,712	—	—	98,214
Obligations of U.S. states and municipalities	—	6,628	680	—	7,308
Certificates of deposit, bankers' acceptances and commercial paper	—	1,492	—	—	1,492
Non-U.S. government debt securities	34,840	31,353	190	—	66,383
Corporate debt securities	—	22,140	562	—	22,702
Loans ^(b)	—	42,180	1,778	—	43,958
Asset-backed securities	—	2,643	33	—	2,676
Total debt instruments	123,342	224,144	3,911	—	351,397
Equity securities	98,234	456	147	—	98,837
Physical commodities ^(c)	3,692	3,339	—	—	7,031
Other	—	12,874	311	—	13,185
Total debt and equity instruments^(d)	225,268	240,813	4,369	—	470,450
Derivative receivables:					
Interest rate	1,529	331,329	1,698	(308,068)	26,488
Credit	—	14,971	694	(15,032)	633
Foreign exchange	2,170	141,248	682	(133,437)	10,663
Equity	—	41,997	2,933	(35,725)	9,205
Commodity	—	16,663	208	(10,982)	5,889
Total derivative receivables	3,699	546,208	6,215	(503,244)	52,878
Total trading assets^(e)	228,967	787,021	10,584	(503,244)	523,328
Available-for-sale securities:					
Mortgage-backed securities:					
U.S. government agencies ^(a)	—	96,616	—	—	96,616
Residential - nonagency	—	12,740	—	—	12,740
Commercial - nonagency	—	5,989	—	—	5,989
Total mortgage-backed securities	—	115,345	—	—	115,345
U.S. Treasury and government agencies	73,990	—	—	—	73,990
Obligations of U.S. states and municipalities	—	31,901	—	—	31,901
Certificates of deposit	—	74	—	—	74
Non-U.S. government debt securities	14,869	7,623	—	—	22,492
Corporate debt securities	—	1,778	—	—	1,778
Asset-backed securities:					
Collateralized loan obligations	—	24,781	—	—	24,781
Other	—	5,996	—	—	5,996
Total available-for-sale securities	88,859	187,498	—	—	276,357
Loans	—	4,304	5	—	4,309
Mortgage servicing rights	—	—	5,093	—	5,093
Other assets ^(e)	7,784	198	861	—	8,843
Total assets measured at fair value on a recurring basis	\$ 325,610	\$ 998,688	\$ 16,543	\$ (503,244)	\$ 837,597
Deposits	\$ —	\$ 28,858	\$ 4,066	\$ —	\$ 32,924
Federal funds purchased and securities loaned or sold under repurchase agreements	—	981	—	—	981
Short-term borrowings	—	5,684	2,052	—	7,736
Trading liabilities:					
Debt and equity instruments ^(d)	84,236	21,879	45	—	106,160
Derivative payables:					
Interest rate	2,090	296,717	2,242	(292,166)	8,883
Credit	—	16,305	926	(14,975)	2,256
Foreign exchange	2,438	144,304	875	(136,491)	11,126
Equity	—	42,205	5,493	(36,521)	11,177
Commodity	—	18,238	1,116	(11,317)	8,037
Total derivative payables	4,528	517,769	10,652	(491,470)	41,479
Total trading liabilities	88,764	539,648	10,697	(491,470)	147,639
Accounts payable and other liabilities	2,583	198	92	—	2,873
Beneficial interests issued by consolidated VIEs	—	—	—	—	—
Long-term debt	—	45,965	21,863	—	67,828
Total liabilities measured at fair value on a recurring basis	\$ 91,347	\$ 621,334	\$ 38,770	\$ (491,470)	\$ 259,981

December 31, 2018 (in millions)	Fair value hierarchy			Derivative netting adjustments ^(f)	Total fair value
	Level 1	Level 2	Level 3		
Federal funds sold and securities purchased under resale agreements	\$ —	\$ 13,235	\$ —	\$ —	\$ 13,235
Securities borrowed	—	5,105	—	—	5,105
Trading assets:					
Debt instruments:					
Mortgage-backed securities:					
U.S. government agencies ^(a)	—	76,249	549	—	76,798
Residential - nonagency	—	1,798	64	—	1,862
Commercial - nonagency	—	1,501	11	—	1,512
Total mortgage-backed securities	—	79,548	624	—	80,172
U.S. Treasury and government agencies ^(a)	51,477	7,702	—	—	59,179
Obligations of U.S. states and municipalities	—	7,121	689	—	7,810
Certificates of deposit, bankers' acceptances and commercial paper	—	1,214	—	—	1,214
Non-U.S. government debt securities	27,878	27,056	155	—	55,089
Corporate debt securities	—	18,655	334	—	18,989
Loans ^(b)	—	40,047	1,706	—	41,753
Asset-backed securities	—	2,756	127	—	2,883
Total debt instruments	79,355	184,099	3,635	—	267,089
Equity securities	71,119	482	232	—	71,833
Physical commodities ^(c)	5,182	1,855	—	—	7,037
Other	—	13,192	301	—	13,493
Total debt and equity instruments^(d)	155,656	199,628	4,168	—	359,452
Derivative receivables:					
Interest rate	682	266,380	1,642	(245,490)	23,214
Credit	—	19,235	860	(19,483)	612
Foreign exchange	771	166,238	676	(154,235)	13,450
Equity	—	46,777	2,508	(39,339)	9,946
Commodity	—	20,339	131	(13,479)	6,991
Total derivative receivables	1,453	518,969	5,817	(472,026)	54,213
Total trading assets^(e)	157,109	718,597	9,985	(472,026)	413,665
Available-for-sale securities:					
Mortgage-backed securities:					
U.S. government agencies ^(a)	—	68,646	—	—	68,646
Residential - nonagency	—	8,519	1	—	8,520
Commercial - nonagency	—	6,654	—	—	6,654
Total mortgage-backed securities	—	83,819	1	—	83,820
U.S. Treasury and government agencies	56,059	—	—	—	56,059
Obligations of U.S. states and municipalities	—	37,723	—	—	37,723
Certificates of deposit	—	75	—	—	75
Non-U.S. government debt securities	15,313	8,789	—	—	24,102
Corporate debt securities	—	1,918	—	—	1,918
Asset-backed securities:					
Collateralized loan obligations	—	19,437	—	—	19,437
Other	—	7,260	—	—	7,260
Total available-for-sale securities	71,372	159,021	1	—	230,394
Loans	—	3,029	122	—	3,151
Mortgage servicing rights	—	—	6,130	—	6,130
Other assets ^(e)	7,810	195	927	—	8,932
Total assets measured at fair value on a recurring basis	\$ 236,291	\$ 899,182	\$ 17,165	\$ (472,026)	\$ 680,612
Deposits	\$ —	\$ 19,048	\$ 4,169	\$ —	\$ 23,217
Federal funds purchased and securities loaned or sold under repurchase agreements	—	935	—	—	935
Short-term borrowings	—	5,607	1,523	—	7,130
Trading liabilities:					
Debt and equity instruments ^(d)	80,199	22,755	50	—	103,004
Derivative payables:					
Interest rate	1,526	239,576	1,680	(234,998)	7,784
Credit	—	19,309	967	(18,609)	1,667
Foreign exchange	695	163,549	973	(152,432)	12,785
Equity	—	46,462	4,733	(41,034)	10,161
Commodity	—	21,158	1,260	(13,046)	9,372
Total derivative payables	2,221	490,054	9,613	(460,119)	41,769
Total trading liabilities	82,420	512,809	9,663	(460,119)	144,773
Accounts payable and other liabilities	3,063	196	10	—	3,269
Beneficial interests issued by consolidated VIEs	—	27	1	—	28
Long-term debt	—	35,468	19,418	—	54,886
Total liabilities measured at fair value on a recurring basis	\$ 85,483	\$ 574,090	\$ 34,784	\$ (460,119)	\$ 234,238

- (a) At June 30, 2019, and December 31, 2018, included total U.S. government-sponsored enterprise obligations of \$153.6 billion and \$92.3 billion, respectively, which were predominantly mortgage-related.
- (b) At June 30, 2019, and December 31, 2018, included within trading loans were \$16.6 billion and \$13.2 billion, respectively, of residential first-lien mortgages, and \$2.8 billion and \$2.3 billion, respectively, of commercial first-lien mortgages. Residential mortgage loans include conforming mortgage loans originated with the intent to sell to U.S. government agencies of \$9.9 billion and \$7.6 billion, respectively.
- (c) Physical commodities inventories are generally accounted for at the lower of cost or net realizable value. "Net realizable value" is a term defined in U.S. GAAP as not exceeding fair value less costs to sell ("transaction costs"). Transaction costs for the Firm's physical commodities inventories are either not applicable or immaterial to the value of the inventory. Therefore, net realizable value approximates fair value for the Firm's physical commodities.

inventories. When fair value hedging has been applied (or when net realizable value is below cost), the carrying value of physical commodities approximates fair value, because under fair value hedge accounting, the cost basis is adjusted for changes in fair value. For a further discussion of the Firm's hedge accounting relationships, refer to Note 4. To provide consistent fair value disclosure information, all physical commodities inventories have been included in each period presented.

- (d) Balances reflect the reduction of securities owned (long positions) by the amount of identical securities sold but not yet purchased (short positions).
- (e) Certain investments that are measured at fair value using the net asset value per share (or its equivalent) as a practical expedient are not required to be classified in the fair value hierarchy. At June 30, 2019, and December 31, 2018, the fair values of these investments, which include certain hedge funds, private equity funds, real estate and other funds, were \$746 million and \$747 million, respectively. Included in these balances at June 30, 2019, and December 31, 2018, were trading assets of \$45 million and \$49 million, respectively, and other assets of \$701 million and \$698 million, respectively.
- (f) As permitted under U.S. GAAP, the Firm has elected to net derivative receivables and derivative payables and the related cash collateral received and paid when a legally enforceable master netting agreement exists. The level 3 balances would be reduced if netting were applied, including the netting benefit associated with cash collateral.

Level 3 valuations

For further information on the Firm's valuation process and a detailed discussion of the determination of fair value for individual financial instruments, refer to Note 2 of JPMorgan Chase's 2018 Form 10-K.

The following table presents the Firm's primary level 3 financial instruments, the valuation techniques used to measure the fair value of those financial instruments, the significant unobservable inputs, the range of values for those inputs and, for certain instruments, the weighted averages of such inputs. While the determination to classify an instrument within level 3 is based on the significance of the unobservable inputs to the overall fair value measurement, level 3 financial instruments typically include observable components (that is, components that are actively quoted and can be validated to external sources) in addition to the unobservable components. The level 1 and/or level 2 inputs are not included in the table. In addition, the Firm manages the risk of the observable components of level 3 financial instruments using securities and derivative positions that are classified within levels 1 or 2 of the fair value hierarchy.

The range of values presented in the table is representative of the highest and lowest level input used to value the significant groups of instruments within a product/instrument classification. Where provided, the weighted averages of the input values presented in the table are calculated based on the fair value of the instruments that the input is being used to value.

In the Firm's view, the input range and the weighted average value do not reflect the degree of input uncertainty or an assessment of the reasonableness of the Firm's estimates and assumptions. Rather, they reflect the characteristics of the various instruments held by the Firm and the relative distribution of instruments within the range of characteristics. For example, two option contracts may have

similar levels of market risk exposure and valuation uncertainty, but may have significantly different implied volatility levels because the option contracts have different underlyings, tenors, or strike prices. The input range and weighted average values will therefore vary from period-to-period and parameter-to-parameter based on the characteristics of the instruments held by the Firm at each balance sheet date.

For the Firm's derivatives and structured notes positions classified within level 3 at June 30, 2019, interest rate correlation inputs used in estimating fair value were concentrated towards the upper end of the range; equity correlation, equity-FX, and equity-IR correlation inputs were concentrated in the middle of the range; commodity correlation inputs were concentrated in the middle of the range; credit correlation inputs were concentrated towards the lower end of the range; and the interest rate-foreign exchange ("IR-FX") correlation inputs were distributed across the range. In addition, the interest rate spread volatility inputs used in estimating fair value were distributed across the range; equity volatilities and commodity volatilities were concentrated towards the lower end of the range; and forward commodity prices used in estimating the fair value of commodity derivatives were concentrated in the middle of the range. Prepayment speed inputs used in estimating the fair value of interest rate derivatives were concentrated towards the lower end of the range. Recovery rate inputs used in estimating the fair value of credit derivatives were distributed across the range; credit spreads and conditional default rates were concentrated towards the lower end of the range; loss severity inputs were concentrated towards the upper end of the range and price inputs were concentrated towards the lower end of the range.

Level 3 inputs^(a)

June 30, 2019

Product/Instrument	Fair value (in millions)	Principal valuation technique	Unobservable inputs ^(g)	Range of input values	Weighted average
Residential mortgage-backed securities and loans ^(b)	\$ 942	Discounted cash flows	Yield	0% - 15%	6%
			Prepayment speed	0% - 26%	13%
			Conditional default rate	0% - 5%	1%
			Loss severity	0% - 70%	1%
Commercial mortgage-backed securities and loans ^(c)	218	Market comparables	Price	\$ 0 - \$ 110	\$ 85
Obligations of U.S. states and municipalities	680	Market comparables	Price	\$ 66 - \$ 100	\$ 97
Corporate debt securities	562	Market comparables	Price	\$ 0 - \$ 109	\$ 83
Loans ^(d)	212	Discounted cash flows	Yield	5% - 18%	7%
	1,079	Market comparables	Price	\$ 2 - \$ 102	\$ 80
Asset-backed securities	33	Market comparables	Price	\$ 1 - \$ 100	\$ 38
Net interest rate derivatives	(616)	Option pricing	Interest rate spread volatility	20 bps - 30 bps	
			Interest rate correlation	(28)% - 96%	
			IR-FX correlation	45% - 60%	
	72	Discounted cash flows	Prepayment speed	4% - 30%	
Net credit derivatives	(265)	Discounted cash flows	Credit correlation	35% - 60%	
			Credit spread	6 bps - 1,402 bps	
			Recovery rate	20% - 70%	
			Conditional default rate	2% - 91%	
			Loss severity	100%	
	33	Market comparables	Price	\$ 1 - \$ 115	
Net foreign exchange derivatives	(23)	Option pricing	IR-FX correlation	(45)% - 60%	
	(170)	Discounted cash flows	Prepayment speed	9%	
Net equity derivatives	(2,560)	Option pricing	Equity volatility	14% - 60%	
			Equity correlation	25% - 98%	
			Equity-FX correlation	(75)% - 59%	
			Equity-IR correlation	20% - 60%	
Net commodity derivatives	(908)	Option pricing	Forward commodity price	\$ 49 - \$ 70 per barrel	
			Commodity volatility	5% - 65%	
			Commodity correlation	(48)% - 95%	
MSRs	5,093	Discounted cash flows	Refer to Note 14		
Other assets	358	Discounted cash flows	Credit spread	45 bps	45 bps
			Yield	8% - 12%	12%
	814	Market comparables	Price	\$ 19 - \$ 113	\$ 34
Long-term debt, short-term borrowings, and deposits ^(e)	27,981	Option pricing	Interest rate spread volatility	20 bps - 30 bps	
			Interest rate correlation	(28)% - 96%	
			IR-FX correlation	(45)% - 60%	
			Equity correlation	25% - 98%	
			Equity-FX correlation	(75)% - 59%	
			Equity-IR correlation	20% - 60%	
Other level 3 assets and liabilities, net ^(f)	200				

(a) The categories presented in the table have been aggregated based upon the product type, which may differ from their classification on the Consolidated balance sheets. Furthermore, the inputs presented for each valuation technique in the table are, in some cases, not applicable to every instrument valued using the technique as the characteristics of the instruments can differ.

(b) Comprises U.S. government agency securities of \$617 million, nonagency securities of \$42 million and trading loans of \$283 million.

(c) Comprises nonagency securities of \$9 million, trading loans of \$204 million and non-trading loans of \$5 million.

(d) Comprises trading loans.

(e) Long-term debt, short-term borrowings and deposits include structured notes issued by the Firm that are financial instruments that typically contain embedded derivatives. The estimation of the fair value of structured notes includes the derivative features embedded within the instrument. The significant unobservable inputs are broadly consistent with those presented for derivative receivables.

(f) Includes level 3 assets and liabilities that are insignificant both individually and in aggregate.

(g) Price is a significant unobservable input for certain instruments. When quoted market prices are not readily available, reliance is generally placed on price-based internal valuation techniques. The price input is expressed assuming a par value of \$100.

Changes in and ranges of unobservable inputs

For a discussion of the impact on fair value of changes in unobservable inputs and the relationships between unobservable inputs as well as a description of attributes of the underlying instruments and external market factors that affect the range of inputs used in the valuation of the Firm's positions refer to Note 2 of JPMorgan Chase's 2018 Form 10-K.

Changes in level 3 recurring fair value measurements

The following tables include a rollforward of the Consolidated balance sheets amounts (including changes in fair value) for financial instruments classified by the Firm within level 3 of the fair value hierarchy for the three and six months ended June 30, 2019 and 2018. When a determination is made to classify a financial instrument within level 3, the determination is based on the significance of the unobservable inputs to the overall fair

value measurement. However, level 3 financial instruments typically include, in addition to the unobservable or level 3 components, observable components (that is, components that are actively quoted and can be validated to external sources); accordingly, the gains and losses in the table below include changes in fair value due in part to observable factors that are part of the valuation methodology. Also, the Firm risk-manages the observable components of level 3 financial instruments using securities and derivative positions that are classified within level 1 or 2 of the fair value hierarchy; as these level 1 and level 2 risk management instruments are not included below, the gains or losses in the following tables do not reflect the effect of the Firm's risk management activities related to such level 3 instruments.

Fair value measurements using significant unobservable inputs											Change in unrealized gains/ (losses) related to financial instruments held at June 30, 2019
Three months ended June 30, 2019 (in millions)	Fair value at April 1, 2019	Total realized/ unrealized gains/ (losses)	Purchases ^(f)	Sales	Settlements ^(g)	Transfers into level 3 ^(h)	Transfers (out of) level 3 ^(h)	Fair value at June 30, 2019			
Assets:^(a)											
Trading assets:											
Debt instruments:											
Mortgage-backed securities:											
U.S. government agencies	\$ 412	\$ (25)	\$ 318	\$ (68)	\$ (20)	\$ —	\$ —	\$ 617	\$ (24)		
Residential - nonagency	85	1	11	(14)	(19)	—	(22)	42	—		
Commercial - nonagency	17	—	4	—	(12)	—	—	9	(1)		
Total mortgage-backed securities	514	(24)	333	(82)	(51)	—	(22)	668	(25)		
U.S. Treasury and government agencies	—	—	—	—	—	—	—	—	—		
Obligations of U.S. states and municipalities	623	1	57	(1)	—	—	—	680	—		
Non-U.S. government debt securities	170	—	117	(103)	—	9	(3)	190	—		
Corporate debt securities	568	7	61	(62)	(53)	51	(10)	562	22		
Loans	1,741	56	385	(216)	(156)	139	(171)	1,778	68		
Asset-backed securities	119	2	2	(58)	(30)	—	(2)	33	2		
Total debt instruments	3,735	42	955	(522)	(290)	199	(208)	3,911	67		
Equity securities	202	(12)	8	(3)	—	21	(69)	147	(12)		
Other	304	20	3	—	(15)	—	(1)	311	35		
Total trading assets - debt and equity instruments	4,241	50^(c)	966	(525)	(305)	220	(278)	4,369	90^(c)		
Net derivative receivables: ^(b)											
Interest rate	(147)	(341)	28	(60)	(57)	(6)	39	(544)	(459)		
Credit	(115)	(127)	13	(1)	4	1	(7)	(232)	(139)		
Foreign exchange	(356)	58	10	(8)	114	(17)	6	(193)	82		
Equity	(2,066)	(21)	34	(158)	(284)	(148)	83	(2,560)	(91)		
Commodity	(665)	(171)	7	(83)	21	(17)	—	(908)	(151)		
Total net derivative receivables	(3,349)	(602)^(c)	92	(310)	(202)	(187)	121	(4,437)	(758)^(c)		
Available-for-sale securities:											
Mortgage-backed securities	—	—	—	—	—	—	—	—	—		
Asset-backed securities	—	—	—	—	—	—	—	—	—		
Total available-for-sale securities	—	—	—	—	—	—	—	—	—		
Loans	123	1 ^(c)	—	—	(119)	—	—	5	— ^(c)		
Mortgage servicing rights	5,957	(826) ^(d)	426	(217)	(247)	—	—	5,093	(826) ^(d)		
Other assets	841	(89) ^(c)	142	(8)	(26)	1	—	861	(92) ^(c)		
Fair value measurements using significant unobservable inputs											
Three months ended June 30, 2019 (in millions)	Fair value at April 1, 2019	Total realized/ unrealized (gains)/ losses	Purchases	Sales	Issuances	Settlements ^(g)	Transfers into level 3 ^(h)	Transfers (out of) level 3 ^(h)	Fair value at June 30, 2019	Change in unrealized (gains)/ losses related to financial instruments held at June 30, 2019	
Liabilities:^(a)											
Deposits	\$ 4,528	\$ 89 ^{(c)(e)}	\$ —	\$ —	\$ 92	\$ (292)	\$ —	\$ (351)	\$ 4,066	\$ 104 ^{(c)(e)}	
Short-term borrowings	1,502	72 ^{(c)(e)}	—	—	1,037	(624)	67	(2)	2,052	28 ^{(c)(e)}	
Trading liabilities - debt and equity instruments	52	—	(5)	5	—	—	4	(11)	45	—	
Accounts payable and other liabilities	15	(1) ^(c)	(3)	80	—	—	1	—	92	(1) ^(c)	
Beneficial interests issued by consolidated VIEs	—	—	—	—	—	—	—	—	—	—	
Long-term debt	21,655	455 ^{(c)(e)}	—	—	2,648	(2,729)	200	(366)	21,863	621 ^{(c)(e)}	

Three months ended June 30, 2018 (in millions)	Fair value measurements using significant unobservable inputs								Fair value at June 30, 2018	Change in unrealized gains/ (losses) related to financial instruments held at June 30, 2018
	Fair value at April 1, 2018	Total realized/ unrealized gains/ (losses)	Purchases ^(f)	Sales	Settlements ^(g)	Transfers into level 3 ^(h)	Transfers (out of) level 3 ^(h)			
Assets: ^(a)										
Trading assets:										
Debt instruments:										
Mortgage-backed securities:										
U.S. government agencies	\$ 508	\$ —	\$ 5	\$ (11)	\$ (19)	\$ 5	\$ (10)	\$ 478	\$ —	
Residential - nonagency	55	2	45	(11)	(1)	11	(14)	87	1	
Commercial - nonagency	14	2	1	(1)	(12)	17	(3)	18	1	
Total mortgage-backed securities	577	4	51	(23)	(32)	33	(27)	583	2	
U.S. Treasury and government agencies	—	—	—	—	—	—	—	—	—	
Obligations of U.S. states and municipalities	704	(9)	42	—	(1)	—	—	736	(9)	
Non-U.S. government debt securities	197	(12)	126	(92)	—	—	(36)	183	(12)	
Corporate debt securities	306	(3)	60	(40)	(10)	36	(75)	274	4	
Loans	2,368	(21)	565	(806)	(192)	251	(179)	1,986	(30)	
Asset-backed securities	63	4	45	(9)	(6)	2	(12)	87	4	
Total debt instruments	4,215	(37)	889	(970)	(241)	322	(329)	3,849	(41)	
Equity securities	300	(13)	65	(50)	(1)	—	(13)	288	(8)	
Other	698	(254)	16	(34)	(18)	—	(2)	406	(259)	
Total trading assets - debt and equity instruments	5,213	(304) ^(c)	970	(1,054)	(260)	322	(344)	4,543	(308) ^(c)	
Net derivative receivables: ^(b)										
Interest rate	472	287	38	(51)	(179)	(54)	(24)	489	254	
Credit	5	21	1	(5)	(29)	(4)	(13)	(24)	9	
Foreign exchange	(288)	94	13	(3)	(8)	(74)	21	(245)	95	
Equity	(2,512)	143	606	(1,042)	(13)	38	202	(2,578)	(24)	
Commodity	(519)	(35)	—	—	(186)	(9)	(3)	(752)	(65)	
Total net derivative receivables	(2,842)	510 ^(c)	658	(1,101)	(415)	(103)	183	(3,110)	269 ^(c)	
Available-for-sale securities:										
Mortgage-backed securities	1	—	—	—	—	—	—	1	—	
Asset-backed securities	204	—	—	—	(57)	—	—	147	—	
Total available-for-sale securities	205	—	—	—	(57)	—	—	148	—	
Loans	396	(9) ^(c)	—	—	(154)	—	(74)	159	(9) ^(c)	
Mortgage servicing rights	6,202	94 ^(d)	236	(104)	(187)	—	—	6,241	94 ^(d)	
Other assets	1,220	(13) ^(c)	24	(2)	(5)	1	—	1,225	(17) ^(c)	
Fair value measurements using significant unobservable inputs										
Three months ended June 30, 2018 (in millions)	Fair value measurements using significant unobservable inputs								Fair value at June 30, 2018	Change in unrealized (gains)/losses related to financial instruments held at June 30, 2018
	Fair value at April 1, 2018	Total realized/ unrealized (gains)/ losses	Purchases	Sales	Issuances	Settlements ^(g)	Transfers into level 3 ^(h)	Transfers (out of) level 3 ^(h)		
Liabilities: ^(a)										
Deposits	\$ 4,017	\$ 49 ^{(c)(e)}	\$ —	\$ —	\$ 434	\$ (57)	\$ 1	\$ (139)	\$ 4,305	\$ 50 ^{(c)(e)}
Short-term borrowings	2,125	(197) ^{(c)(e)}	—	—	862	(614)	43	(10)	2,209	(27) ^{(c)(e)}
Trading liabilities - debt and equity instruments	50	(11) ^(c)	(25)	33	—	—	—	(4)	43	(4) ^(c)
Accounts payable and other liabilities	7	(1) ^(c)	—	1	—	—	1	—	8	(1) ^(c)
Beneficial interests issued by consolidated VIEs	1	—	—	—	—	—	—	—	1	—
Long-term debt	16,950	(344) ^{(c)(e)}	—	—	3,150 ⁽ⁱ⁾	(2,123) ⁽ⁱ⁾	219	(220)	17,632 ⁽ⁱ⁾	(427) ^{(c)(e)}

	Fair value measurements using significant unobservable inputs								
Six months ended June 30, 2019 (in millions)	Fair value at January 1, 2019	Total realized/ unrealized gains/ (losses)	Purchases ^(f)	Sales	Settlements ^(g)	Transfers into level 3 ^(h)	Transfers (out of) level 3 ^(h)	Fair value at June 30, 2019	Change in unrealized gains/ (losses) related to financial instruments held at June 30, 2019
Assets:^(a)									
Trading assets:									
Debt instruments:									
Mortgage-backed securities:									
U.S. government agencies	\$ 549	\$ (40)	\$ 323	\$ (168)	\$ (38)	\$ 1	\$ (10)	\$ 617	\$ (37)
Residential - nonagency	64	25	81	(83)	(20)	15	(40)	42	—
Commercial - nonagency	11	2	16	(19)	(14)	15	(2)	9	—
Total mortgage-backed securities	624	(13)	420	(270)	(72)	31	(52)	668	(37)
U.S. Treasury and government agencies	—	—	—	—	—	—	—	—	—
Obligations of U.S. states and municipalities	689	14	58	(75)	(6)	—	—	680	15
Non-U.S. government debt securities	155	(1)	188	(157)	—	11	(6)	190	2
Corporate debt securities	334	29	284	(69)	(53)	79	(42)	562	35
Loans	1,706	139	457	(334)	(276)	298	(212)	1,778	128
Asset-backed securities	127	—	19	(79)	(37)	20	(17)	33	—
Total debt instruments	3,635	168	1,426	(984)	(444)	439	(329)	3,911	143
Equity securities	232	(14)	23	(82)	(22)	96	(86)	147	(11)
Other	301	24	15	(1)	(26)	1	(3)	311	45
Total trading assets - debt and equity instruments	4,168	178^(c)	1,464	(1,067)	(492)	536	(418)	4,369	177^(c)
Net derivative receivables: ^(b)									
Interest rate	(38)	(663)	47	(207)	241	12	64	(544)	(725)
Credit	(107)	(144)	13	(2)	10	4	(6)	(232)	(155)
Foreign exchange	(297)	(187)	11	(17)	295	(25)	27	(193)	(144)
Equity	(2,225)	710	161	(455)	(685)	(215)	149	(2,560)	(134)
Commodity	(1,129)	362	10	(171)	45	(16)	(9)	(908)	485
Total net derivative receivables	(3,796)	78^(c)	242	(852)	(94)	(240)	225	(4,437)	(673)^(c)
Available-for-sale securities:									
Mortgage-backed securities	1	—	—	—	(1)	—	—	—	—
Asset-backed securities	—	—	—	—	—	—	—	—	—
Total available-for-sale securities	1	—	—	—	(1)	—	—	—	—
Loans	122	4 ^(c)	—	—	(121)	—	—	5	5 ^(c)
Mortgage servicing rights	6,130	(1,125) ^(d)	862	(328)	(446)	—	—	5,093	(1,125) ^(d)
Other assets	927	(96) ^(c)	151	(88)	(27)	1	(7)	861	(98) ^(c)

Six months ended June 30, 2019 (in millions)	Fair value measurements using significant unobservable inputs								Fair value at June 30, 2019	Change in unrealized (gains)/ losses related to financial instruments held at June 30, 2019
	Fair value at January 1, 2019	Total realized/ unrealized (gains)/ losses	Purchases	Sales	Issuances	Settlements ^(g)	Transfers into level 3 ^(h)	Transfers (out of) level 3 ^(h)		
Liabilities:^(a)										
Deposits	\$ 4,169	\$ 241 ^{(c)(e)}	\$ —	\$ —	\$ 427	\$ (316)	\$ —	\$ (455)	\$ 4,066	\$ 246 ^{(c)(e)}
Short-term borrowings	1,523	118 ^{(c)(e)}	—	—	1,688	(1,225)	68	(120)	2,052	115 ^{(c)(e)}
Trading liabilities - debt and equity instruments	50	—	(7)	16	—	—	7	(21)	45	1 ^(c)
Accounts payable and other liabilities	10	(1) ^(c)	(8)	90	—	—	1	—	92	(1) ^(c)
Beneficial interests issued by consolidated VIEs	1	(1) ^(c)	—	—	—	—	—	—	—	—
Long-term debt	19,418	1,728 ^{(c)(e)}	—	—	4,699	(3,917)	473	(538)	21,863	2,039 ^{(c)(e)}

Fair value measurements using significant unobservable inputs											
Six months ended June 30, 2018 (in millions)	Fair value at January 1, 2018	Total realized/ unrealized gains/ (losses)	Purchases ^(f)	Sales	Issuances	Settlements ^(g)	Transfers into level 3 ^(h)	Transfers (out of) level 3 ^(h)	Fair value at June 30, 2018	Change in unrealized gains/ (losses) related to financial instruments held at June 30, 2018	
Assets:^(a)											
Trading assets:											
Debt instruments:											
Mortgage-backed securities:											
U.S. government agencies	\$ 307	\$ 3	\$ 334	\$ (98)		\$ (39)	\$ 9	\$ (38)	\$ 478	\$ 1	
Residential - nonagency	60	—	45	(13)		(3)	40	(42)	87	1	
Commercial - nonagency	11	3	7	(8)		(13)	21	(3)	18	(2)	
Total mortgage-backed securities	378	6	386	(119)		(55)	70	(83)	583	—	
U.S. Treasury and government agencies	1	—	—	—		—	—	(1)	—	—	
Obligations of U.S. states and municipalities	744	(11)	81	—		(78)	—	—	736	(11)	
Non-U.S. government debt securities	78	(10)	351	(184)		—	17	(69)	183	(9)	
Corporate debt securities	312	(4)	141	(140)		(11)	167	(191)	274	3	
Loans	2,719	41	1,035	(1,534)		(329)	374	(320)	1,986	(24)	
Asset-backed securities	153	9	59	(22)		(40)	13	(85)	87	5	
Total debt instruments	4,385	31	2,053	(1,999)		(513)	641	(749)	3,849	(36)	
Equity securities	295	(21)	93	(60)		(1)	4	(22)	288	(8)	
Other	690	(239)	34	(40)		(38)	1	(2)	406	(251)	
Total trading assets - debt and equity instruments	5,370	(229) ^(c)	2,180	(2,099)		(552)	646	(773)	4,543	(295) ^(c)	
Net derivative receivables: ^(b)											
Interest rate	264	340	55	(55)		(133)	(28)	46	489	314	
Credit	(35)	38	2	(7)		(25)	(1)	4	(24)	11	
Foreign exchange	(396)	240	13	(8)		3	(112)	15	(245)	190	
Equity	(3,409)	782	824	(1,284)		421	(73)	161	(2,578)	514	
Commodity	(674)	150	—	—		(174)	(8)	(46)	(752)	154	
Total net derivative receivables	(4,250)	1,550 ^(c)	894	(1,354)		92	(222)	180	(3,110)	1,183 ^(c)	
Available-for-sale securities:											
Mortgage-backed securities	1	—	—	—		—	—	—	1	—	
Asset-backed securities	276	1	—	—		(130)	—	—	147	1	
Total available-for-sale securities	277	1 ⁽ⁱ⁾	—	—		(130)	—	—	148	1 ^(d)	
Loans	276	(4) ^(c)	122	—		(161)	—	(74)	159	(5) ^(c)	
Mortgage servicing rights	6,030	478 ^(d)	479	(399)		(347)	—	—	6,241	478 ^(d)	
Other assets	1,265	(50) ^(c)	47	(16)		(21)	1	(1)	1,225	(52) ^(c)	
Fair value measurements using significant unobservable inputs											
Six months ended June 30, 2018 (in millions)	Fair value at January 1, 2018	Total realized/ unrealized (gains)/ losses	Purchases	Sales	Issuances	Settlements ^(g)	Transfers into level 3 ^(h)	Transfers (out of) level 3 ^(h)	Fair value at June 30, 2018	Change in unrealized (gains)/losses related to financial instruments held at June 30, 2018	
Liabilities:^(a)											
Deposits	\$ 4,142	\$ (41) ^{(c)(e)}	\$ —	\$ —	\$ 755	\$ (255)	\$ 1	\$ (297)	\$ 4,305	\$ (86) ^{(c)(e)}	
Short-term borrowings	1,665	(182) ^{(c)(e)}	—	—	2,070	(1,360)	55	(39)	2,209	(31) ^{(c)(e)}	
Trading liabilities - debt and equity instruments	39	(8) ^(c)	(62)	76	—	1	2	(5)	43	(1) ^(c)	
Accounts payable and other liabilities	13	(1) ^(c)	(6)	1	—	—	1	—	8	(1) ^(c)	
Beneficial interests issued by consolidated VIEs	39	—	—	—	—	(38)	—	—	1	—	
Long-term debt	16,125	(590) ^{(c)(e)}	—	—	6,241 ⁽ⁱ⁾	(4,386) ⁽ⁱ⁾	594	(352)	17,632 ⁽ⁱ⁾	(706) ^{(c)(e)}	

(a) Level 3 assets as a percentage of total Firm assets accounted for at fair value (including assets measured at fair value on a nonrecurring basis) were 2% and 3% at June 30, 2019 and December 31, 2018, respectively. Level 3 liabilities as a percentage of total Firm liabilities accounted for at fair value (including liabilities measured at fair value on a nonrecurring basis) was 15% at June 30, 2019 and December 31, 2018.

- (b) All level 3 derivatives are presented on a net basis, irrespective of the underlying counterparty.
- (c) Predominantly reported in principal transactions revenue, except for changes in fair value for CCB mortgage loans and lending-related commitments originated with the intent to sell, and mortgage loan purchase commitments, which are reported in mortgage fees and related income.
- (d) Changes in fair value for MSRs are reported in mortgage fees and related income.
- (e) Realized (gains)/losses due to DVA for fair value option elected liabilities are reported in principal transactions revenue, and they were not material for the three and six months ended June 30, 2019 and 2018, respectively. Unrealized (gains)/losses are reported in OCI, and they were \$(5) million and \$(71) million for the three months ended June 30, 2019 and 2018, respectively and \$170 million and \$(123) million for the six months ended June 30, 2019 and 2018, respectively.
- (f) Loan originations are included in purchases.
- (g) Includes financial assets and liabilities that have matured, been partially or fully repaid, impacts of modifications, deconsolidations associated with beneficial interests in VIEs and other items.
- (h) All transfers into and/or out of level 3 are based on changes in the observability and/or significance of the valuation inputs and are assumed to occur at the beginning of the quarterly reporting period in which they occur.
- (i) The prior period amounts have been revised to conform with the current period presentation.
- (j) Realized gains/(losses) on AFS securities, as well as other-than-temporary impairment ("OTTI") losses that are recorded in earnings, are reported in investment securities gains/(losses). Unrealized gains/(losses) are reported in OCI. There were no realized gains/(losses) recorded in income on AFS securities for the three and six months ended June 30, 2019 and 2018, respectively. Unrealized gains/(losses) recorded on AFS securities in OCI were zero for both the three months ended June 30, 2019 and 2018, respectively and zero and \$1 million for the six months ended June 30, 2019 and 2018, respectively.

Level 3 analysis

Consolidated balance sheets changes

Level 3 assets, including assets measured at fair value on a nonrecurring basis, were 0.6% of total Firm assets at June 30, 2019. The following describes significant changes to level 3 assets since December 31, 2018, for those items measured at fair value on a recurring basis. For further information on changes impacting items measured at fair value on a nonrecurring basis, refer to Assets and liabilities measured at fair value on a nonrecurring basis on page 96.

Three and six months ended June 30, 2019

Level 3 assets were \$16.5 billion at June 30, 2019, reflecting a decrease of \$553 million and \$622 million from March 31, 2019 and December 31, 2018, respectively.

The decrease for both the three and six months ended June 30, 2019 was driven by a reduction of approximately \$1.0 billion in MSRs. For additional information, refer to the Gains and losses section below.

Transfers between levels for instruments carried at fair value on a recurring basis

For both the three and six months ended June 30, 2019 and 2018 there were no individually significant transfers.

All transfers are based on changes in the observability and/or significance of the valuation inputs and are assumed to occur at the beginning of the quarterly reporting period in which they occur.

Gains and losses

The following describes significant components of total realized/unrealized gains/(losses) for instruments measured at fair value on a recurring basis for the periods indicated. These amounts exclude any effects of the Firm's risk management activities where the financial instruments are classified as level 1 and 2 of the fair value hierarchy. For further information on these instruments, refer to Changes in level 3 recurring fair value measurements rollforward tables on pages 90-95.

Three months ended June 30, 2019

- \$1.5 billion of net losses on assets, driven by derivative receivables due to market movements and MSRs reflecting updates to model inputs and faster prepayment speeds on lower rates.
- \$615 million of net losses on liabilities, largely due to market movements in long-term debt.

Three months ended June 30, 2018

- \$278 million of net gains on assets and \$504 million of net gains on liabilities, none of which were individually significant.

Six months ended June 30, 2019

- \$1.0 billion of net losses on assets, predominantly driven by MSRs reflecting updates to model inputs and faster prepayment speeds on lower rates.
- \$2.1 billion of net losses on liabilities, predominantly driven by market movements in long-term debt.

Six months ended June 30, 2018

- \$1.7 billion of net gains on assets predominantly driven by market movements in derivative receivables, in particular equity derivative receivables.
- \$822 million of net gains on liabilities, none of which were individually significant.

Credit and funding adjustments – derivatives

The following table provides the impact of credit and funding adjustments on principal transactions revenue in the respective periods, excluding the effect of any associated hedging activities. The FVA presented below includes the impact of the Firm's own credit quality on the inception value of liabilities as well as the impact of changes in the Firm's own credit quality over time.

	Three months ended June 30,		Six months ended June 30,	
(in millions)	2019	2018	2019	2018
Credit and funding adjustments:				
Derivatives CVA	\$ (44)	\$ 73	\$ 16	\$ 157
Derivatives FVA	(89)	97	63	14

For further information about both credit and funding adjustments, as well as information about valuation adjustments on fair value option elected liabilities, refer to Note 2 of JPMorgan Chase's 2018 Form 10-K.

Assets and liabilities measured at fair value on a nonrecurring basis

The following tables present the assets held as of June 30, 2019 and 2018, respectively, for which a nonrecurring fair value adjustment was recorded during the six months ended June 30, 2019 and 2018, respectively, by major product category and fair value hierarchy.

June 30, 2019 (in millions)	Fair value hierarchy			Total fair value
	Level 1	Level 2	Level 3	
Loans	\$ —	\$ 733	\$ 141 ^(b)	\$ 874
Other assets ^(a)	—	13	713	726
Total assets measured at fair value on a nonrecurring basis	\$ —	\$ 746	\$ 854	\$ 1,600

June 30, 2018 (in millions)	Fair value hierarchy			Total fair value
	Level 1	Level 2	Level 3	
Loans	\$ —	\$ 325	\$ 210	\$ 535
Other assets	—	217	823	1,040
Total assets measured at fair value on a nonrecurring basis	\$ —	\$ 542	\$ 1,033	\$ 1,575

- (a) Primarily includes equity securities without readily determinable fair values that were adjusted based on observable price changes in orderly transactions from an identical or similar investment of the same issuer (measurement alternative). Of the \$713 million in level 3 assets measured at fair value on a nonrecurring basis as of June 30, 2019, \$564 million related to such equity securities. These equity securities are classified as level 3 due to the infrequency of the observable prices and/or the restrictions on the shares.
- (b) Of the \$141 million in level 3 assets measured at fair value on a nonrecurring basis as of June 30, 2019, \$110 million related to residential real estate loans carried at the net realizable value of the underlying collateral (e.g., collateral-dependent loans and other loans charged off in accordance with regulatory guidance). These amounts are classified as level 3 as they are valued using information from broker's price opinions, appraisals and automated valuation models and discounted based upon the Firm's experience with actual liquidation values. These discounts ranged from 14% to 49% with a weighted average of 29%.

There were no material liabilities measured at fair value on a nonrecurring basis at June 30, 2019 and 2018.

Nonrecurring fair value changes

The following table presents the total change in value of assets and liabilities for which a fair value adjustment has been recognized for the three and six months ended June 30, 2019 and 2018, related to assets and liabilities held at those dates.

(in millions)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Loans	\$ (33)	\$ (18)	\$ (54)	\$ (22)
Other assets ^(a)	13	37	90	528
Total nonrecurring fair value gains/(losses)	\$ (20)	\$ 19	\$ 36	\$ 506

- (a) Included \$16 million and \$41 million for the three months ended June 30, 2019 and 2018, respectively and \$95 million and \$534 million for the six months ended June 30, 2019 and 2018, respectively, of net gains as a result of the measurement alternative.

For further information about the measurement of impaired collateral-dependent loans, and other loans where the carrying value is based on the fair value of the underlying collateral (e.g., residential mortgage loans charged off in accordance with regulatory guidance), refer to Note 12 of JPMorgan Chase's 2018 Form 10-K.

Equity securities without readily determinable fair values

The Firm measures equity securities without readily determinable fair values at cost less impairment (if any), plus or minus observable price changes from an identical or similar investment of the same issuer, with such changes recognized in earnings.

In its determination of the new carrying values upon observable price changes, the Firm may adjust the prices if deemed necessary to arrive at the Firm's estimated fair values. Such adjustments may include adjustments to reflect the different rights and obligations of similar securities, and other adjustments that are consistent with the Firm's valuation techniques for private equity direct investments.

The following table presents the carrying value of equity securities without readily determinable fair values still held as of June 30, 2019 and 2018, that are measured under the measurement alternative and the related adjustments recorded during the periods presented for those securities with observable price changes. These securities are included in the nonrecurring fair value tables when applicable price changes are observable.

As of or for the period ended, (in millions)	Three months ended		Six months ended	
	June 30,		June 30,	
	2019	2018	2019	2018
Other assets				
Carrying value ^(a)	\$ 1,704	\$ 1,471	\$ 1,704	\$ 1,471
Upward carrying value changes ^(b)	52	67	136	562
Downward carrying value changes/impairment ^(c)	(36)	(26)	(42)	(28)

(a) The carrying value as of December 31, 2018 was \$1.5 billion.

(b) The cumulative upward carrying value changes between January 1, 2018 and June 30, 2019 were \$446 million.

(c) The cumulative downward carrying value changes/impairment between January 1, 2018 and June 30, 2019 were \$(202) million.

Included in other assets above is the Firm's interest in approximately 40 million Visa Class B shares, recorded at a nominal carrying value. These shares are subject to certain transfer restrictions currently and will be convertible into Visa Class A shares upon final resolution of certain litigation matters involving Visa. The conversion rate of Visa Class B shares into Visa Class A shares is 1.6298 at June 30, 2019, and may be adjusted by Visa depending on developments related to the litigation matters.

Additional disclosures about the fair value of financial instruments that are not carried on the Consolidated balance sheets at fair value

The following table presents by fair value hierarchy classification the carrying values and estimated fair values at June 30, 2019, and December 31, 2018, of financial assets and liabilities, excluding financial instruments that are carried at fair value on a recurring basis, and their classification within the fair value hierarchy.

(in billions)	June 30, 2019					December 31, 2018				
	Carrying value	Estimated fair value hierarchy			Total estimated fair value	Carrying value	Estimated fair value hierarchy			Total estimated fair value
		Level 1	Level 2	Level 3			Level 1	Level 2	Level 3	
Financial assets										
Cash and due from banks	\$ 23.2	\$ 23.2	\$ —	\$ —	\$ 23.2	\$ 22.3	\$ 22.3	\$ —	\$ —	\$ 22.3
Deposits with banks	244.9	244.9	—	—	244.9	256.5	256.5	—	—	256.5
Accrued interest and accounts receivable	87.2	0.8	86.3	0.1	87.2	72.0	—	71.9	0.1	72.0
Federal funds sold and securities purchased under resale agreements	253.9	—	253.9	—	253.9	308.4	—	308.4	—	308.4
Securities borrowed	125.0	—	125.0	—	125.0	106.9	—	106.9	—	106.9
Investment securities, held-to-maturity	30.9	—	32.1	—	32.1	31.4	—	31.5	—	31.5
Loans, net of allowance for loan losses ^(a)	939.4	—	224.1	727.8	951.9	968.0	—	241.5	728.5	970.0
Other	59.2	—	58.4	0.9	59.3	60.5	—	59.6	1.0	60.6
Financial liabilities										
Deposits	\$ 1,491.4	\$ —	\$ 1,491.8	\$ —	\$ 1,491.8	\$ 1,447.4	\$ —	\$ 1,447.5	\$ —	\$ 1,447.5
Federal funds purchased and securities loaned or sold under repurchase agreements	200.7	—	200.7	—	200.7	181.4	—	181.4	—	181.4
Short-term borrowings	52.2	—	52.2	—	52.2	62.1	—	62.1	—	62.1
Accounts payable and other liabilities	175.8	0.1	172.2	3.1	175.4	160.6	0.2	157.0	3.0	160.2
Beneficial interests issued by consolidated VIEs	25.6	—	25.6	—	25.6	20.2	—	20.2	—	20.2
Long-term debt and junior subordinated deferrable interest debentures	220.8	—	221.6	3.3	224.9	227.1	—	224.6	3.3	227.9

(a) Fair value is typically estimated using a discounted cash flow model that incorporates the characteristics of the underlying loans (including principal, contractual interest rate and contractual fees) and other key inputs, including expected lifetime credit losses, interest rates, prepayment rates, and primary origination or secondary market spreads. For certain loans, the fair value is measured based on the value of the underlying collateral. The difference between the estimated fair value and carrying value of a financial asset or liability is the result of the different methodologies used to determine fair value as compared with carrying value. For example, credit losses are estimated for a financial asset's remaining life in a fair value calculation but are estimated for a loss emergence period in the allowance for loan loss calculation; future loan income (interest and fees) is incorporated in a fair value calculation but is generally not considered in the allowance for loan losses.

The majority of the Firm's lending-related commitments are not carried at fair value on a recurring basis on the Consolidated balance sheets. The carrying value of the wholesale allowance for lending-related commitments and the estimated fair value of these wholesale lending-related commitments were as follows for the periods indicated.

(in billions)	June 30, 2019					December 31, 2018				
	Carrying value ^(a)	Estimated fair value hierarchy			Total estimated fair value	Carrying value ^(a)	Estimated fair value hierarchy			Total estimated fair value ^(b)
		Level 1	Level 2	Level 3			Level 1	Level 2	Level 3	
Wholesale lending-related commitments	\$ 1.1	\$ —	\$ —	\$ 1.8	\$ 1.8	\$ 1.0	\$ —	\$ —	\$ 1.9	\$ 1.9

(a) Excludes the current carrying values of the guarantee liability and the offsetting asset, each of which is recognized at fair value at the inception of the guarantees.

(b) The prior period amounts have been revised to conform with the current period presentation.

The Firm does not estimate the fair value of consumer lending-related commitments. In many cases, the Firm can reduce or cancel these commitments by providing the borrower notice or, in some cases as permitted by law, without notice. For a further discussion of the valuation of lending-related commitments, refer to page 161 of JPMorgan Chase's 2018 Form 10-K.

Note 3 – Fair value option

For a discussion of the primary financial instruments for which the fair value option was elected, including the basis for those elections and the determination of instrument-specific credit risk, where relevant, refer to Note 3 of JPMorgan Chase's 2018 Form 10-K.

Changes in fair value under the fair value option election

The following table presents the changes in fair value included in the Consolidated statements of income for the three months ended June 30, 2019 and 2018, for items for which the fair value option was elected. The profit and loss information presented below only includes the financial instruments that were elected to be measured at fair value; related risk management instruments, which are required to be measured at fair value, are not included in the table.

(in millions)	Three months ended June 30,					
	2019			2018		
	Principal transactions	All other income	Total changes in fair value recorded ^(e)	Principal transactions	All other income	Total changes in fair value recorded ^(e)
Federal funds sold and securities purchased under resale agreements	\$ 22	\$ —	\$ 22	\$ (33)	\$ —	\$ (33)
Securities borrowed	43	—	43	29	—	29
Trading assets:						
Debt and equity instruments, excluding loans	204	—	204	(259)	1 ^(c)	(258)
Loans reported as trading assets:						
Changes in instrument-specific credit risk	199	2 ^(c)	201	214	(1) ^(c)	213
Other changes in fair value	120	328 ^(c)	448	29	65 ^(c)	94
Loans:						
Changes in instrument-specific credit risk	(13)	—	(13)	(1)	—	(1)
Other changes in fair value	1	—	1	(1)	—	(1)
Other assets	2	3 ^(d)	5	—	(3) ^(d)	(3)
Deposits ^(a)	(696)	—	(696)	129	—	129
Federal funds purchased and securities loaned or sold under repurchase agreements	(15)	—	(15)	9	—	9
Short-term borrowings ^(a)	(70)	—	(70)	(162)	—	(162)
Trading liabilities	2	—	2	6	—	6
Other liabilities	(4)	—	(4)	—	—	—
Long-term debt ^{(a)(b)}	(1,770)	—	(1,770)	196	—	196

(in millions)	Six months ended June 30,					
	2019			2018		
	Principal transactions	All other income	Total changes in fair value recorded ^(e)	Principal transactions	All other income	Total changes in fair value recorded ^(e)
Federal funds sold and securities purchased under resale agreements	\$ 33	\$ —	\$ 33	\$ (26)	\$ —	\$ (26)
Securities borrowed	80	—	80	2	—	2
Trading assets:						
Debt and equity instruments, excluding loans	1,558	—	1,558	(445)	1 ^(c)	(444)
Loans reported as trading assets:						
Changes in instrument-specific credit risk	447	5 ^(c)	452	336	4 ^(c)	340
Other changes in fair value	200	565 ^(c)	765	70	(25) ^(c)	45
Loans:						
Changes in instrument-specific credit risk	(8)	—	(8)	(1)	—	(1)
Other changes in fair value	1	—	1	(2)	—	(2)
Other assets	3	3 ^(d)	6	2	(10) ^(d)	(8)
Deposits ^(a)	(1,192)	—	(1,192)	339	—	339
Federal funds purchased and securities loaned or sold under repurchase agreements	(20)	—	(20)	19	—	19
Short-term borrowings ^(a)	(774)	—	(774)	111	—	111
Trading liabilities	5	—	5	(1)	—	(1)
Other liabilities	(8)	—	(8)	—	—	—
Long-term debt ^{(a)(b)}	(4,606)	—	(4,606)	1,227	—	1,227

(a) Unrealized gains/(losses) due to instrument-specific credit risk (DVA) for liabilities for which the fair value option has been elected is recorded in OCI, while realized gains/(losses) are recorded in principal transactions revenue. Realized gains/(losses) due to instrument-specific credit risk recorded in principal transactions revenue were not material for the three and six months ended June 30, 2019 and 2018, respectively.

(b) Long-term debt measured at fair value predominantly relates to structured notes. Although the risk associated with the structured notes is actively managed, the gains/(losses) reported in this table do not include the income statement impact of the risk management instruments used to manage such risk.

(c) Reported in mortgage fees and related income.

(d) Reported in other income.

(e) Changes in fair value exclude contractual interest, which is included in interest income and interest expense for all instruments other than hybrid financial instruments. For further information regarding interest income and interest expense, refer to Note 6.

Difference between aggregate fair value and aggregate remaining contractual principal balance outstanding

The following table reflects the difference between the aggregate fair value and the aggregate remaining contractual principal balance outstanding as of June 30, 2019, and December 31, 2018, for loans, long-term debt and long-term beneficial interests for which the fair value option has been elected.

(in millions)	June 30, 2019			December 31, 2018		
	Contractual principal outstanding	Fair value	Fair value over/(under) contractual principal outstanding	Contractual principal outstanding	Fair value	Fair value over/(under) contractual principal outstanding
Loans^(a)						
Nonaccrual loans						
Loans reported as trading assets	\$ 4,038	\$ 1,231	\$ (2,807)	\$ 4,240	\$ 1,350	\$ (2,890)
Loans	124	72	(52)	39	—	(39)
Subtotal	4,162	1,303	(2,859)	4,279	1,350	(2,929)
All other performing loans						
Loans reported as trading assets	43,722	42,727	(995)	42,215	40,403	(1,812)
Loans	4,284	4,237	(47)	3,186	3,151	(35)
Total loans	\$ 52,168	\$ 48,267	\$ (3,901)	\$ 49,680	\$ 44,904	\$ (4,776)
Long-term debt						
Principal-protected debt	\$ 39,559 ^(c)	\$ 36,681	\$ (2,878)	\$ 32,674 ^(c)	\$ 28,718	\$ (3,956)
Nonprincipal-protected debt ^(b)	NA	31,147	NA	NA	26,168	NA
Total long-term debt	NA	\$ 67,828	NA	NA	\$ 54,886	NA
Long-term beneficial interests						
Nonprincipal-protected debt ^(b)	NA	\$ —	NA	NA	\$ 28	NA
Total long-term beneficial interests	NA	\$ —	NA	NA	\$ 28	NA

- (a) There were no performing loans that were ninety days or more past due as of June 30, 2019, and December 31, 2018, respectively.
- (b) Remaining contractual principal is not applicable to nonprincipal-protected structured notes and long-term beneficial interests. Unlike principal-protected structured notes and long-term beneficial interests, for which the Firm is obligated to return a stated amount of principal at maturity, nonprincipal-protected structured notes and long-term beneficial interests do not obligate the Firm to return a stated amount of principal at maturity, but for structured notes to return an amount based on the performance of an underlying variable or derivative feature embedded in the note. However, investors are exposed to the credit risk of the Firm as issuer for both nonprincipal-protected and principal-protected notes.
- (c) Where the Firm issues principal-protected zero-coupon or discount notes, the balance reflects the contractual principal payment at maturity or, if applicable, the contractual principal payment at the Firm's next call date.

At June 30, 2019, and December 31, 2018, the contractual amount of lending-related commitments for which the fair value option was elected was \$9.7 billion and \$6.9 billion, respectively, with a corresponding fair value of \$(95) million and \$(82) million, respectively. For further information regarding off-balance sheet lending-related financial instruments, refer to Note 27 of JPMorgan Chase's 2018 Form 10-K, and Note 22 of this Form 10-Q.

Structured note products by balance sheet classification and risk component

The following table presents the fair value of structured notes, by balance sheet classification and the primary risk type.

(in millions)	June 30, 2019				December 31, 2018			
	Long-term debt	Short-term borrowings	Deposits	Total	Long-term debt	Short-term borrowings	Deposits	Total
Risk exposure								
Interest rate	\$ 31,670	\$ 66	\$ 21,048	\$ 52,784	\$ 24,137	\$ 62	\$ 12,372	\$ 36,571
Credit	4,848	639	—	5,487	4,009	995	—	5,004
Foreign exchange	3,580	85	37	3,702	3,169	157	38	3,364
Equity	25,338	6,536	8,278	40,152	21,382	5,422	7,368	34,172
Commodity	467	6	1,320	1,793	372	34	1,207	1,613
Total structured notes	\$ 65,903	\$ 7,332	\$ 30,683	\$ 103,918	\$ 53,069	\$ 6,670	\$ 20,985	\$ 80,724

Note 4 – Derivative instruments

JPMorgan Chase makes markets in derivatives for clients and also uses derivatives to hedge or manage its own risk exposures. For a further discussion of the Firm’s use of and accounting policies regarding derivative instruments, refer to Note 5 of JPMorgan Chase’s 2018 Form 10-K.

The Firm’s disclosures are based on the accounting treatment and purpose of these derivatives. A limited number of the Firm’s derivatives are designated in hedge

accounting relationships and are disclosed according to the type of hedge (fair value hedge, cash flow hedge, or net investment hedge). Derivatives not designated in hedge accounting relationships include certain derivatives that are used to manage certain risks associated with specified assets or liabilities (“specified risk management” positions) as well as derivatives used in the Firm’s market-making businesses or for other purposes.

The following table outlines the Firm’s primary uses of derivatives and the related hedge accounting designation or disclosure category.

Type of Derivative	Use of Derivative	Designation and disclosure	Affected segment or unit	10-Q page reference
Manage specifically identified risk exposures in qualifying hedge accounting relationships:				
• Interest rate	Hedge fixed rate assets and liabilities	Fair value hedge	Corporate	108-109
• Interest rate	Hedge floating-rate assets and liabilities	Cash flow hedge	Corporate	110
• Foreign exchange	Hedge foreign currency-denominated assets and liabilities	Fair value hedge	Corporate	108-109
• Foreign exchange	Hedge foreign currency-denominated forecasted revenue and expense	Cash flow hedge	Corporate	110
• Foreign exchange	Hedge the value of the Firm’s investments in non-U.S. dollar functional currency entities	Net investment hedge	Corporate	111
• Commodity	Hedge commodity inventory	Fair value hedge	CIB	108-109
Manage specifically identified risk exposures not designated in qualifying hedge accounting relationships:				
• Interest rate	Manage the risk of the mortgage pipeline, warehouse loans and MSRs	Specified risk management	CCB	111
• Credit	Manage the credit risk of wholesale lending exposures	Specified risk management	CIB	111
• Interest rate and foreign exchange	Manage the risk of certain other specified assets and liabilities	Specified risk management	Corporate	111
Market-making derivatives and other activities:				
• Various	Market-making and related risk management	Market-making and other	CIB	111
• Various	Other derivatives	Market-making and other	CIB, AWM, Corporate	111

Notional amount of derivative contracts

The following table summarizes the notional amount of derivative contracts outstanding as of June 30, 2019, and December 31, 2018.

(in billions)	Notional amounts ^(b)	
	June 30, 2019	December 31, 2018
Interest rate contracts		
Swaps	\$ 25,583	\$ 21,763
Futures and forwards	4,600	3,562
Written options	4,572	3,997
Purchased options	5,054	4,322
Total interest rate contracts	39,809	33,644
Credit derivatives^(a)	1,294	1,501
Foreign exchange contracts		
Cross-currency swaps	3,824	3,548
Spot, futures and forwards	6,951	5,871
Written options	922	835
Purchased options	939	830
Total foreign exchange contracts	12,636	11,084
Equity contracts		
Swaps	365	346
Futures and forwards	122	101
Written options	640	528
Purchased options	573	490
Total equity contracts	1,700	1,465
Commodity contracts		
Swaps	148	134
Spot, futures and forwards	161	156
Written options	143	135
Purchased options	126	120
Total commodity contracts	578	545
Total derivative notional amounts	\$ 56,017	\$ 48,239

(a) For more information on volumes and types of credit derivative contracts, refer to the Credit derivatives discussion on page 112.

(b) Represents the sum of gross long and gross short third-party notional derivative contracts.

While the notional amounts disclosed above give an indication of the volume of the Firm's derivatives activity, the notional amounts significantly exceed, in the Firm's view, the possible losses that could arise from such transactions. For most derivative contracts, the notional amount is not exchanged; it is used simply as a reference to calculate payments.

Impact of derivatives on the Consolidated balance sheets

The following table summarizes information on derivative receivables and payables (before and after netting adjustments) that are reflected on the Firm's Consolidated balance sheets as of June 30, 2019, and December 31, 2018, by accounting designation (e.g., whether the derivatives were designated in qualifying hedge accounting relationships or not) and contract type.

Free-standing derivative receivables and payables^(a)

June 30, 2019 (in millions)	Gross derivative receivables				Gross derivative payables			
	Not designated as hedges	Designated as hedges	Total derivative receivables	Net derivative receivables ^(b)	Not designated as hedges	Designated as hedges	Total derivative payables	Net derivative payables ^(b)
Trading assets and liabilities								
Interest rate	\$ 333,694	\$ 862	\$ 334,556	\$ 26,488	\$ 301,047	\$ 2	\$ 301,049	\$ 8,883
Credit	15,665	—	15,665	633	17,231	—	17,231	2,256
Foreign exchange	143,659	441	144,100	10,663	146,920	697	147,617	11,126
Equity	44,930	—	44,930	9,205	47,698	—	47,698	11,177
Commodity	16,739	132	16,871	5,889	19,280	74	19,354	8,037
Total fair value of trading assets and liabilities	\$ 554,687	\$ 1,435	\$ 556,122	\$ 52,878	\$ 532,176	\$ 773	\$ 532,949	\$ 41,479

December 31, 2018 (in millions)	Gross derivative receivables				Gross derivative payables			
	Not designated as hedges	Designated as hedges	Total derivative receivables	Net derivative receivables ^(b)	Not designated as hedges	Designated as hedges	Total derivative payables	Net derivative payables ^(b)
Trading assets and liabilities								
Interest rate	\$ 267,871	\$ 833	\$ 268,704	\$ 23,214	\$ 242,782	\$ —	\$ 242,782	\$ 7,784
Credit	20,095	—	20,095	612	20,276	—	20,276	1,667
Foreign exchange	167,057	628	167,685	13,450	164,392	825	165,217	12,785
Equity	49,285	—	49,285	9,946	51,195	—	51,195	10,161
Commodity	20,223	247	20,470	6,991	22,297	121	22,418	9,372
Total fair value of trading assets and liabilities	\$ 524,531	\$ 1,708	\$ 526,239	\$ 54,213	\$ 500,942	\$ 946	\$ 501,888	\$ 41,769

(a) Balances exclude structured notes for which the fair value option has been elected. Refer to Note 3 for further information.

(b) As permitted under U.S. GAAP, the Firm has elected to net derivative receivables and derivative payables and the related cash collateral receivables and payables when a legally enforceable master netting agreement exists.

Derivatives netting

The following tables present, as of June 30, 2019, and December 31, 2018, gross and net derivative receivables and payables by contract and settlement type. Derivative receivables and payables, as well as the related cash collateral from the same counterparty have been netted on the Consolidated balance sheets where the Firm has obtained an appropriate legal opinion with respect to the master netting agreement. Where such a legal opinion has not been either sought or obtained, amounts are not eligible for netting on the Consolidated balance sheets, and those derivative receivables and payables are shown separately in the tables below.

In addition to the cash collateral received and transferred that is presented on a net basis with derivative receivables and payables, the Firm receives and transfers additional collateral (financial instruments and cash). These amounts mitigate counterparty credit risk associated with the Firm's derivative instruments, but are not eligible for net presentation:

- collateral that consists of non-cash financial instruments (generally U.S. government and agency securities and other G7 government securities) and cash collateral held at third-party custodians, which are shown separately as "Collateral not nettable on the Consolidated balance sheets" in the tables below, up to the fair value exposure amount.
- the amount of collateral held or transferred that exceeds the fair value exposure at the individual counterparty level, as of the date presented, which is excluded from the tables below; and
- collateral held or transferred that relates to derivative receivables or payables where an appropriate legal opinion has not been either sought or obtained with respect to the master netting agreement, which is excluded from the tables below.

(in millions)	June 30, 2019			December 31, 2018		
	Gross derivative receivables	Amounts netted on the Consolidated balance sheets	Net derivative receivables	Gross derivative receivables	Amounts netted on the Consolidated balance sheets	Net derivative receivables
U.S. GAAP nettable derivative receivables						
Interest rate contracts:						
Over-the-counter ("OTC")	\$ 317,682	\$ (295,900)	\$ 21,782	\$ 258,227	\$ (239,498)	\$ 18,729
OTC-cleared	11,535	(11,488)	47	6,404	(5,856)	548
Exchange-traded ^(a)	747	(680)	67	322	(136)	186
Total interest rate contracts	329,964	(308,068)	21,896	264,953	(245,490)	19,463
Credit contracts:						
OTC	11,358	(10,938)	420	12,648	(12,261)	387
OTC-cleared	4,142	(4,094)	48	7,267	(7,222)	45
Total credit contracts	15,500	(15,032)	468	19,915	(19,483)	432
Foreign exchange contracts:						
OTC	141,257	(133,171)	8,086	163,862	(153,988)	9,874
OTC-cleared	276	(260)	16	235	(226)	9
Exchange-traded ^(a)	18	(6)	12	32	(21)	11
Total foreign exchange contracts	141,551	(133,437)	8,114	164,129	(154,235)	9,894
Equity contracts:						
OTC	22,627	(20,219)	2,408	26,178	(23,879)	2,299
Exchange-traded ^(a)	18,885	(15,506)	3,379	18,876	(15,460)	3,416
Total equity contracts	41,512	(35,725)	5,787	45,054	(39,339)	5,715
Commodity contracts:						
OTC	6,917	(5,082)	1,835	7,448	(5,261)	2,187
OTC-cleared	13	(13)	—	—	—	—
Exchange-traded ^(a)	6,007	(5,887)	120	8,815	(8,218)	597
Total commodity contracts	12,937	(10,982)	1,955	16,263	(13,479)	2,784
Derivative receivables with appropriate legal opinion	541,464	(503,244)	38,220 ^(d)	510,314	(472,026)	38,288 ^(d)
Derivative receivables where an appropriate legal opinion has not been either sought or obtained	14,658		14,658	15,925		15,925
Total derivative receivables recognized on the Consolidated balance sheets	\$ 556,122		\$ 52,878	\$ 526,239		\$ 54,213
Collateral not nettable on the Consolidated balance sheets ^{(b)(c)}			(12,168)			(13,046)
Net amounts			\$ 40,710			\$ 41,167

(in millions)	June 30, 2019			December 31, 2018		
	Gross derivative payables	Amounts netted on the Consolidated balance sheets	Net derivative payables	Gross derivative payables	Amounts netted on the Consolidated balance sheets	Net derivative payables
U.S. GAAP nettable derivative payables						
Interest rate contracts:						
OTC	\$ 286,199	\$ (279,425)	\$ 6,774	\$ 233,404	\$ (228,369)	\$ 5,035
OTC-cleared	12,460	(12,044)	416	7,163	(6,494)	669
Exchange-traded ^(a)	783	(697)	86	210	(135)	75
Total interest rate contracts	299,442	(292,166)	7,276	240,777	(234,998)	5,779
Credit contracts:						
OTC	13,371	(11,347)	2,024	13,412	(11,895)	1,517
OTC-cleared	3,678	(3,628)	50	6,716	(6,714)	2
Total credit contracts	17,049	(14,975)	2,074	20,128	(18,609)	1,519
Foreign exchange contracts:						
OTC	144,667	(136,225)	8,442	160,930	(152,161)	8,769
OTC-cleared	260	(260)	—	274	(268)	6
Exchange-traded ^(a)	15	(6)	9	16	(3)	13
Total foreign exchange contracts	144,942	(136,491)	8,451	161,220	(152,432)	8,788
Equity contracts:						
OTC	26,349	(21,015)	5,334	29,437	(25,544)	3,893
Exchange-traded ^(a)	16,818	(15,506)	1,312	16,285	(15,490)	795
Total equity contracts	43,167	(36,521)	6,646	45,722	(41,034)	4,688
Commodity contracts:						
OTC	8,153	(5,434)	2,719	8,930	(4,838)	4,092
OTC-cleared	13	(13)	—	—	—	—
Exchange-traded ^(a)	6,193	(5,870)	323	8,259	(8,208)	51
Total commodity contracts	14,359	(11,317)	3,042	17,189	(13,046)	4,143
Derivative payables with appropriate legal opinion	518,959	(491,470)	27,489 ^(d)	485,036	(460,119)	24,917 ^(d)
Derivative payables where an appropriate legal opinion has not been either sought or obtained	13,990		13,990	16,852		16,852
Total derivative payables recognized on the Consolidated balance sheets	\$ 532,949		\$ 41,479	\$ 501,888		\$ 41,769
Collateral not nettable on the Consolidated balance sheets ^{(b)(c)}			(6,959)			(4,449)
Net amounts			\$ 34,520			\$ 37,320

(a) Exchange-traded derivative balances that relate to futures contracts are settled daily.

(b) Represents liquid security collateral as well as cash collateral held at third-party custodians related to derivative instruments where an appropriate legal opinion has been obtained. For some counterparties, the collateral amounts of financial instruments may exceed the derivative receivables and derivative payables balances. Where this is the case, the total amount reported is limited to the net derivative receivables and net derivative payables balances with that counterparty.

(c) Derivative collateral relates only to OTC and OTC-cleared derivative instruments.

(d) Net derivatives receivable included cash collateral netted of \$65.0 billion and \$55.2 billion at June 30, 2019, and December 31, 2018, respectively. Net derivatives payable included cash collateral netted of \$53.3 billion and \$43.3 billion at June 30, 2019, and December 31, 2018, respectively. Derivative cash collateral relates to OTC and OTC-cleared derivative instruments.

Liquidity risk and credit-related contingent features

For a more detailed discussion of liquidity risk and credit-related contingent features related to the Firm's derivative contracts, refer to Note 5 of JPMorgan Chase's 2018 Form 10-K.

The following table shows the aggregate fair value of net derivative payables related to OTC and OTC-cleared derivatives that contain contingent collateral or termination features that may be triggered upon a ratings downgrade, and the associated collateral the Firm has posted in the normal course of business, at June 30, 2019, and December 31, 2018.

OTC and OTC-cleared derivative payables containing downgrade triggers

(in millions)	June 30, 2019	December 31, 2018
Aggregate fair value of net derivative payables	\$ 15,294	\$ 9,396
Collateral posted	14,023	8,907

The following table shows the impact of a single-notch and two-notch downgrade of the long-term issuer ratings of JPMorgan Chase & Co. and its subsidiaries, predominantly JPMorgan Chase Bank, N.A., at June 30, 2019, and December 31, 2018, related to OTC and OTC-cleared derivative contracts with contingent collateral or termination features that may be triggered upon a ratings downgrade. Derivatives contracts generally require additional collateral to be posted or terminations to be triggered when the predefined threshold rating is breached. A downgrade by a single rating agency that does not result in a rating lower than a preexisting corresponding rating provided by another major rating agency will generally not result in additional collateral, (except in certain instances in which additional initial margin may be required upon a ratings downgrade), nor in termination payments requirements. The liquidity impact in the table is calculated based upon a downgrade below the lowest current rating of the rating agencies referred to in the derivative contract.

Liquidity impact of downgrade triggers on OTC and OTC-cleared derivatives

(in millions)	June 30, 2019		December 31, 2018	
	Single-notch downgrade	Two-notch downgrade	Single-notch downgrade	Two-notch downgrade
Amount of additional collateral to be posted upon downgrade ^(a)	\$ 180	\$ 1,228	\$ 76	\$ 947
Amount required to settle contracts with termination triggers upon downgrade ^(b)	302	1,613	172	764

(a) Includes the additional collateral to be posted for initial margin.

(b) Amounts represent fair values of derivative payables, and do not reflect collateral posted.

Derivatives executed in contemplation of a sale of the underlying financial asset

In certain instances the Firm enters into transactions in which it transfers financial assets but maintains the economic exposure to the transferred assets by entering into a derivative with the same counterparty in contemplation of the initial transfer. The Firm generally accounts for such transfers as collateralized financing transactions as described in Note 10, but in limited circumstances they may qualify to be accounted for as a sale and a derivative under U.S. GAAP. The amount of such transfers accounted for as a sale where the associated derivative was outstanding was not material at both June 30, 2019 and December 31, 2018.

Impact of derivatives on the Consolidated statements of income

The following tables provide information related to gains and losses recorded on derivatives based on their hedge accounting designation or purpose.

Fair value hedge gains and losses

The following tables present derivative instruments, by contract type, used in fair value hedge accounting relationships, as well as pre-tax gains/(losses) recorded on such derivatives and the related hedged items for the three and six months ended June 30, 2019 and 2018, respectively. The Firm includes gains/(losses) on the hedging derivative in the same line item in the Consolidated statements of income as the related hedged item.

Three months ended June 30, 2019 (in millions)	Gains/(losses) recorded in income			Income statement impact of excluded components ^(e)		OCI impact
	Derivatives	Hedged items	Income statement impact	Amortization approach	Changes in fair value	Derivatives - Gains/(losses) recorded in OCI ^(f)
Contract type						
Interest rate ^{(a)(b)}	\$ 1,762	\$ (1,556)	\$ 206	\$ —	\$ 196	\$ —
Foreign exchange ^(c)	426	(301)	125	(229)	125	112
Commodity ^(d)	(154)	175	21	—	17	—
Total	\$ 2,034	\$ (1,682)	\$ 352	\$ (229)	\$ 338	\$ 112

Three months ended June 30, 2018 (in millions)	Gains/(losses) recorded in income			Income statement impact of excluded components ^(e)		OCI impact
	Derivatives	Hedged items	Income statement impact	Amortization approach	Changes in fair value	Derivatives - Gains/(losses) recorded in OCI ^(f)
Contract type						
Interest rate ^{(a)(b)}	\$ (400)	\$ 553	\$ 153	\$ —	\$ 152	\$ —
Foreign exchange ^(c)	376	(254)	122	(145)	122	(89)
Commodity ^(d)	11	(18)	(7)	—	16	—
Total	\$ (13)	\$ 281	\$ 268	\$ (145)	\$ 290	\$ (89)

Six months ended June 30, 2019 (in millions)	Gains/(losses) recorded in income			Income statement impact of excluded components ^(e)		OCI impact
	Derivatives	Hedged items	Income statement impact	Amortization approach	Changes in fair value	Derivatives - Gains/(losses) recorded in OCI ^(f)
Contract type						
Interest rate ^{(a)(b)}	\$ 3,226	\$ (2,849)	\$ 377	\$ —	\$ 368	\$ —
Foreign exchange ^(c)	136	108	244	(451)	244	115
Commodity ^(d)	(442)	469	27	—	18	—
Total	\$ 2,920	\$ (2,272)	\$ 648	\$ (451)	\$ 630	\$ 115

Six months ended June 30, 2018 (in millions)	Gains/(losses) recorded in income			Income statement impact of excluded components ^(e)		OCI impact
	Derivatives	Hedged items	Income statement impact	Amortization approach	Changes in fair value	Derivatives - Gains/(losses) recorded in OCI ^(f)
Contract type						
Interest rate ^{(a)(b)}	\$ (1,877)	\$ 2,182	\$ 305	\$ —	\$ 299	\$ —
Foreign exchange ^(c)	520	(287)	233	(267)	233	(141)
Commodity ^(d)	195	(165)	30	—	34	—
Total	\$ (1,162)	\$ 1,730	\$ 568	\$ (267)	\$ 566	\$ (141)

- (a) Primarily consists of hedges of the benchmark (e.g., London Interbank Offered Rate (“LIBOR”)) interest rate risk of fixed-rate long-term debt and AFS securities. Gains and losses were recorded in net interest income.
- (b) Excludes the amortization expense associated with the inception hedge accounting adjustment applied to the hedged item. This expense is recorded in net interest income and substantially offsets the income statement impact of the excluded components. Also excludes the accrual of interest on interest rate swaps and the related hedged items.
- (c) Primarily consists of hedges of the foreign currency risk of long-term debt and AFS securities for changes in spot foreign currency rates. Gains and losses related to the derivatives and the hedged items due to changes in foreign currency rates and the income statement impact of excluded components were recorded primarily in principal transactions revenue and net interest income.
- (d) Consists of overall fair value hedges of physical commodities inventories that are generally carried at the lower of cost or net realizable value (net realizable value approximates fair value). Gains and losses were recorded in principal transactions revenue.
- (e) The assessment of hedge effectiveness excludes certain components of the changes in fair values of the derivatives and hedged items such as forward points on foreign exchange forward contracts, time values and cross-currency basis spreads. The initial amount of the excluded components may be amortized into income over the life of the derivative, or changes in fair value may be recognized in current period earnings.
- (f) Represents the change in value of amounts excluded from the assessment of effectiveness under the amortization approach, predominantly cross-currency basis spreads. The amount excluded at inception of the hedge is recognized in earnings over the life of the derivative.

As of June 30, 2019 and December 31, 2018, the following amounts were recorded on the Consolidated balance sheets related to certain cumulative fair value hedge basis adjustments that are expected to reverse through the income statement in future periods as an adjustment to yield.

June 30, 2019 (in millions)	Carrying amount of the hedged items ^{(a)(b)}	Cumulative amount of fair value hedging adjustments included in the carrying amount of hedged items:		
		Active hedging relationships	Discontinued hedging relationships ^(d)	Total
Assets				
Investment securities - AFS	\$ 91,668 ^(c)	\$ 2,084	\$ 292	\$ 2,376
Liabilities				
Long-term debt	\$ 151,184	\$ 6,534	\$ 55	\$ 6,589
Beneficial interests issued by consolidated VIEs	5,208	—	(15)	(15)

December 31, 2018 (in millions)	Carrying amount of the hedged items ^{(a)(b)}	Cumulative amount of fair value hedging adjustments included in the carrying amount of hedged items:		
		Active hedging relationships	Discontinued hedging relationships ^(d)	Total
Assets				
Investment securities - AFS	\$ 55,313 ^(c)	\$ (1,105)	\$ 381	\$ (724)
Liabilities				
Long-term debt	\$ 139,915	\$ 141	\$ 8	\$ 149
Beneficial interests issued by consolidated VIEs	6,987	—	(33)	(33)

- (a) Excludes physical commodities with a carrying value of \$6.6 billion and \$6.8 billion at June 30, 2019 and December 31, 2018, respectively, to which the Firm applies fair value hedge accounting. As a result of the application of hedge accounting, these inventories are carried at fair value, thus recognizing unrealized gains and losses in current periods. Given the Firm exits these positions at fair value, there is no incremental impact to net income in future periods.
- (b) Excludes hedged items where only foreign currency risk is the designated hedged risk, as basis adjustments related to foreign currency hedges will not reverse through the income statement in future periods. At June 30, 2019 and December 31, 2018, the carrying amount excluded for available-for-sale securities is \$14.4 billion and \$14.6 billion, respectively, and for long-term debt is \$6.0 billion and \$7.3 billion, respectively.
- (c) Carrying amount represents the amortized cost.
- (d) Represents hedged items no longer designated in qualifying fair value hedging relationships for which an associated basis adjustment exists at the balance sheet date.

Cash flow hedge gains and losses

The following tables present derivative instruments, by contract type, used in cash flow hedge accounting relationships, and the pre-tax gains/(losses) recorded on such derivatives, for the three and six months ended June 30, 2019 and 2018, respectively. The Firm includes the gain/(loss) on the hedging derivative in the same line item in the Consolidated statements of income as the change in cash flows on the related hedged item.

Three months ended June 30, 2019 (in millions)	Derivatives gains/(losses) recorded in income and other comprehensive income/(loss)		
	Amounts reclassified from AOCI to income	Amounts recorded in OCI	Total change in OCI for period
Contract type			
Interest rate ^(a)	\$ 2	\$ 155	\$ 153
Foreign exchange ^(b)	(28)	(54)	(26)
Total	\$ (26)	\$ 101	\$ 127

Three months ended June 30, 2018 (in millions)	Derivatives gains/(losses) recorded in income and other comprehensive income/(loss)		
	Amounts reclassified from AOCI to income	Amounts recorded in OCI	Total change in OCI for period
Contract type			
Interest rate ^(a)	\$ 13	\$ (33)	\$ (46)
Foreign exchange ^(b)	6	(166)	(172)
Total	\$ 19	\$ (199)	\$ (218)

Six months ended June 30, 2019 (in millions)	Derivatives gains/(losses) recorded in income and other comprehensive income/(loss)		
	Amounts reclassified from AOCI to income	Amounts recorded in OCI	Total change in OCI for period
Contract type			
Interest rate ^(a)	\$ 4	\$ 211	\$ 207
Foreign exchange ^(b)	(69)	31	100
Total	\$ (65)	\$ 242	\$ 307

Six months ended June 30, 2018 (in millions)	Derivatives gains/(losses) recorded in income and other comprehensive income/(loss)		
	Amounts reclassified from AOCI to income	Amounts recorded in OCI	Total change in OCI for period
Contract type			
Interest rate ^(a)	\$ 26	\$ (111)	\$ (137)
Foreign exchange ^(b)	45	(132)	(177)
Total	\$ 71	\$ (243)	\$ (314)

(a) Primarily consists of hedges of LIBOR-indexed floating-rate assets and floating-rate liabilities. Gains and losses were recorded in net interest income.

(b) Primarily consists of hedges of the foreign currency risk of non-U.S. dollar-denominated revenue and expense. The income statement classification of gains and losses follows the hedged item – primarily noninterest revenue and compensation expense.

The Firm did not experience any forecasted transactions that failed to occur for the three and six months ended June 30, 2019 and 2018.

Over the next 12 months, the Firm expects that approximately \$(53) million (after-tax) of net losses recorded in AOCI at June 30, 2019, related to cash flow hedges will be recognized in income. For cash flow hedges that have been terminated, the maximum length of time over which the derivative results recorded in AOCI will be recognized in earnings is approximately six years, corresponding to the timing of the originally hedged forecasted cash flows.

For open cash flow hedges, the maximum length of time over which forecasted transactions are hedged is approximately seven years. The Firm's longer-dated forecasted transactions relate to core lending and borrowing activities.

Net investment hedge gains and losses

The following table presents hedging instruments, by contract type, that were used in net investment hedge accounting relationships, and the pre-tax gains/(losses) recorded on such instruments for the three and six months ended June 30, 2019 and 2018.

Gains/(losses) recorded in income and other comprehensive income/(loss)				
Three months ended June 30, (in millions)	2019		2018	
	Amounts recorded in income ^{(a)(b)}	Amounts recorded in OCI	Amounts recorded in income ^{(a)(b)(c)}	Amounts recorded in OCI
Foreign exchange derivatives	\$ 27	\$ (123)	\$ —	\$ 1,204

Gains/(losses) recorded in income and other comprehensive income/(loss)				
Six months ended June 30, (in millions)	2019		2018	
	Amounts recorded in income ^{(a)(b)}	Amounts recorded in OCI	Amounts recorded in income ^{(a)(b)(c)}	Amounts recorded in OCI
Foreign exchange derivatives	\$ 48	\$ (161)	\$ (10)	\$ 815

(a) Certain components of hedging derivatives are permitted to be excluded from the assessment of hedge effectiveness, such as forward points on foreign exchange forward contracts. The Firm elects to record changes in fair value of these amounts directly in other income.

(b) Excludes amounts reclassified from AOCI to income on the sale or liquidation of hedged entities. For additional information, refer to Note 19.

(c) The prior period amount has been revised to conform with the current period presentation.

Gains and losses on derivatives used for specified risk management purposes

The following table presents pre-tax gains/(losses) recorded on a limited number of derivatives, not designated in hedge accounting relationships, that are used to manage risks associated with certain specified assets and liabilities, including certain risks arising from the mortgage pipeline, warehouse loans, MSRs, wholesale lending exposures, and foreign currency-denominated assets and liabilities.

(in millions)	Derivatives gains/(losses) recorded in income			
	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Contract type				
Interest rate ^(a)	\$ 657	\$ (25)	\$ 949	\$ (235)
Credit ^(b)	(2)	(3)	(12)	(10)
Foreign exchange ^{(c)(d)}	(75)	133	(25)	103
Total^(d)	\$ 580	\$ 105	\$ 912	\$ (142)

(a) Primarily represents interest rate derivatives used to hedge the interest rate risk inherent in the mortgage pipeline, warehouse loans and MSRs, as well as written commitments to originate warehouse loans. Gains and losses were recorded predominantly in mortgage fees and related income.

(b) Relates to credit derivatives used to mitigate credit risk associated with lending exposures in the Firm's wholesale businesses. These derivatives do not include credit derivatives used to mitigate counterparty credit risk arising from derivative receivables, which is included in gains and losses on derivatives related to market-making activities and other derivatives. Gains and losses were recorded in principal transactions revenue.

(c) Primarily relates to derivatives used to mitigate foreign exchange risk of specified foreign currency-denominated assets and liabilities. Gains and losses were recorded in principal transactions revenue.

(d) The prior period amounts have been revised to conform with the current period presentation.

Gains and losses on derivatives related to market-making activities and other derivatives

The Firm makes markets in derivatives in order to meet the needs of customers and uses derivatives to manage certain risks associated with net open risk positions from its market-making activities, including the counterparty credit risk arising from derivative receivables. All derivatives not included in the hedge accounting or specified risk management categories above are included in this category. Gains and losses on these derivatives are primarily recorded in principal transactions revenue. Refer to Note 5 for information on principal transactions revenue.

Credit derivatives

For a more detailed discussion of credit derivatives, refer to Note 5 of JPMorgan Chase's 2018 Form 10-K. The Firm does not use notional amounts of credit derivatives as the primary measure of risk management for such derivatives, because the notional amount does not take into account the probability of the occurrence of a credit event, the recovery value of the reference obligation, or related cash instruments and economic hedges, each of which reduces, in the Firm's view, the risks associated with such derivatives.

Total credit derivatives and credit-related notes

June 30, 2019 (in millions)	Maximum payout/Notional amount			
	Protection sold	Protection purchased with identical underlyings ^(b)	Net protection (sold)/purchased ^(c)	Other protection purchased ^(d)
Credit derivatives				
Credit default swaps	\$ (579,081)	\$ 590,894	\$ 11,813	\$ 4,323
Other credit derivatives ^(a)	(50,031)	60,725	10,694	9,111
Total credit derivatives	(629,112)	651,619	22,507	13,434
Credit-related notes	—	—	—	8,812
Total	\$ (629,112)	\$ 651,619	\$ 22,507	\$ 22,246

December 31, 2018 (in millions)	Maximum payout/Notional amount			
	Protection sold	Protection purchased with identical underlyings ^(b)	Net protection (sold)/purchased ^(c)	Other protection purchased ^(d)
Credit derivatives				
Credit default swaps	\$ (697,220)	\$ 707,282	\$ 10,062	\$ 4,053
Other credit derivatives ^(a)	(41,244)	42,484	1,240	8,488
Total credit derivatives	(738,464)	749,766	11,302	12,541
Credit-related notes	—	—	—	8,425
Total	\$ (738,464)	\$ 749,766	\$ 11,302	\$ 20,966

(a) Other credit derivatives predominantly consist of credit swap options and total return swaps.

(b) Represents the total notional amount of protection purchased where the underlying reference instrument is identical to the reference instrument on protection sold; the notional amount of protection purchased for each individual identical underlying reference instrument may be greater or lower than the notional amount of protection sold.

(c) Does not take into account the fair value of the reference obligation at the time of settlement, which would generally reduce the amount the seller of protection pays to the buyer of protection in determining settlement value.

(d) Represents protection purchased by the Firm on referenced instruments (single-name, portfolio or index) where the Firm has not sold any protection on the identical reference instrument.

The following tables summarize the notional amounts by the ratings, maturity profile, and total fair value, of credit derivatives and credit-related notes as of June 30, 2019, and December 31, 2018, where JPMorgan Chase is the seller of protection. The maturity profile is based on the remaining contractual maturity of the credit derivative contracts. The ratings profile is based on the rating of the reference entity on which the credit derivative contract is based. The ratings and maturity profile of credit derivatives and credit-related notes where JPMorgan Chase is the purchaser of protection are comparable to the profile reflected below.

Protection sold – credit derivatives and credit-related notes ratings^(a)/maturity profile

June 30, 2019 (in millions)	<1 year	1-5 years	>5 years	Total notional amount	Fair value of receivables ^(b)	Fair value of payables ^(b)	Net fair value
Risk rating of reference entity							
Investment-grade	\$ (103,901)	\$ (332,277)	\$ (39,334)	\$ (475,512)	\$ 5,678	\$ (1,699)	\$ 3,979
Noninvestment-grade	(41,328)	(99,938)	(12,334)	(153,600)	4,007	(3,612)	395
Total	\$ (145,229)	\$ (432,215)	\$ (51,668)	\$ (629,112)	\$ 9,685	\$ (5,311)	\$ 4,374

December 31, 2018 (in millions)	<1 year	1-5 years	>5 years	Total notional amount	Fair value of receivables ^(b)	Fair value of payables ^(b)	Net fair value
Risk rating of reference entity							
Investment-grade	\$ (115,443)	\$ (402,325)	\$ (43,611)	\$ (561,379)	\$ 5,720	\$ (2,791)	\$ 2,929
Noninvestment-grade	(45,897)	(119,348)	(11,840)	(177,085)	4,719	(5,660)	(941)
Total	\$ (161,340)	\$ (521,673)	\$ (55,451)	\$ (738,464)	\$ 10,439	\$ (8,451)	\$ 1,988

(a) The ratings scale is primarily based on external credit ratings defined by S&P and Moody's.

(b) Amounts are shown on a gross basis, before the benefit of legally enforceable master netting agreements and cash collateral received by the Firm.

Note 5 – Noninterest revenue and noninterest expense

Noninterest revenue

For a discussion of the components of and accounting policies for the Firm's noninterest revenue, refer to Note 6 of JPMorgan Chase's 2018 Form 10-K.

Investment banking fees

The following table presents the components of investment banking fees.

(in millions)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Underwriting				
Equity	\$ 515	\$ 573	\$ 776	\$ 925
Debt	820	964	1,765	1,760
Total underwriting	1,335	1,537	2,541	2,685
Advisory	516	631	1,150	1,219
Total investment banking fees	\$ 1,851	\$ 2,168	\$ 3,691	\$ 3,904

Principal transactions

The following table presents all realized and unrealized gains and losses recorded in principal transactions revenue. This table excludes interest income and interest expense on trading assets and liabilities, which are an integral part of the overall performance of the Firm's client-driven market-making activities in CIB and cash deployment activities in Treasury and CIO. Refer to Note 6 for further information on interest income and interest expense. Trading revenue is presented primarily by instrument type. The Firm's client-driven market-making businesses generally utilize a variety of instrument types in connection with their market-making and related risk-management activities; accordingly, the trading revenue presented in the table below is not representative of the total revenue of any individual line of business.

(in millions)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Trading revenue by instrument type				
Interest rate	\$ 461	\$ 672	\$ 1,066	\$ 1,446
Credit	488	648	1,047	1,028
Foreign exchange	729	745	1,617	1,769
Equity	1,912	1,386	3,527	3,013
Commodity	227	246	610	523
Total trading revenue	3,817	3,697	7,867	7,779
Private equity gains/ (losses)	(103)	85	(77)	(45)
Principal transactions	\$ 3,714	\$ 3,782	\$ 7,790	\$ 7,734

Lending- and deposit-related fees

The following table presents the components of lending- and deposit-related fees.

(in millions)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Lending-related fees	\$ 285	\$ 280	\$ 575	\$ 554
Deposit-related fees	1,250	1,215	2,442	2,418
Total lending- and deposit-related fees	\$ 1,535	\$ 1,495	\$ 3,017	\$ 2,972

Asset management, administration and commissions

The following table presents the components of Firmwide asset management, administration and commissions.

(in millions)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Asset management fees				
Investment management fees ^(a)	\$ 2,698	\$ 2,671	\$ 5,275	\$ 5,365
All other asset management fees ^(b)	78	66	147	132
Total asset management fees	2,776	2,737	5,422	5,497
Total administration fees ^(c)	544	557	1,079	1,118
Commissions and other fees				
Brokerage commissions	641	631	1,227	1,283
All other commissions and fees	392	379	739	715
Total commissions and fees	1,033	1,010	1,966	1,998
Total asset management, administration and commissions	\$ 4,353	\$ 4,304	\$ 8,467	\$ 8,613

- (a) Represents fees earned from managing assets on behalf of the Firm's clients, including investors in Firm-sponsored funds and owners of separately managed investment accounts.
- (b) Represents fees for services that are ancillary to investment management services, such as commissions earned on the sales or distribution of mutual funds to clients.
- (c) Predominantly includes fees for custody, securities lending, funds services and securities clearance.

Card income

The following table presents the components of card income:

(in millions)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Interchange and merchant processing income	\$ 5,184	\$ 4,723	\$ 9,905	\$ 9,082
Rewards costs and partner payments ^(a)	(3,610)	(3,527)	(6,846)	(6,411)
Other card income ^(b)	(208)	(176)	(419)	(376)
Total card income	\$ 1,366	\$ 1,020	\$ 2,640	\$ 2,295

- (a) The three and six months ended June 30, 2018, included an adjustment to the credit card rewards liability of approximately \$330 million.
- (b) Predominantly represents annual fees and new account origination costs, which are deferred and recognized on a straight-line basis over a 12-month period.

For information on operating lease income included within other income, refer to Note 16.

Noninterest expense

Other expense

Other expense on the Firm's Consolidated statements of income included the following:

(in millions)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Legal expense/(benefit)	\$ 69	\$ —	\$ (12)	\$ 70
FDIC-related expense	121	368	264	751

Note 6 – Interest income and Interest expense

For a description of JPMorgan Chase's accounting policies regarding interest income and interest expense, refer to Note 7 of JPMorgan Chase's 2018 Form 10-K.

The following table presents the components of interest income and interest expense.

(in millions)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Interest income				
Loans ^(a)	\$ 12,726	\$ 11,634	\$ 25,606	\$ 22,708
Taxable securities	1,875	1,383	3,580	2,696
Non-taxable securities ^(b)	340	395	703	805
Total investment securities ^(a)	2,215	1,778	4,283	3,501
Trading assets - debt instruments	2,915	2,111	5,684	4,214
Federal funds sold and securities purchased under resale agreements	1,676	807	3,323	1,538
Securities borrowed ^(c)	467	190	864	301
Deposits with banks	1,132	1,543	2,302	2,864
All other interest-earning assets ^{(c)(d)}	472	503	930	934
Total interest income^(c)	21,603	18,566	42,992	36,060
Interest expense				
Interest-bearing deposits	2,413	1,340	4,601	2,400
Federal funds purchased and securities loaned or sold under repurchase agreements	1,226	759	2,336	1,337
Short-term borrowings ^(e)	363	260	790	469
Trading liabilities - debt and all other interest-bearing liabilities ^{(c)(f)}	762	598	1,481	1,057
Long-term debt	2,266	2,003	4,608	3,756
Beneficial interest issued by consolidated VIEs	175	121	325	244
Total interest expense^(c)	7,205	5,081	14,141	9,263
Net interest income	14,398	13,485	28,851	26,797
Provision for credit losses	1,149	1,210	2,644	2,375
Net interest income after provision for credit losses	\$ 13,249	\$ 12,275	\$ 26,207	\$ 24,422

(a) Includes the amortization/accretion of unearned income (e.g., purchase premiums/discounts, net deferred fees/costs, etc.).

(b) Represents securities which are tax-exempt for U.S. federal income tax purposes.

(c) In the second quarter of 2019, the Firm implemented certain presentation changes that impacted interest income and interest expense, but had no effect on net interest income. These changes were made to align the accounting treatment between the balance sheet and the related interest income or expense, primarily by offsetting interest income and expense for certain prime brokerage-related held-for-investment customer receivables and payables that are currently presented as a single margin account on the balance sheet. These changes were applied retrospectively and, accordingly, prior period amounts were revised to conform with the current presentation.

(d) Includes prime brokerage-related held-for-investment customer receivables, which are classified in accrued interest and accounts receivable, and all other interest-earning assets which are classified in other assets on the Consolidated balance sheets.

(e) Includes commercial paper.

(f) Other interest-bearing liabilities include prime brokerage-related customer payables.

Note 7 – Pension and other postretirement employee benefit plans

For a discussion of JPMorgan Chase's pension and OPEB plans, refer to Note 8 of JPMorgan Chase's 2018 Form 10-K.

The following table presents the components of net periodic benefit costs reported in the Consolidated statements of income for the Firm's U.S. and non-U.S. defined benefit pension, defined contribution and OPEB plans.

(in millions)	Three months ended June 30,				Six months ended June 30,					
	2019		2018		2019		2018			
	Pension plans		OPEB plans		Pension plans		OPEB plans			
Components of net periodic benefit cost										
Benefits earned during the period	\$	89	\$	89	\$	—	\$	—	\$	—
Interest cost on benefit obligations		149		139		6		6		12
Expected return on plan assets		(229)		(247)		(28)		(26)		(52)
Amortization:										
Net (gain)/loss		41		26		—		—		83
Prior service (credit)/cost		1		(6)		—		—		2
Net periodic defined benefit cost		51		1		(22)		(20)		103
Other defined benefit pension plans ^(a)		7		9		NA		NA		13
Total defined benefit plans		58		10		(22)		(20)		116
Total defined contribution plans		243		222		NA		NA		463
Total pension and OPEB cost included in noninterest expense	\$	301	\$	232	\$	(22)	\$	(20)	\$	579

(a) Includes various defined benefit pension plans which are individually immaterial.

The following table presents the fair values of plan assets for the U.S. defined benefit pension and OPEB plans and for the material non-U.S. defined benefit pension plans.

(in billions)	June 30, 2019	December 31, 2018
Fair value of plan assets		
Defined benefit pension plans	\$ 19.7	\$ 18.1
OPEB plans	2.9	2.6

There are no expected contributions to the U.S. defined benefit pension plan for 2019.

Note 8 – Employee share-based incentives

For a discussion of the accounting policies and other information relating to employee share-based incentives, refer to Note 9 of JPMorgan Chase's 2018 Form 10-K.

The Firm recognized the following noncash compensation expense related to its various employee share-based incentive plans in its Consolidated statements of income.

	Three months ended June 30,		Six months ended June 30,	
(in millions)	2019	2018	2019	2018
Cost of prior grants of RSUs, performance share units ("PSUs") and stock appreciation rights ("SARs") that are amortized over their applicable vesting periods	\$ 278	\$ 276	\$ 617	\$ 674
Accrual of estimated costs of share-based awards to be granted in future periods including those to full- career eligible employees	292	304	606	612
Total noncash compensation expense related to employee share- based incentive plans	\$ 570	\$ 580	\$1,223	\$1,286

In the first quarter of 2019, in connection with its annual incentive grant for the 2018 performance year, the Firm granted 21 million RSUs and 630 thousand PSUs with weighted-average grant date fair values of \$98.98 per RSU and \$98.96 per PSU.

Note 9 – Investment securities

Investment securities consist of debt securities that are classified as AFS or HTM. Debt securities classified as trading assets are discussed in Note 2. Predominantly all of the Firm's AFS and HTM securities are held by Treasury and CIO in connection with its asset-liability management activities. At June 30, 2019, the investment securities portfolio consisted of debt securities with an average credit rating of AA+ (based upon external ratings where available,

and where not available, based primarily upon internal ratings which correspond to ratings as defined by S&P and Moody's). For additional information regarding the investment securities portfolio, refer to Note 10 of JPMorgan Chase's 2018 Form 10-K.

The amortized costs and estimated fair values of the investment securities portfolio were as follows for the dates indicated.

(in millions)	June 30, 2019				December 31, 2018			
	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair value	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair value
Available-for-sale securities								
Mortgage-backed securities:								
U.S. government agencies ^(a)	\$ 94,723	\$ 1,979	\$ 86	\$ 96,616	\$ 69,026	\$ 594	\$ 974	\$ 68,646
Residential:								
U.S.	9,872	272	5	10,139	5,877	79	31	5,925
Non-U.S.	2,534	69	2	2,601	2,529	72	6	2,595
Commercial	5,910	90	11	5,989	6,758	43	147	6,654
Total mortgage-backed securities	113,039	2,410	104	115,345	84,190	788	1,158	83,820
U.S. Treasury and government agencies	73,919	240	169	73,990	55,771	366	78	56,059
Obligations of U.S. states and municipalities	29,869	2,033	1	31,901	36,221	1,582	80	37,723
Certificates of deposit	74	—	—	74	75	—	—	75
Non-U.S. government debt securities	22,017	483	8	22,492	23,771	351	20	24,102
Corporate debt securities	1,736	44	2	1,778	1,904	23	9	1,918
Asset-backed securities:								
Collateralized loan obligations	24,827	16	62	24,781	19,612	1	176	19,437
Other	5,945	61	10	5,996	7,225	57	22	7,260
Total available-for-sale securities	271,426	5,287	356	276,357	228,769	3,168	1,543	230,394
Held-to-maturity securities								
Mortgage-backed securities:								
U.S. government agencies ^(a)	26,097	915	12	27,000	26,610	134	200	26,544
Total mortgage-backed securities	26,097	915	12	27,000	26,610	134	200	26,544
Obligations of U.S. states and municipalities	4,810	262	—	5,072	4,824	105	15	4,914
Total held-to-maturity securities	30,907	1,177	12	32,072	31,434	239	215	31,458
Total investment securities	\$ 302,333	\$ 6,464	\$ 368	\$ 308,429	\$ 260,203	\$ 3,407	\$ 1,758	\$ 261,852

(a) Includes AFS U.S. government-sponsored enterprise obligations with fair values of \$69.8 billion and \$50.7 billion, and HTM U.S. government-sponsored enterprise obligations with amortized cost of \$20.7 billion and \$20.9 billion, at June 30, 2019, and December 31, 2018, respectively. As of June 30, 2019, mortgage-backed securities issued by Fannie Mae and Freddie Mac each exceeded 10% of JPMorgan Chase's total stockholders' equity; the amortized cost and fair value of such securities was \$59.7 billion and \$61.4 billion, and \$29.2 billion and \$30.0 billion, respectively.

Investment securities impairment

The following tables present the fair value and gross unrealized losses for investment securities by aging category at June 30, 2019, and December 31, 2018.

June 30, 2019 (in millions)	Investment securities with gross unrealized losses					
	Less than 12 months		12 months or more		Total fair value	Total gross unrealized losses
	Fair value	Gross unrealized losses	Fair value	Gross unrealized losses		
Available-for-sale securities						
Mortgage-backed securities:						
U.S. government agencies	\$ 5,701	\$ 48	\$ 5,704	\$ 38	\$ 11,405	\$ 86
Residential:						
U.S.	3	—	681	5	684	5
Non-U.S.	122	—	559	2	681	2
Commercial	420	1	843	10	1,263	11
Total mortgage-backed securities	6,246	49	7,787	55	14,033	104
U.S. Treasury and government agencies	38,553	169	—	—	38,553	169
Obligations of U.S. states and municipalities	—	—	205	1	205	1
Certificates of deposit	74	—	—	—	74	—
Non-U.S. government debt securities	3,923	5	897	3	4,820	8
Corporate debt securities	47	—	115	2	162	2
Asset-backed securities:						
Collateralized loan obligations	7,766	16	6,034	46	13,800	62
Other	604	3	2,055	7	2,659	10
Total available-for-sale securities	57,213	242	17,093	114	74,306	356
Held-to-maturity securities						
Mortgage-backed securities						
U.S. government agencies	1	—	2,747	12	2,748	12
Total mortgage-backed securities	1	—	2,747	12	2,748	12
Obligations of U.S. states and municipalities	—	—	—	—	—	—
Total held-to-maturity securities	1	—	2,747	12	2,748	12
Total investment securities with gross unrealized losses	\$ 57,214	\$ 242	\$ 19,840	\$ 126	\$ 77,054	\$ 368

December 31, 2018 (in millions)	Investment securities with gross unrealized losses					
	Less than 12 months		12 months or more		Total fair value	Total gross unrealized losses
	Fair value	Gross unrealized losses	Fair value	Gross unrealized losses		
Available-for-sale securities						
Mortgage-backed securities:						
U.S. government agencies	\$ 17,656	\$ 318	\$ 22,728	\$ 656	\$ 40,384	\$ 974
Residential:						
U.S.	623	4	1,445	27	2,068	31
Non-U.S.	907	5	165	1	1,072	6
Commercial	974	6	3,172	141	4,146	147
Total mortgage-backed securities	20,160	333	27,510	825	47,670	1,158
U.S. Treasury and government agencies	4,792	7	2,391	71	7,183	78
Obligations of U.S. states and municipalities	1,808	15	2,477	65	4,285	80
Certificates of deposit	75	—	—	—	75	—
Non-U.S. government debt securities	3,123	5	1,937	15	5,060	20
Corporate debt securities	478	8	37	1	515	9
Asset-backed securities:						
Collateralized loan obligations	18,681	176	—	—	18,681	176
Other	1,208	6	2,354	16	3,562	22
Total available-for-sale securities	50,325	550	36,706	993	87,031	1,543
Held-to-maturity securities						
Mortgage-backed securities						
U.S. government agencies	4,385	23	7,082	177	11,467	200
Total mortgage-backed securities	4,385	23	7,082	177	11,467	200
Obligations of U.S. states and municipalities	12	—	1,114	15	1,126	15
Total held-to-maturity securities	4,397	23	8,196	192	12,593	215
Total investment securities with gross unrealized losses	\$ 54,722	\$ 573	\$ 44,902	\$ 1,185	\$ 99,624	\$ 1,758

Other-than-temporary impairment

The Firm does not intend to sell any investment securities with an unrealized loss in AOCI as of June 30, 2019, and it is not likely that the Firm will be required to sell these securities before recovery of their amortized cost basis. Further, the Firm did not recognize any credit-related OTTI losses during the six months ended June 30, 2019 and 2018. Accordingly, the Firm believes that the investment securities with an unrealized loss in AOCI as of June 30, 2019, are not other-than-temporarily impaired. For additional information on other-than-temporary impairment, refer to Note 10 of JPMorgan Chase's 2018 Form 10-K.

Investment securities gains and losses

The following table presents realized gains and losses and OTTI from AFS securities that were recognized in income.

(in millions)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Realized gains	\$ 115	\$ 9	\$ 376	\$ 79
Realized losses	(71)	(88)	(319)	(403)
OTTI losses ^(a)	—	(1)	—	(1)
Net investment securities gains/ (losses)	\$ 44	\$ (80)	\$ 57	\$ (325)

(a) Represents OTTI losses recognized in income on investment securities the Firm intends to sell. Excludes realized losses on securities sold of \$20 million for the six months ended June 30, 2018 that had been previously reported as an OTTI loss due to the intention to sell the securities.

Changes in the credit loss component of credit-impaired debt securities

The cumulative credit loss component, including any changes therein, of OTTI losses that have been recognized in income related to AFS securities was not material as of and during the six month periods ended June 30, 2019 and 2018.

Contractual maturities and yields

The following table presents the amortized cost and estimated fair value at June 30, 2019, of JPMorgan Chase's investment securities portfolio by contractual maturity.

By remaining maturity June 30, 2019 (in millions)	Due in one year or less		Due after one year through five years		Due after five years through 10 years		Due after 10 years ^(b)		Total
Available-for-sale securities									
Mortgage-backed securities									
Amortized cost	\$	287	\$	89	\$	9,642	\$	103,021	\$ 113,039
Fair value		287		90		9,827		105,141	115,345
Average yield ^(a)		2.27%		2.55%		3.18%		3.50%	3.47%
U.S. Treasury and government agencies									
Amortized cost	\$	4,550	\$	42,673	\$	18,309	\$	8,387	\$ 73,919
Fair value		4,551		42,760		18,385		8,294	73,990
Average yield ^(a)		2.55%		2.53%		2.34%		2.55%	2.49%
Obligations of U.S. states and municipalities									
Amortized cost	\$	158	\$	410	\$	1,317	\$	27,984	\$ 29,869
Fair value		159		417		1,365		29,960	31,901
Average yield ^(a)		2.83%		4.27%		5.69%		4.99%	5.00%
Certificates of deposit									
Amortized cost	\$	74	\$	—	\$	—	\$	—	\$ 74
Fair value		74		—		—		—	74
Average yield ^(a)		0.49%		—%		—%		—%	0.49%
Non-U.S. government debt securities									
Amortized cost	\$	6,497	\$	11,961	\$	3,559	\$	—	\$ 22,017
Fair value		6,504		12,246		3,742		—	22,492
Average yield ^(a)		2.38%		1.94%		1.20%		—%	1.95%
Corporate debt securities									
Amortized cost	\$	120	\$	910	\$	561	\$	145	\$ 1,736
Fair value		121		932		572		153	1,778
Average yield ^(a)		4.89%		4.34%		4.12%		4.58%	4.33%
Asset-backed securities									
Amortized cost	\$	—	\$	2,345	\$	8,197	\$	20,230	\$ 30,772
Fair value		—		2,348		8,195		20,234	30,777
Average yield ^(a)		—%		2.91%		3.32%		3.27%	3.25%
Total available-for-sale securities									
Amortized cost	\$	11,686	\$	58,388	\$	41,585	\$	159,767	\$ 271,426
Fair value		11,696		58,793		42,086		163,782	276,357
Average yield ^(a)		2.46%		2.46%		2.76%		3.68%	3.23%
Held-to-maturity securities									
Mortgage-backed securities									
Amortized cost	\$	—	\$	—	\$	4,293	\$	21,804	\$ 26,097
Fair value		—		—		4,576		22,424	27,000
Average yield ^(a)		—%		—%		3.37%		3.33%	3.34%
Obligations of U.S. states and municipalities									
Amortized cost	\$	—	\$	—	\$	32	\$	4,778	\$ 4,810
Fair value		—		—		34		5,038	5,072
Average yield ^(a)		—%		—%		3.82%		4.02%	4.01%
Total held-to-maturity securities									
Amortized cost	\$	—	\$	—	\$	4,325	\$	26,582	\$ 30,907
Fair value		—		—		4,610		27,462	32,072
Average yield ^(a)		—%		—%		3.38%		3.45%	3.44%

- (a) Average yield is computed using the effective yield of each security owned at the end of the period, weighted based on the amortized cost of each security. The effective yield considers the contractual coupon, amortization of premiums and accretion of discounts, and the effect of related hedging derivatives. Taxable-equivalent amounts are used where applicable. The effective yield excludes unscheduled principal prepayments; and accordingly, actual maturities of securities may differ from their contractual or expected maturities as certain securities may be prepaid.
- (b) Substantially all of the Firm's U.S. residential MBS and collateralized mortgage obligations are due in 10 years or more, based on contractual maturity. The estimated weighted-average life, which reflects anticipated future prepayments, is approximately 6 years for agency residential MBS, 3 years for agency residential collateralized mortgage obligations and 3 years for nonagency residential collateralized mortgage obligations.

Note 10 – Securities financing activities

For a discussion of accounting policies relating to securities financing activities, refer to Note 11 of JPMorgan Chase's 2018 Form 10-K. For further information regarding securities borrowed and securities lending agreements for which the fair value option has been elected, refer to Note 3. For further information regarding assets pledged and collateral received in securities financing agreements, refer to Note 23.

The table below summarizes the gross and net amounts of the Firm's securities financing agreements as of June 30, 2019 and December 31, 2018. When the Firm has obtained an appropriate legal opinion with respect to a master netting agreement with a counterparty and where other relevant netting criteria under U.S. GAAP are met, the Firm nets, on the Consolidated balance sheets, the balances

outstanding under its securities financing agreements with the same counterparty. In addition, the Firm exchanges securities and/or cash collateral with its counterparty to reduce the economic exposure with the counterparty, but such collateral is not eligible for net Consolidated balance sheet presentation. Where the Firm has obtained an appropriate legal opinion with respect to the counterparty master netting agreement, such collateral, along with securities financing balances that do not meet all these relevant netting criteria under U.S. GAAP, is presented in the table below as "Amounts not nettable on the Consolidated balance sheets," and reduces the "Net amounts" presented. Where a legal opinion has not been either sought or obtained, the securities financing balances are presented gross in the "Net amounts" below.

June 30, 2019					
(in millions)	Gross amounts	Amounts netted on the Consolidated balance sheets	Amounts presented on the Consolidated balance sheets ^(b)	Amounts not nettable on the Consolidated balance sheets ^(c)	Net amounts ^(d)
Assets					
Securities purchased under resale agreements	\$ 710,885	\$ (443,021)	\$ 267,864	\$ (256,036)	\$ 11,828
Securities borrowed	153,413	(22,752)	130,661	(96,512)	34,149
Liabilities					
Securities sold under repurchase agreements	\$ 635,858	\$ (443,021)	\$ 192,837	\$ (171,175)	\$ 21,662
Securities loaned and other ^(a)	33,408	(22,752)	10,656	(10,410)	246
December 31, 2018					
(in millions)	Gross amounts	Amounts netted on the Consolidated balance sheets	Amounts presented on the Consolidated balance sheets ^(b)	Amounts not nettable on the Consolidated balance sheets ^(c)	Net amounts ^(d)
Assets					
Securities purchased under resale agreements	\$ 691,116	\$ (369,612)	\$ 321,504	\$ (308,854)	\$ 12,650
Securities borrowed	132,955	(20,960)	111,995	(79,747)	32,248
Liabilities					
Securities sold under repurchase agreements	\$ 541,587	\$ (369,612)	\$ 171,975	\$ (149,125)	\$ 22,850
Securities loaned and other ^(a)	33,700	(20,960)	12,740	(12,358)	382

- (a) Includes securities-for-securities lending agreements of \$2.9 billion and \$3.3 billion at June 30, 2019 and December 31, 2018, respectively, accounted for at fair value, where the Firm is acting as lender. These amounts are presented within accounts payable and other liabilities in the Consolidated balance sheets.
- (b) Includes securities financing agreements accounted for at fair value. At June 30, 2019 and December 31, 2018, included securities purchased under resale agreements of \$14.0 billion and \$13.2 billion, respectively; securities sold under repurchase agreements of \$981 million and \$935 million, respectively; and securities borrowed of \$5.7 billion and \$5.1 billion, respectively. There were no securities loaned accounted for at fair value in either period.
- (c) In some cases, collateral exchanged with a counterparty exceeds the net asset or liability balance with that counterparty. In such cases, the amounts reported in this column are limited to the related net asset or liability with that counterparty.
- (d) Includes securities financing agreements that provide collateral rights, but where an appropriate legal opinion with respect to the master netting agreement has not been either sought or obtained. At June 30, 2019 and December 31, 2018, included \$9.6 billion and \$7.9 billion, respectively, of securities purchased under resale agreements; \$31.9 billion and \$30.3 billion, respectively, of securities borrowed; \$20.2 billion and \$21.5 billion, respectively, of securities sold under repurchase agreements; and \$18 million and \$25 million, respectively, of securities loaned and other.

The tables below present as of June 30, 2019, and December 31, 2018 the types of financial assets pledged in securities financing agreements and the remaining contractual maturity of the securities financing agreements.

(in millions)	Gross liability balance			
	June 30, 2019		December 31, 2018	
	Securities sold under repurchase agreements	Securities loaned and other	Securities sold under repurchase agreements	Securities loaned and other
Mortgage-backed securities				
U.S. government agencies	\$ 25,607	\$ —	\$ 28,811	\$ —
Residential - nonagency	1,675	—	2,165	—
Commercial - nonagency	1,654	—	1,390	—
U.S. Treasury and government agencies	382,199	10	323,078	69
Obligations of U.S. states and municipalities	1,509	—	1,150	—
Non-U.S. government debt	190,950	1,912	154,900	4,313
Corporate debt securities	13,151	1,301	13,898	428
Asset-backed securities	2,476	—	3,867	—
Equity securities	16,637	30,185	12,328	28,890
Total	\$ 635,858	\$ 33,408	\$ 541,587	\$ 33,700

June 30, 2019 (in millions)	Remaining contractual maturity of the agreements				
	Overnight and continuous	Up to 30 days	30 - 90 days	Greater than 90 days	Total
Total securities sold under repurchase agreements	\$ 342,097	\$ 163,805	\$ 64,822	\$ 65,134	\$ 635,858
Total securities loaned and other	29,654	1,228	514	2,012	33,408

December 31, 2018 (in millions)	Remaining contractual maturity of the agreements				
	Overnight and continuous	Up to 30 days	30 - 90 days	Greater than 90 days	Total
Total securities sold under repurchase agreements	\$ 247,579	\$ 174,971	\$ 71,637	\$ 47,400	\$ 541,587
Total securities loaned and other	28,402	997	2,132	2,169	33,700

Transfers not qualifying for sale accounting

At June 30, 2019, and December 31, 2018, the Firm held \$753 million and \$2.1 billion, respectively, of financial assets for which the rights have been transferred to third parties; however, the transfers did not qualify as a sale in accordance with U.S. GAAP. These transfers have been recognized as collateralized financing transactions. The transferred assets are recorded in trading assets and loans, and the corresponding liabilities are recorded predominantly in short-term borrowings on the Consolidated balance sheets. The prior period amount has been revised to conform with the current period presentation.

Note 11 – Loans

Loan accounting framework

The accounting for a loan depends on management's strategy for the loan, and on whether the loan was credit-impaired at the date of acquisition. The Firm accounts for loans based on the following categories:

- Originated or purchased loans held-for-investment (i.e., "retained"), other than PCI loans
- Loans held-for-sale
- Loans at fair value
- PCI loans held-for-investment

For a detailed discussion of loans, including accounting policies, refer to Note 12 of JPMorgan Chase's 2018 Form 10-K. Refer to Note 3 of this Form 10-Q for further information on the Firm's elections of fair value accounting under the fair value option. Refer to Note 2 of this Form 10-Q for information on loans carried at fair value and classified as trading assets.

Loan portfolio

The Firm's loan portfolio is divided into three portfolio segments, which are the same segments used by the Firm to determine the allowance for loan losses: Consumer, excluding credit card; Credit card; and Wholesale. Within each portfolio segment the Firm monitors and assesses the credit risk in the following classes of loans, based on the risk characteristics of each loan class.

Consumer, excluding credit card ^(a)	Credit card	Wholesale ^(f)
<u>Residential real estate – excluding PCI</u> <ul style="list-style-type: none"> • Residential mortgage^(b) • Home equity^(c) <u>Other consumer loans^(d)</u> <ul style="list-style-type: none"> • Auto • Consumer & Business Banking^(e) <u>Residential real estate – PCI</u> <ul style="list-style-type: none"> • Home equity • Prime mortgage • Subprime mortgage • Option ARMs 	<ul style="list-style-type: none"> • Credit card loans 	<ul style="list-style-type: none"> • Commercial and industrial • Real estate • Financial institutions • Governments & Agencies • Other^(g)

(a) Includes loans held in CCB, prime mortgage and home equity loans held in AWM and prime mortgage loans held in Corporate.

(b) Predominantly includes prime loans (including option ARMs).

(c) Includes senior and junior lien home equity loans.

(d) Includes certain business banking and auto dealer risk-rated loans that apply the wholesale methodology for determining the allowance for loan losses; these loans are managed by CCB, and therefore, for consistency in presentation, are included with the other consumer loan classes.

(e) Predominantly includes Business Banking loans.

(f) Includes loans held in CIB, CB, AWM and Corporate. Excludes prime mortgage and home equity loans held in AWM and prime mortgage loans held in Corporate. Classes are internally defined and may not align with regulatory definitions.

(g) Includes loans to: individuals and individual entities (predominantly consists of Wealth Management clients within AWM and includes exposure to personal investment companies and personal and testamentary trusts), SPEs and Private education and civic organizations. For more information on SPEs, refer to Note 14 of JPMorgan Chase's 2018 Form 10-K.

The following tables summarize the Firm's loan balances by portfolio segment.

June 30, 2019 (in millions)	Consumer, excluding credit card	Credit card ^(a)	Wholesale	Total
Retained	\$ 351,692	\$ 157,568	\$ 438,468	\$ 947,728
Held-for-sale	1,030	8	3,814	4,852
At fair value	–	–	4,309	4,309
Total	\$ 352,722	\$ 157,576	\$ 446,591	\$ 956,889

December 31, 2018 (in millions)	Consumer, excluding credit card	Credit card ^(a)	Wholesale	Total
Retained	\$ 373,637	\$ 156,616	\$ 439,162	\$ 969,415
Held-for-sale	95	16	11,877	11,988
At fair value	–	–	3,151	3,151
Total	\$ 373,732	\$ 156,632	\$ 454,190	\$ 984,554

(a) Includes accrued interest and fees net of an allowance for the uncollectible portion of accrued interest and fee income.

(b) Loans (other than PCI loans and loans for which the fair value option has been elected) are presented net of unamortized discounts and premiums and net deferred loan fees or costs. These amounts were not material as of June 30, 2019, and December 31, 2018.

The following tables provide information about the carrying value of retained loans purchased, sold and reclassified to held-for-sale during the periods indicated. Reclassifications of loans to held-for sale are non-cash transactions. The Firm manages its exposure to credit risk on an ongoing basis. Selling loans is one way that the Firm reduces its credit exposures. Loans that were reclassified to held-for-sale and sold in a subsequent period are excluded from the sales line of this table.

Three months ended June 30, (in millions)	2019				2018			
	Consumer, excluding credit card	Credit card	Wholesale	Total	Consumer, excluding credit card	Credit card	Wholesale	Total
Purchases	\$ 234 ^{(a)(b)}	\$ —	\$ 359	\$ 593	\$ 532 ^{(a)(b)}	\$ —	\$ 532	\$ 1,064
Sales	6,856	—	5,400	12,256	2,391	—	4,943	7,334
Retained loans reclassified to held-for-sale	948	—	924	1,872	—	—	392	392

Six months ended June 30, (in millions)	2019				2018			
	Consumer, excluding credit card	Credit card	Wholesale	Total	Consumer, excluding credit card	Credit card	Wholesale	Total
Purchases	\$ 785 ^{(a)(b)}	\$ —	\$ 588	\$ 1,373	\$ 1,603 ^{(a)(b)}	\$ —	\$ 1,630	\$ 3,233
Sales	15,514	—	10,845	26,359	2,872	—	8,632	11,504
Retained loans reclassified to held-for-sale	5,061	—	1,425	6,486	36	—	1,260	1,296

- (a) Purchases predominantly represent the Firm's voluntary repurchase of certain delinquent loans from loan pools as permitted by Government National Mortgage Association ("Ginnie Mae") guidelines. The Firm typically elects to repurchase these delinquent loans as it continues to service them and/or manage the foreclosure process in accordance with applicable requirements of Ginnie Mae, FHA, RHS, and/or VA.
- (b) Excludes purchases of retained loans sourced through the correspondent origination channel and underwritten in accordance with the Firm's standards. Such purchases were \$4.3 billion and \$5.3 billion for the three months ended June 30, 2019 and 2018, respectively, and \$7.5 billion and \$8.9 billion for the six months ended June 30, 2019 and 2018, respectively.

Gains and losses on sales of loans

Gains and losses on sales of loans (including adjustments to record loans held-for-sale at the lower of cost or fair value) recognized in other income were not material to the Firm for the three and six months ended June 30, 2019 and 2018. In addition, the sale of loans may also result in write downs, recoveries or changes in the allowance recognized in the provision for credit losses.

Consumer, excluding credit card loan portfolio

Consumer loans, excluding credit card loans, consist primarily of residential mortgages, home equity loans and lines of credit, auto loans and consumer and business banking loans, with a focus on serving the prime consumer credit market. The portfolio also includes home equity loans secured by junior liens, prime mortgage loans with an interest-only payment period, and certain payment-option loans that may result in negative amortization.

The following table provides information about retained consumer loans, excluding credit card, by class.

(in millions)	June 30, 2019	December 31, 2018
Residential real estate - excluding PCI		
Residential mortgage	\$ 214,744	\$ 231,078
Home equity	26,017	28,340
Other consumer loans		
Auto	62,073	63,573
Consumer & Business Banking	26,616	26,612
Residential real estate - PCI		
Home equity	8,149	8,963
Prime mortgage	4,343	4,690
Subprime mortgage	1,857	1,945
Option ARMs	7,893	8,436
Total retained loans	\$ 351,692	\$ 373,637

For further information on consumer credit quality indicators, refer to Note 12 of JPMorgan Chase's 2018 Form 10-K.

Residential real estate – excluding PCI loans

The following table provides information by class for retained residential real estate – excluding PCI loans.

Residential real estate – excluding PCI loans

(in millions, except ratios)	Residential mortgage		Home equity		Total residential real estate – excluding PCI	
	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018
Loan delinquency^(a)						
Current	\$ 211,426	\$ 225,899	\$ 25,423	\$ 27,611	\$ 236,849	\$ 253,510
30-149 days past due	1,788	2,763	365	453	2,153	3,216
150 or more days past due	1,530	2,416	229	276	1,759	2,692
Total retained loans	\$ 214,744	\$ 231,078	\$ 26,017	\$ 28,340	\$ 240,761	\$ 259,418
% of 30+ days past due to total retained loans ^(b)	0.46%	0.48%	2.28%	2.57%	0.66%	0.71%
90 or more days past due and government guaranteed ^(c)	\$ 1,422	\$ 2,541	\$ –	\$ –	\$ 1,422	\$ 2,541
Nonaccrual loans	1,691	1,765	1,209	1,323	2,900	3,088
Current estimated LTV ratios^{(d)(e)}						
Greater than 125% and refreshed FICO scores:						
Equal to or greater than 660	\$ 19	\$ 25	\$ 5	\$ 6	\$ 24	\$ 31
Less than 660	10	13	2	1	12	14
101% to 125% and refreshed FICO scores:						
Equal to or greater than 660	35	37	73	111	108	148
Less than 660	36	53	23	38	59	91
80% to 100% and refreshed FICO scores:						
Equal to or greater than 660	4,528	3,977	764	986	5,292	4,963
Less than 660	227	281	236	326	463	607
Less than 80% and refreshed FICO scores:						
Equal to or greater than 660	198,687	212,505	21,178	22,632	219,865	235,137
Less than 660	6,110	6,457	2,969	3,355	9,079	9,812
No FICO/LTV available	866	813	767	885	1,633	1,698
U.S. government-guaranteed	4,226	6,917	–	–	4,226	6,917
Total retained loans	\$ 214,744	\$ 231,078	\$ 26,017	\$ 28,340	\$ 240,761	\$ 259,418
Geographic region^(f)						
California	\$ 71,176	\$ 74,759	\$ 5,327	\$ 5,695	\$ 76,503	\$ 80,454
New York	26,684	28,847	5,276	5,769	31,960	34,616
Illinois	14,236	15,249	1,937	2,131	16,173	17,380
Texas	12,678	13,769	1,694	1,819	14,372	15,588
Florida	10,450	10,704	1,429	1,575	11,879	12,279
Washington	7,937	8,304	802	869	8,739	9,173
Colorado	7,801	8,140	467	521	8,268	8,661
New Jersey	6,608	7,302	1,504	1,642	8,112	8,944
Massachusetts	6,195	6,574	219	236	6,414	6,810
Arizona	4,074	4,434	1,042	1,158	5,116	5,592
All other ^(g)	46,905	52,996	6,320	6,925	53,225	59,921
Total retained loans	\$ 214,744	\$ 231,078	\$ 26,017	\$ 28,340	\$ 240,761	\$ 259,418

(a) Individual delinquency classifications include mortgage loans insured by U.S. government agencies as follows: current included \$1.9 billion and \$2.8 billion; 30-149 days past due included \$1.2 billion and \$2.1 billion; and 150 or more days past due included \$1.1 billion and \$2.0 billion at June 30, 2019, and December 31, 2018, respectively.

(b) At June 30, 2019, and December 31, 2018, residential mortgage loans excluded mortgage loans insured by U.S. government agencies of \$2.3 billion and \$4.1 billion, respectively, that are 30 or more days past due. These amounts have been excluded based upon the government guarantee.

(c) These balances, which are 90 days or more past due, were excluded from nonaccrual loans as the loans are guaranteed by U.S. government agencies. Typically the principal balance of the loans is insured and interest is guaranteed at a specified reimbursement rate subject to meeting agreed-upon servicing guidelines. At June 30, 2019, and December 31, 2018, these balances included \$623 million and \$999 million, respectively, of loans that are no longer accruing interest based on the agreed-upon servicing guidelines. For the remaining balance, interest is being accrued at the guaranteed reimbursement rate. There were no loans that were not guaranteed by U.S. government agencies that are 90 or more days past due and still accruing interest at June 30, 2019, and December 31, 2018.

(d) Represents the aggregate unpaid principal balance of loans divided by the estimated current property value. Current property values are estimated, at a minimum, quarterly, based on home valuation models using nationally recognized home price index valuation estimates incorporating actual data to the extent available and forecasted data where actual data is not available. These property values do not represent actual appraised loan level collateral values; as such, the resulting ratios are necessarily imprecise and should be viewed as estimates. Current estimated combined LTV for junior lien home equity loans considers all available lien positions, as well as unused lines, related to the property.

(e) Refreshed FICO scores represent each borrower's most recent credit score, which is obtained by the Firm on at least a quarterly basis.

(f) The geographic regions presented in the table are ordered based on the magnitude of the corresponding loan balances at June 30, 2019.

(g) At June 30, 2019, and December 31, 2018, included mortgage loans insured by U.S. government agencies of \$4.2 billion and \$6.9 billion, respectively. These amounts have been excluded from the geographic regions presented based upon the government guarantee.

Approximately 37% of the home equity portfolio are senior lien loans; the remaining balance are junior lien HELOANS or HELOCs. The following table provides the Firm's delinquency statistics for junior lien home equity loans and lines of credit as of June 30, 2019, and December 31, 2018.

(in millions, except ratios)	Total loans		Total 30+ day delinquency rate	
	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018
HELOCs: ^(a)				
Within the revolving period ^(b)	\$ 5,611	\$ 5,608	0.32%	0.25%
Beyond the revolving period	9,949	11,286	2.48	2.80
HELOANS	896	1,030	2.68	2.82
Total	\$ 16,456	\$ 17,924	1.76%	2.00%

(a) These HELOCs are predominantly revolving loans for a 10-year period, after which time the HELOC converts to a loan with a 20-year amortization period, but also include HELOCs that allow interest-only payments beyond the revolving period.

(b) The Firm manages the risk of HELOCs during their revolving period by closing or reducing the undrawn line to the extent permitted by law when borrowers are experiencing financial difficulty.

HELOCs beyond the revolving period and HELOANS have higher delinquency rates than HELOCs within the revolving period. That is primarily because the fully-amortizing payment that is generally required for those products is higher than the minimum payment options available for HELOCs within the revolving period. The higher delinquency rates associated with amortizing HELOCs and HELOANS are factored into the Firm's allowance for loan losses.

Impaired loans

The table below sets forth information about the Firm's residential real estate impaired loans, excluding PCI loans. These loans are considered to be impaired as they have been modified in a TDR. All impaired loans are evaluated for an asset-specific allowance as described in Note 13 of JPMorgan Chase's 2018 Form 10-K.

(in millions)	Residential mortgage		Home equity		Total residential real estate - excluding PCI	
	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018
Impaired loans						
With an allowance	\$ 3,173	\$ 3,381	\$ 1,089	\$ 1,142	\$ 4,262	\$ 4,523
Without an allowance ^(a)	1,208	1,184	865	870	2,073	2,054
Total impaired loans^{(b)(c)}	\$ 4,381	\$ 4,565	\$ 1,954	\$ 2,012	\$ 6,335	\$ 6,577
Allowance for loan losses related to impaired loans	\$ 60	\$ 88	\$ 17	\$ 45	\$ 77	\$ 133
Unpaid principal balance of impaired loans ^(d)	5,965	6,207	3,362	3,466	9,327	9,673
Impaired loans on nonaccrual status ^(e)	1,436	1,459	946	955	2,382	2,414

(a) Represents collateral-dependent residential real estate loans that are charged off to the fair value of the underlying collateral less cost to sell. The Firm reports, in accordance with regulatory guidance, residential real estate loans that have been discharged under Chapter 7 bankruptcy and not reaffirmed by the borrower ("Chapter 7 loans") as collateral-dependent nonaccrual TDRs, regardless of their delinquency status. At June 30, 2019, Chapter 7 residential real estate loans included approximately 12% of residential mortgages and 8% of home equity that were 30 days or more past due.

(b) At June 30, 2019, and December 31, 2018, \$2.6 billion and \$4.1 billion, respectively, of loans modified subsequent to repurchase from Ginnie Mae in accordance with the standards of the appropriate government agency (i.e., FHA, VA, RHS) are not included in the table above. When such loans perform subsequent to modification in accordance with Ginnie Mae guidelines, they are generally sold back into Ginnie Mae loan pools. Modified loans that do not re-perform become subject to foreclosure.

(c) Predominantly all impaired loans in the table above are in the U.S.

(d) Represents the contractual amount of principal owed at June 30, 2019, and December 31, 2018. The unpaid principal balance differs from the impaired loan balances due to various factors including charge-offs, net deferred loan fees or costs, and unamortized discounts or premiums on purchased loans.

(e) At both June 30, 2019 and December 31, 2018, nonaccrual loans included \$2.0 billion of TDRs for which the borrowers were less than 90 days past due. For additional information about loans modified in a TDR that are on nonaccrual status refer to the Loan accounting framework in Note 12 of JPMorgan Chase's 2018 Form 10-K.

The following tables present average impaired loans and the related interest income reported by the Firm.

Three months ended June 30, (in millions)	Average impaired loans		Interest income on impaired loans ^(a)		Interest income on impaired loans on a cash basis ^(a)	
	2019	2018	2019	2018	2019	2018
Residential mortgage	\$ 4,437	\$ 5,254	\$ 57	\$ 66	\$ 18	\$ 20
Home equity	1,980	2,087	33	33	20	21
Total residential real estate - excluding PCI	\$ 6,417	\$ 7,341	\$ 90	\$ 99	\$ 38	\$ 41

Six months ended June 30, (in millions)	Average impaired loans		Interest income on impaired loans ^(a)		Interest income on impaired loans on a cash basis ^(a)	
	2019	2018	2019	2018	2019	2018
Residential mortgage	\$ 4,486	\$ 5,431	\$ 116	\$ 136	\$ 35	\$ 39
Home equity	1,991	2,105	66	65	41	42
Total residential real estate - excluding PCI	\$ 6,477	\$ 7,536	\$ 182	\$ 201	\$ 76	\$ 81

(a) Generally, interest income on loans modified in TDRs is recognized on a cash basis until the borrower has made a minimum of six payments under the new terms, unless the loan is deemed to be collateral-dependent.

Loan modifications

Modifications of residential real estate loans, excluding PCI loans, are generally accounted for and reported as TDRs. There were no additional commitments to lend to borrowers whose residential real estate loans, excluding PCI loans, have been modified in TDRs.

The following table presents new TDRs reported by the Firm.

(in millions)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Residential mortgage	\$ 62	\$ 100	\$ 131	\$ 247
Home equity	48	83	114	186
Total residential real estate - excluding PCI	\$ 110	\$ 183	\$ 245	\$ 433

Nature and extent of modifications

The U.S. Treasury's Making Home Affordable programs, as well as the Firm's proprietary modification programs, generally provide various concessions to financially troubled borrowers including, but not limited to, interest rate reductions, term or payment extensions and deferral of principal and/or interest payments that would otherwise have been required under the terms of the original agreement.

The following tables provide information about how residential real estate loans, excluding PCI loans, were modified under the Firm's loss mitigation programs described above during the periods presented. These tables exclude Chapter 7 loans where the sole concession granted is the discharge of debt.

Three months ended June 30,	Residential mortgage		Home equity		Total residential real estate - excluding PCI	
	2019	2018	2019	2018	2019	2018
Number of loans approved for a trial modification	501	977	411	849	912	1,826
Number of loans permanently modified	428	686	816	1,268	1,244	1,954
Concession granted:^(a)						
Interest rate reduction	60%	37%	73%	53%	68%	48%
Term or payment extension	92	46	74	59	80	55
Principal and/or interest deferred	29	50	9	27	16	35
Principal forgiveness	6	8	4	10	4	9
Other ^(b)	45	32	58	57	54	48

Six months ended June 30,	Residential mortgage		Home equity		Total residential real estate - excluding PCI	
	2019	2018	2019	2018	2019	2018
Number of loans approved for a trial modification	1,238	1,276	932	1,309	2,170	2,585
Number of loans permanently modified	871	1,655	1,923	3,066	2,794	4,721
Concession granted:^(a)						
Interest rate reduction	60%	27%	79%	51%	73%	42%
Term or payment extension	90	35	66	54	74	48
Principal and/or interest deferred	28	54	8	26	14	36
Principal forgiveness	6	7	5	7	5	7
Other ^(b)	40	42	65	58	57	53

(a) Represents concessions granted in permanent modifications as a percentage of the number of loans permanently modified. The sum of the percentages exceeds 100% because predominantly all of the modifications include more than one type of concession. Concessions offered on trial modifications are generally consistent with those granted on permanent modifications.

(b) Includes variable interest rate to fixed interest rate modifications and forbearances that meet the definition of a TDR for the three and six months ended June 30, 2019 and 2018. Forbearances suspend or reduce monthly payments for a specific period of time to address a temporary hardship.

Financial effects of modifications and redefaults

The following tables provide information about the financial effects of the various concessions granted in modifications of residential real estate loans, excluding PCI loans, under the loss mitigation programs described above and about redefaults of certain loans modified in TDRs for the periods presented. The following tables present only the financial effects of permanent modifications and does not include temporary concessions offered through trial modifications. These tables also exclude Chapter 7 loans where the sole concession granted is the discharge of debt.

Three months ended June 30, (in millions, except weighted-average data)	Residential mortgage		Home equity		Total residential real estate - excluding PCI	
	2019	2018	2019	2018	2019	2018
Weighted-average interest rate of loans with interest rate reductions - before TDR	6.03%	4.97%	5.51%	5.21%	5.76%	5.10%
Weighted-average interest rate of loans with interest rate reductions - after TDR	4.47	3.15	3.83	3.31	4.14	3.24
Weighted-average remaining contractual term (in years) of loans with term or payment extensions - before TDR	19	25	20	18	19	23
Weighted-average remaining contractual term (in years) of loans with term or payment extensions - after TDR	39	37	40	37	39	38
Charge-offs recognized upon permanent modification	\$ 1	\$ -	\$ -	\$ -	\$ 1	\$ -
Principal deferred	5	4	2	3	7	7
Principal forgiven	1	3	1	2	2	5
Balance of loans that redefaulted within one year of permanent modification ^(a)	\$ 23	\$ 25	\$ 16	\$ 19	\$ 39	\$ 44

Six months ended June 30, (in millions, except weighted-average data)	Residential mortgage		Home equity		Total residential real estate - excluding PCI	
	2019	2018	2019	2018	2019	2018
Weighted-average interest rate of loans with interest rate reductions - before TDR	6.28%	5.03%	5.59%	5.16%	5.86%	5.11%
Weighted-average interest rate of loans with interest rate reductions - after TDR	4.56	3.28	3.75	3.16	4.06	3.21
Weighted-average remaining contractual term (in years) of loans with term or payment extensions - before TDR	20	25	20	19	20	22
Weighted-average remaining contractual term (in years) of loans with term or payment extensions - after TDR	39	37	40	39	39	38
Charge-offs recognized upon permanent modification	\$ 1	\$ -	\$ -	\$ 1	\$ 1	\$ 1
Principal deferred	8	10	3	5	11	15
Principal forgiven	2	6	2	4	4	10
Balance of loans that redefaulted within one year of permanent modification ^(a)	\$ 56	\$ 45	\$ 31	\$ 33	\$ 87	\$ 78

(a) Represents loans permanently modified in TDRs that experienced a payment default in the periods presented, and for which the payment default occurred within one year of the modification. The dollar amounts presented represent the balance of such loans at the end of the reporting period in which such loans defaulted. For residential real estate loans modified in TDRs, payment default is deemed to occur when the loan becomes two contractual payments past due. In the event that a modified loan redefaults, it is probable that the loan will ultimately be liquidated through foreclosure or another similar type of liquidation transaction. Defaults of loans modified within the last 12 months may not be representative of ultimate redefault levels.

At June 30, 2019, the weighted-average estimated remaining lives of residential real estate loans, excluding PCI loans, permanently modified in TDRs were 9 years for both residential mortgage and home equity. The estimated remaining lives of these loans reflect estimated prepayments, both voluntary and involuntary (i.e., foreclosures and other forced liquidations).

Active and suspended foreclosure

At June 30, 2019, and December 31, 2018, the Firm had non-PCI residential real estate loans, excluding those insured by U.S. government agencies, with a carrying value of \$609 million and \$653 million, respectively, that were not included in REO, but were in the process of active or suspended foreclosure.

Other consumer loans

The table below provides information for other consumer retained loan classes, including auto and business banking loans.

(in millions, except ratios)	Auto		Consumer & Business Banking		Total other consumer	
	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018
Loan delinquency						
Current	\$ 61,562	\$ 62,984	\$ 26,289	\$ 26,249	\$ 87,851	\$ 89,233
30-119 days past due	511	589	215	252	726	841
120 or more days past due	—	—	112	111	112	111
Total retained loans	\$ 62,073	\$ 63,573	\$ 26,616	\$ 26,612	\$ 88,689	\$ 90,185
% of 30+ days past due to total retained loans	0.82%	0.93%	1.23%	1.36%	0.94%	1.06%
Nonaccrual loans ^(a)	108	128	223	245	331	373
Geographic region^(b)						
California	\$ 8,142	\$ 8,330	\$ 5,689	\$ 5,520	\$ 13,831	\$ 13,850
Texas	6,524	6,531	3,060	2,993	9,584	9,524
New York	3,690	3,863	4,349	4,381	8,039	8,244
Illinois	3,625	3,716	1,731	2,046	5,356	5,762
Florida	3,256	3,256	1,519	1,502	4,775	4,758
Arizona	2,011	2,084	1,275	1,491	3,286	3,575
Ohio	1,927	1,973	1,210	1,305	3,137	3,278
New Jersey	1,936	1,981	811	723	2,747	2,704
Michigan	1,305	1,357	1,264	1,329	2,569	2,686
Louisiana	1,539	1,587	789	860	2,328	2,447
All other	28,118	28,895	4,919	4,462	33,037	33,357
Total retained loans	\$ 62,073	\$ 63,573	\$ 26,616	\$ 26,612	\$ 88,689	\$ 90,185
Loans by risk ratings^(c)						
Noncriticized	\$ 14,754	\$ 15,749	\$ 18,707	\$ 18,743	\$ 33,461	\$ 34,492
Criticized performing	407	273	730	751	1,137	1,024
Criticized nonaccrual	—	—	171	191	171	191

(a) There were no loans that were 90 or more days past due and still accruing interest at June 30, 2019, and December 31, 2018.

(b) The geographic regions presented in this table are ordered based on the magnitude of the corresponding loan balances at June 30, 2019.

(c) For risk-rated business banking and auto loans, the primary credit quality indicator is the risk rating of the loan, including whether the loans are considered to be criticized and/or nonaccrual.

Other consumer impaired loans and loan modifications

The table below sets forth information about the Firm's other consumer impaired loans, including risk-rated business banking and auto loans that have been placed on nonaccrual status, and loans that have been modified in TDRs.

(in millions)	June 30, 2019	December 31, 2018
Impaired loans		
With an allowance	\$ 207	\$ 222
Without an allowance ^(a)	20	29
Total impaired loans^{(b)(c)}	\$ 227	\$ 251
Allowance for loan losses related to impaired loans	\$ 68	\$ 63
Unpaid principal balance of impaired loans ^(d)	327	355
Impaired loans on nonaccrual status	205	229

- (a) When discounted cash flows, collateral value or market price equals or exceeds the recorded investment in the loan, the loan does not require an allowance. This typically occurs when the impaired loans have been partially charged off and/or there have been interest payments received and applied to the loan balance.
- (b) Predominantly all other consumer impaired loans are in the U.S.
- (c) Other consumer average impaired loans were \$244 million and \$277 million for the three months ended June 30, 2019 and 2018, respectively, and \$245 million and \$287 million for the six months ended June 30, 2019 and 2018, respectively. The related interest income on impaired loans, including those on a cash basis, was not material for the three and six months ended June 30, 2019 and 2018.
- (d) Represents the contractual amount of principal owed at June 30, 2019, and December 31, 2018. The unpaid principal balance differs from the impaired loan balances due to various factors, including charge-offs, interest payments received and applied to the principal balance, net deferred loan fees or costs, and unamortized discounts or premiums on purchased loans.

Loan modifications

Certain other consumer loan modifications are considered to be TDRs as they provide various concessions to borrowers who are experiencing financial difficulty. All of these TDRs are reported as impaired loans. Refer to Note 12 of JPMorgan Chase's 2018 Form 10-K for further information on other consumer loans modified in TDRs.

At June 30, 2019 and December 31, 2018, other consumer loans modified in TDRs were \$72 million and \$79 million, respectively. The impact of these modifications, as well as new TDRs, were not material to the Firm for the three and six months ended June 30, 2019 and 2018. Additional commitments to lend to borrowers whose loans have been modified in TDRs as of June 30, 2019 and December 31, 2018 were not material. TDRs on nonaccrual status were \$50 million and \$57 million at June 30, 2019 and December 31, 2018, respectively.

Purchased credit-impaired loans

For a detailed discussion of PCI loans, including the related accounting policies, refer to Note 12 of JPMorgan Chase's 2018 Form 10-K.

Residential real estate – PCI loans

The table below sets forth information about the Firm's consumer, excluding credit card, PCI loans.

(in millions, except ratios)	Home equity		Prime mortgage		Subprime mortgage		Option ARMs		Total PCI	
	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018
Carrying value ^(a)	\$ 8,149	\$ 8,963	\$ 4,343	\$ 4,690	\$ 1,857	\$ 1,945	\$ 7,893	\$ 8,436	\$22,242	\$24,034
Loan delinquency (based on unpaid principal balance)										
Current	\$ 7,904	\$ 8,624	\$ 3,922	\$ 4,226	\$ 1,974	\$ 2,033	\$ 7,139	\$ 7,592	\$20,939	\$22,475
30–149 days past due	239	278	256	259	254	286	372	398	1,121	1,221
150 or more days past due	193	242	185	223	105	123	395	457	878	1,045
Total loans	\$ 8,336	\$ 9,144	\$ 4,363	\$ 4,708	\$ 2,333	\$ 2,442	\$ 7,906	\$ 8,447	\$22,938	\$24,741
% of 30+ days past due to total loans	5.18%	5.69%	10.11%	10.24%	15.39%	16.75%	9.70%	10.12%	8.71%	9.16%
Current estimated LTV ratios (based on unpaid principal balance)^{(b)(c)}										
Greater than 125% and refreshed FICO scores:										
Equal to or greater than 660	\$ 15	\$ 17	\$ 2	\$ 1	\$ 2	\$ –	\$ 3	\$ 3	\$ 22	\$ 21
Less than 660	10	13	4	7	6	9	6	7	26	36
101% to 125% and refreshed FICO scores:										
Equal to or greater than 660	105	135	5	6	5	4	20	17	135	162
Less than 660	45	65	19	22	28	35	21	33	113	155
80% to 100% and refreshed FICO scores:										
Equal to or greater than 660	708	805	67	75	56	54	108	119	939	1,053
Less than 660	304	388	80	112	120	161	137	190	641	851
Lower than 80% and refreshed FICO scores:										
Equal to or greater than 660	5,241	5,548	2,692	2,689	820	739	5,143	5,111	13,896	14,087
Less than 660	1,678	1,908	1,306	1,568	1,196	1,327	2,165	2,622	6,345	7,425
No FICO/LTV available	230	265	188	228	100	113	303	345	821	951
Total unpaid principal balance	\$ 8,336	\$ 9,144	\$ 4,363	\$ 4,708	\$ 2,333	\$ 2,442	\$ 7,906	\$ 8,447	\$22,938	\$24,741
Geographic region (based on unpaid principal balance)^(d)										
California	\$ 4,942	\$ 5,420	\$ 2,381	\$ 2,578	\$ 568	\$ 593	\$ 4,517	\$ 4,798	\$12,408	\$13,389
Florida	901	976	306	332	224	234	660	713	2,091	2,255
New York	485	525	350	365	259	268	470	502	1,564	1,660
Illinois	217	233	145	154	119	123	190	199	671	709
Washington	373	419	90	98	40	44	165	177	668	738
New Jersey	191	210	119	134	83	88	230	258	623	690
Massachusetts	59	65	108	113	71	73	226	240	464	491
Maryland	44	48	91	95	93	96	169	178	397	417
Virginia	49	54	84	91	35	37	197	211	365	393
Arizona	149	165	63	69	39	43	103	112	354	389
All other	926	1,029	626	679	802	843	979	1,059	3,333	3,610
Total unpaid principal balance	\$ 8,336	\$ 9,144	\$ 4,363	\$ 4,708	\$ 2,333	\$ 2,442	\$ 7,906	\$ 8,447	\$22,938	\$24,741

(a) Carrying value includes the effect of fair value adjustments that were applied to the consumer PCI portfolio at the date of acquisition.

(b) Represents the aggregate unpaid principal balance of loans divided by the estimated current property value. Current property values are estimated, at a minimum, quarterly, based on home valuation models using nationally recognized home price index valuation estimates incorporating actual data to the extent available and forecasted data where actual data is not available. These property values do not represent actual appraised loan level collateral values; as such, the resulting ratios are necessarily imprecise and should be viewed as estimates. Current estimated combined LTV for junior lien home equity loans considers all available lien positions, as well as unused lines, related to the property.

(c) Refreshed FICO scores represent each borrower's most recent credit score, which is obtained by the Firm on at least a quarterly basis.

(d) The geographic regions presented in the table are ordered based on the magnitude of the corresponding loan balances at June 30, 2019.

Approximately 26% of the PCI home equity portfolio are senior lien loans; the remaining balance are junior lien HELOCs or HELOCs. The following table represents the Firm's delinquency statistics for PCI junior lien home equity loans and lines of credit based on the unpaid principal balance as of June 30, 2019, and December 31, 2018.

(in millions, except ratios)	Total loans		Total 30+ day delinquency rate	
	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018
HELOCs ^{(a)(b)}	5,942	6,531	3.69%	4.00%
HELOCs	250	280	3.60	3.57
Total	\$ 6,192	\$ 6,811	3.68%	3.98%

(a) In general, these HELOCs are revolving loans for a 10-year period, after which time the HELOC converts to an interest-only loan with a balloon payment at the end of the loan's term. Substantially all HELOCs are beyond the revolving period.

(b) Includes loans modified into fixed rate amortizing loans.

The table below presents the accretable yield activity for the Firm's PCI consumer loans for the three and six months ended June 30, 2019 and 2018, and represents the Firm's estimate of gross interest income expected to be earned over the remaining life of the PCI loan portfolios. The table excludes the cost to fund the PCI portfolios, and therefore the accretable yield does not represent net interest income expected to be earned on these portfolios.

(in millions, except ratios)	Total PCI			
	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Beginning balance	\$ 8,043	\$10,250	\$ 8,422	\$11,159
Accretion into interest income	(283)	(327)	(569)	(655)
Changes in interest rates on variable-rate loans	(78)	(548)	(94)	(268)
Other changes in expected cash flows ^(a)	17	(653)	(60)	(1,514)
Balance at June 30	\$ 7,699	\$ 8,722	\$ 7,699	\$ 8,722
Accretable yield percentage	5.41%	4.93%	5.35%	4.86%

(a) Other changes in expected cash flows may vary from period to period as the Firm continues to refine its cash flow model, for example cash flows expected to be collected due to the impact of modifications and changes in prepayment assumptions.

Active and suspended foreclosure

At June 30, 2019, and December 31, 2018, the Firm had PCI residential real estate loans with an unpaid principal balance of \$826 million and \$964 million, respectively, that were not included in REO, but were in the process of active or suspended foreclosure.

Credit card loan portfolio

For further information on the credit card loan portfolio, including credit quality indicators, refer to Note 12 of JPMorgan Chase's 2018 Form 10-K.

The table below sets forth information about the Firm's credit card loans.

(in millions, except ratios)	June 30, 2019	December 31, 2018
Loan delinquency		
Current and less than 30 days past due and still accruing	\$ 154,876	\$ 153,746
30-89 days past due and still accruing	1,323	1,426
90 or more days past due and still accruing	1,369	1,444
Total retained loans	\$ 157,568	\$ 156,616
Loan delinquency ratios		
% of 30+ days past due to total retained loans	1.71%	1.83%
% of 90+ days past due to total retained loans	0.87	0.92
Geographic region^(a)		
California	\$ 24,047	\$ 23,757
Texas	15,495	15,085
New York	13,676	13,601
Florida	9,867	9,770
Illinois	9,038	8,938
New Jersey	6,721	6,739
Ohio	5,060	5,094
Pennsylvania	4,900	4,996
Colorado	4,477	4,309
Michigan	3,885	3,912
All other	60,402	60,415
Total retained loans	\$ 157,568	\$ 156,616
Percentage of portfolio based on carrying value with estimated refreshed FICO scores		
Equal to or greater than 660	84.0%	84.2%
Less than 660	14.7	15.0
No FICO available	1.3	0.8

(a) The geographic regions presented in the table are ordered based on the magnitude of the corresponding loan balances at June 30, 2019.

Credit card impaired loans and loan modifications

For a detailed discussion of impaired credit card loans, including credit card loan modifications, refer to Note 12 of JPMorgan Chase's 2018 Form 10-K.

The table below sets forth information about the Firm's impaired credit card loans. All of these loans are considered to be impaired as they have been modified in TDRs.

(in millions)	June 30, 2019	December 31, 2018
Impaired credit card loans with an allowance ^{(a)(b)(c)}	\$ 1,388	\$ 1,319
Allowance for loan losses related to impaired credit card loans	472	440

(a) The carrying value and the unpaid principal balance are the same for credit card impaired loans.

(b) There were no impaired loans without an allowance.

(c) Predominantly all impaired credit card loans are in the U.S.

The following table presents average balances of impaired credit card loans and interest income recognized on those loans.

(in millions)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Average impaired credit card loans	\$ 1,367	\$ 1,244	\$ 1,353	\$ 1,234
Interest income on impaired credit card loans	18	16	35	31

Loan modifications

The Firm may offer one of a number of loan modification programs to credit card borrowers who are experiencing financial difficulty. Most of the credit card loans have been modified under long-term programs for borrowers who are experiencing financial difficulties. These modifications involve placing the customer on a fixed payment plan, generally for 60 months, and typically include reducing the interest rate on the credit card. Substantially all modifications are considered to be TDRs. New enrollments in these loan modification programs were \$226 million and \$202 million for the three months ended June 30, 2019 and 2018, respectively, and \$475 million and \$425 million for the six months ended June 30, 2019 and 2018, respectively. For all periods disclosed, new enrollments were less than 1% of total retained credit card loans.

For additional information about credit card loan modifications, refer to Note 12 of JPMorgan Chase's 2018 Form 10-K.

Financial effects of modifications and redefaults

The following table provides information about the financial effects of the concessions granted on credit card loans modified in TDRs and redefaults for the periods presented.

(in millions, except weighted-average data)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Weighted-average interest rate of loans - before TDR	19.38%	18.00%	19.25%	17.61%
Weighted-average interest rate of loans - after TDR	4.71	5.06	4.88	5.13
Loans that redefaulted within one year of modification ^(a)	\$ 32	\$ 25	\$ 66	\$ 51

(a) Represents loans modified in TDRs that experienced a payment default in the periods presented, and for which the payment default occurred within one year of the modification. The amounts presented represent the balance of such loans as of the end of the quarter in which they defaulted.

For credit card loans modified in TDRs, payment default is deemed to have occurred when the borrower misses two consecutive contractual payments. A substantial portion of these loans are expected to be charged-off in accordance with the Firm's standard charge-off policy. Based on historical experience, the estimated weighted-average default rate for modified credit card loans was expected to be 34.04% and 33.38% as of June 30, 2019, and December 31, 2018, respectively.

Wholesale loan portfolio

Wholesale loans include loans made to a variety of clients, ranging from large corporate and institutional clients to high-net-worth individuals. The primary credit quality indicator for wholesale loans is the risk rating assigned to

each loan. For further information on these risk ratings, refer to Note 12 and Note 13 of JPMorgan Chase's 2018 Form 10-K.

The table below provides information by class of receivable for the retained loans in the Wholesale portfolio segment.

(in millions, except ratios)	Commercial and industrial		Real estate		Financial institutions		Governments & Agencies		Other ^(d)		Total retained loans	
	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018
Loans by risk ratings												
Investment-grade	\$ 67,490	\$ 73,497	\$100,115	\$100,107	\$ 36,432	\$32,178	\$13,431	\$13,984	\$119,720	\$119,963	\$337,188	\$339,729
Noninvestment-grade:												
Noncriticized	54,639	51,720	14,582	14,876	14,779	15,316	258	201	10,756	11,478	95,014	93,591
Criticized performing	3,478	3,738	815	620	198	150	3	2	534	182	5,028	4,692
Criticized nonaccrual	933	851	91	134	10	4	—	—	204	161	1,238	1,150
Total noninvestment-grade	59,050	56,309	15,488	15,630	14,987	15,470	261	203	11,494	11,821	101,280	99,433
Total retained loans	\$126,540	\$129,806	\$115,603	\$115,737	\$ 51,419	\$47,648	\$13,692	\$14,187	\$131,214	\$131,784	\$438,468	\$439,162
% of total criticized exposure to total retained loans	3.49%	3.54%	0.78%	0.65 %	0.40%	0.32%	0.02%	0.01%	0.56%	0.26%	1.43%	1.33%
% of criticized nonaccrual to total retained loans	0.74	0.66	0.08	0.12	0.02	0.01	—	—	0.16	0.12	0.28	0.26
Loans by geographic distribution^(a)												
Total non-U.S.	\$ 31,054	\$ 29,572	\$ 3,248	\$ 2,967	\$16,632	\$18,524	\$ 2,753	\$ 3,150	\$ 47,473	\$ 48,433	\$101,160	\$102,646
Total U.S.	95,486	100,234	112,355	112,770	34,787	29,124	10,939	11,037	83,741	83,351	337,308	336,516
Total retained loans	\$126,540	\$129,806	\$115,603	\$115,737	\$ 51,419	\$47,648	\$13,692	\$14,187	\$131,214	\$131,784	\$438,468	\$439,162
Loan delinquency^(b)												
Current and less than 30 days past due and still accruing	\$125,003	\$128,678	\$115,409	\$115,533	\$ 51,377	\$47,622	\$13,687	\$14,165	\$130,246	\$130,918	\$435,722	\$436,916
30-89 days past due and still accruing	493	109	99	67	31	12	3	18	764	702	1,390	908
90 or more days past due and still accruing ^(c)	111	168	4	3	1	10	2	4	—	3	118	188
Criticized nonaccrual	933	851	91	134	10	4	—	—	204	161	1,238	1,150
Total retained loans	\$126,540	\$129,806	\$115,603	\$115,737	\$ 51,419	\$47,648	\$13,692	\$14,187	\$131,214	\$131,784	\$438,468	\$439,162

(a) The U.S. and non-U.S. distribution is determined based predominantly on the domicile of the borrower.

(b) The credit quality of wholesale loans is assessed primarily through ongoing review and monitoring of an obligor's ability to meet contractual obligations rather than relying on the past due status, which is generally a lagging indicator of credit quality. For a further discussion, refer to Note 12 of JPMorgan Chase's 2018 Form 10-K.

(c) Represents loans that are considered well-collateralized and therefore still accruing interest.

(d) Other includes individuals and individual entities (predominantly consists of Wealth Management clients within AWM and includes exposure to personal investment companies and personal and testamentary trusts), SPEs and Private education and civic organizations. For more information on SPEs, refer to Note 14 of JPMorgan Chase's 2018 Form 10-K.

The following table presents additional information on the real estate class of loans within the Wholesale portfolio for the periods indicated. For further information on real estate loans, refer to Note 12 of JPMorgan Chase's 2018 Form 10-K.

(in millions, except ratios)	Multifamily		Other commercial		Total real estate loans	
	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018
Real estate retained loans	\$ 78,643	\$ 79,184	\$ 36,960	\$ 36,553	\$ 115,603	\$ 115,737
Criticized exposure	548	388	358	366	906	754
% of total criticized exposure to total real estate retained loans	0.70%	0.49%	0.97%	1.00%	0.78%	0.65%
Criticized nonaccrual	\$ 38	\$ 57	\$ 53	\$ 77	\$ 91	\$ 134
% of criticized nonaccrual loans to total real estate retained loans	0.05%	0.07%	0.14%	0.21%	0.08%	0.12%

Wholesale impaired retained loans and loan modifications

Wholesale impaired retained loans consist of loans that have been placed on nonaccrual status and/or that have been modified in a TDR. All impaired loans are evaluated for an asset-specific allowance as described in Note 13 of JPMorgan Chase's 2018 Form 10-K.

The table below sets forth information about the Firm's wholesale impaired retained loans.

(in millions)	Commercial and industrial		Real estate		Financial institutions		Governments & Agencies		Other		Total retained loans	
	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018
Impaired loans												
With an allowance	\$ 734	\$ 807	\$ 78	\$ 107	\$ 10	\$ 4	\$ —	\$ —	\$ 213	\$ 152	\$ 1,035	\$ 1,070
Without an allowance ^(a)	244	140	14	27	—	—	—	—	2	13	260	180
Total impaired loans	\$ 978	\$ 947	\$ 92	\$ 134	\$ 10	\$ 4	\$ —	\$ —	\$ 215	\$ 165	\$ 1,295 ^(c)	\$ 1,250 ^(c)
Allowance for loan losses related to impaired loans	\$ 209	\$ 252	\$ 22	\$ 25	\$ 2	\$ 1	\$ —	\$ —	\$ 55	\$ 19	\$ 288	\$ 297
Unpaid principal balance of impaired loans ^(b)	1,131	1,043	118	203	11	4	—	—	228	473	1,488	1,723

(a) When the discounted cash flows, collateral value or market price equals or exceeds the recorded investment in the loan, the loan does not require an allowance. This typically occurs when the impaired loans have been partially charged-off and/or there have been interest payments received and applied to the loan balance.

(b) Represents the contractual amount of principal owed at June 30, 2019, and December 31, 2018. The unpaid principal balance differs from the impaired loan balances due to various factors, including charge-offs; interest payments received and applied to the carrying value; net deferred loan fees or costs; and unamortized discount or premiums on purchased loans.

(c) Based upon the domicile of the borrower, largely consists of loans in the U.S.

The following table presents the Firm's average impaired retained loans for the periods indicated.

(in millions)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Commercial and industrial	\$ 953	\$ 1,106	\$ 1,087	\$ 1,224
Real estate	106	142	118	142
Financial institutions	13	90	13	91
Governments & Agencies	—	—	—	—
Other	293	208	248	219
Total^(a)	\$ 1,365	\$ 1,546	\$ 1,466	\$ 1,676

(a) The related interest income on accruing impaired loans and interest income recognized on a cash basis were not material for the three and six months ended June 30, 2019 and 2018.

Certain loan modifications are considered to be TDRs as they provide various concessions to borrowers who are experiencing financial difficulty. All TDRs are reported as impaired loans in the tables above. TDRs were \$462 million and \$576 million as of June 30, 2019, and December 31, 2018, respectively. The impact of these modifications, as well as new TDRs, were not material to the Firm for the three and six months ended June 30, 2019 and 2018.

Note 12 – Allowance for credit losses

For a detailed discussion of the allowance for credit losses and the related accounting policies, refer to Note 13 of JPMorgan Chase's 2018 Form 10-K.

Allowance for credit losses and related information

The table below summarizes information about the allowances for loan losses and lending-related commitments, and includes a breakdown of loans and lending-related commitments by impairment methodology.

Six months ended June 30, (in millions)	2019				2018			
	Consumer, excluding credit card	Credit card	Wholesale	Total	Consumer, excluding credit card	Credit card	Wholesale	Total
Allowance for loan losses								
Beginning balance at January 1,	\$ 4,146	\$ 5,184	\$ 4,115	\$ 13,445	\$ 4,579	\$ 4,884	\$ 4,141	\$ 13,604
Gross charge-offs	471	2,725	150	3,346	539	2,578	241	3,358
Gross recoveries	(277)	(283)	(22)	(582)	(451)	(244)	(76)	(771)
Net charge-offs	194	2,442	128	2,764	88	2,334	165	2,587
Write-offs of PCI loans ^(a)	89	—	—	89	93	—	—	93
Provision for loan losses	(204)	2,642	131	2,569	90	2,334	(98)	2,326
Other	—	(1)	6	5	—	—	—	—
Ending balance at June 30,	\$ 3,659	\$ 5,383	\$ 4,124	\$ 13,166	\$ 4,488	\$ 4,884	\$ 3,878	\$ 13,250
Allowance for loan losses by impairment methodology								
Asset-specific ^(b)	\$ 145	\$ 472 ^(c)	\$ 288	\$ 905	\$ 226	\$ 402 ^(c)	\$ 318	\$ 946
Formula-based	2,215	4,911	3,836	10,962	2,130	4,482	3,560	10,172
PCI	1,299	—	—	1,299	2,132	—	—	2,132
Total allowance for loan losses	\$ 3,659	\$ 5,383	\$ 4,124	\$ 13,166	\$ 4,488	\$ 4,884	\$ 3,878	\$ 13,250
Loans by impairment methodology								
Asset-specific	\$ 6,562	\$ 1,388	\$ 1,295	\$ 9,245	\$ 7,387	\$ 1,252	\$ 1,327	\$ 9,966
Formula-based	322,888	156,180	437,173	916,241	340,223	143,969	419,302	903,494
PCI	22,242	—	—	22,242	26,977	—	3	26,980
Total retained loans	\$ 351,692	\$ 157,568	\$ 438,468	\$ 947,728	\$ 374,587	\$ 145,221	\$ 420,632	\$ 940,440
Impaired collateral-dependent loans								
Net charge-offs	\$ 19	\$ —	\$ 8	\$ 27	\$ 14	\$ —	\$ —	\$ 14
Loans measured at fair value of collateral less cost to sell	2,098	—	83	2,181	2,124	—	300	2,424
Allowance for lending-related commitments								
Beginning balance at January 1,	\$ 33	\$ —	\$ 1,022	\$ 1,055	\$ 33	\$ —	\$ 1,035	\$ 1,068
Provision for lending-related commitments	—	—	75	75	—	—	49	49
Other	—	—	(1)	(1)	—	—	—	—
Ending balance at June 30,	\$ 33	\$ —	\$ 1,096	\$ 1,129	\$ 33	\$ —	\$ 1,084	\$ 1,117
Allowance for lending-related commitments by impairment methodology								
Asset-specific	\$ —	\$ —	\$ 136	\$ 136	\$ —	\$ —	\$ 139	\$ 139
Formula-based	33	—	960	993	33	—	945	978
Total allowance for lending-related commitments	\$ 33	\$ —	\$ 1,096	\$ 1,129	\$ 33	\$ —	\$ 1,084	\$ 1,117
Lending-related commitments by impairment methodology								
Asset-specific	\$ —	\$ —	\$ 465	\$ 465	\$ —	\$ —	\$ 712	\$ 712
Formula-based	51,491	633,970	393,836	1,079,297	51,784	592,452	401,045	1,045,281
Total lending-related commitments	\$ 51,491	\$ 633,970	\$ 394,301	\$ 1,079,762	\$ 51,784	\$ 592,452	\$ 401,757	\$ 1,045,993

(a) Write-offs of PCI loans are recorded against the allowance for loan losses when actual losses for a pool exceed estimated losses that were recorded as purchase accounting adjustments at the time of acquisition. A write-off of a PCI loan is recognized when the underlying loan is removed from a pool.

(b) Includes risk-rated loans that have been placed on nonaccrual status and loans that have been modified in a TDR.

(c) The asset-specific credit card allowance for loan losses is related to loans that have been modified in a TDR; such allowance is calculated based on the loans' original contractual interest rates and does not consider any incremental penalty rates.

Note 13 – Variable interest entities

For a further description of JPMorgan Chase’s accounting policies regarding consolidation of VIEs, refer to Note 1 of JPMorgan Chase’s 2018 Form 10-K.

The following table summarizes the most significant types of Firm-sponsored VIEs by business segment.

Line of Business	Transaction Type	Activity	Form 10-Q page reference
CCB	Credit card securitization trusts	Securitization of originated credit card receivables	138
	Mortgage securitization trusts	Servicing and securitization of both originated and purchased residential mortgages	138-140
CIB	Mortgage and other securitization trusts	Securitization of both originated and purchased residential and commercial mortgages, and other consumer loans	138-140
	Multi-seller conduits	Assist clients in accessing the financial markets in a cost-efficient manner and structures transactions to meet investor needs	140
	Municipal bond vehicles	Financing of municipal bond investments	140

The Firm also invests in and provides financing and other services to VIEs sponsored by third parties. Refer to pages 141-142 of this Note for more information on the VIEs sponsored by third parties.

Significant Firm-sponsored VIEs

Credit card securitizations

For a more detailed discussion of JPMorgan Chase’s involvement with credit card securitizations, refer to Note 14 of JPMorgan Chase’s 2018 Form 10-K.

As a result of the Firm’s continuing involvement, the Firm is considered to be the primary beneficiary of its Firm-sponsored credit card securitization trusts, including its primary vehicle, the Chase Issuance Trust. Refer to the table on page 141 of this Note for further information on consolidated VIE assets and liabilities.

Firm-sponsored mortgage and other securitization trusts

The Firm securitizes (or has securitized) originated and purchased residential mortgages, commercial mortgages and other consumer loans primarily in its CCB and CIB businesses. Depending on the particular transaction, as well as the respective business involved, the Firm may act as the servicer of the loans and/or retain certain beneficial interests in the securitization trusts.

For a detailed discussion of the Firm’s involvement with Firm-sponsored mortgage and other securitization trusts, as well as the accounting treatment relating to such trusts, refer to Note 14 of JPMorgan Chase’s 2018 Form 10-K.

The following table presents the total unpaid principal amount of assets held in Firm-sponsored private-label securitization entities, including those in which the Firm has continuing involvement, and those that are consolidated by the Firm. Continuing involvement includes servicing the loans, holding senior interests or subordinated interests (including amounts required to be held pursuant to credit risk retention rules), recourse or guarantee arrangements, and derivative contracts. In certain instances, the Firm's only continuing involvement is servicing the loans. Refer to Securitization activity on page 142 of this Note for further information regarding the Firm's cash flows associated with and interests retained in nonconsolidated VIEs, and pages 142-143 of this Note for information on the Firm's loan sales to U.S. government agencies.

	Principal amount outstanding			JPMorgan Chase interest in securitized assets in nonconsolidated VIEs ^{(c)(d)(e)}			
	Total assets held by securitization VIEs	Assets held in consolidated securitization VIEs	Assets held in nonconsolidated securitization VIEs with continuing involvement	Trading assets	Investment securities	Other financial assets	Total interests held by JPMorgan Chase
June 30, 2019 (in millions)							
Securitization-related^(a)							
Residential mortgage:							
Prime/Alt-A and option ARMs	\$ 61,838	\$ 3,053	\$ 49,625	\$ 424	\$ 512	\$ —	\$ 936
Subprime	15,664	—	14,441	19	—	—	19
Commercial and other ^(b)	101,785	—	80,511	785	792	215	1,792
Total	\$ 179,287	\$ 3,053	\$ 144,577	\$ 1,228	\$ 1,304	\$ 215	\$ 2,747

	Principal amount outstanding			JPMorgan Chase interest in securitized assets in nonconsolidated VIEs ^{(c)(d)(e)}			
	Total assets held by securitization VIEs	Assets held in consolidated securitization VIEs	Assets held in nonconsolidated securitization VIEs with continuing involvement	Trading assets	Investment securities	Other financial assets	Total interests held by JPMorgan Chase
December 31, 2018 (in millions)							
Securitization-related^(a)							
Residential mortgage:							
Prime/Alt-A and option ARMs	\$ 63,350	\$ 3,237	\$ 50,679	\$ 623	\$ 647	\$ —	\$ 1,270
Subprime	16,729	32	15,434	53	—	—	53
Commercial and other ^(b)	102,961	—	79,387	783	801	210	1,794
Total	\$ 183,040	\$ 3,269	\$ 145,500	\$ 1,459	\$ 1,448	\$ 210	\$ 3,117

(a) Excludes U.S. government agency securitizations and re-securitizations, which are not Firm-sponsored. Refer to pages 142-143 of this Note for information on the Firm's loan sales to U.S. government agencies.

(b) Consists of securities backed by commercial loans (predominantly real estate) and non-mortgage-related consumer receivables purchased from third parties.

(c) Excludes the following: retained servicing (refer to Note 14 for a discussion of MSRs); securities retained from loan sales to U.S. government agencies; interest rate and foreign exchange derivatives primarily used to manage interest rate and foreign exchange risks of securitization entities (Refer to Note 4 for further information on derivatives); senior and subordinated securities of \$215 million and \$77 million, respectively, at June 30, 2019, and \$87 million and \$28 million, respectively, at December 31, 2018, which the Firm purchased in connection with CIB's secondary market-making activities.

(d) Includes interests held in re-securitization transactions.

(e) As of June 30, 2019, and December 31, 2018, 56% and 60%, respectively, of the Firm's retained securitization interests, which are predominantly carried at fair value and include amounts required to be held pursuant to credit risk retention rules, were risk-rated "A" or better, on an S&P-equivalent basis. The retained interests in prime residential mortgages consisted of \$895 million and \$1.3 billion of investment-grade, and \$41 million and \$16 million of noninvestment-grade at June 30, 2019, and December 31, 2018, respectively. The retained interests in commercial and other securitizations trusts consisted of \$1.2 billion of investment-grade retained interests at both June 30, 2019 and December 31, 2018, and \$593 million and \$623 million of noninvestment-grade retained interests at June 30, 2019, and December 31, 2018, respectively.

Residential mortgage

The Firm securitizes residential mortgage loans originated by CCB, as well as residential mortgage loans purchased from third parties by either CCB or CIB. For a more detailed description of the Firm's involvement with residential mortgage securitizations, refer to Note 14 of JPMorgan Chase's 2018 Form 10-K. Refer to the table on page 141 of this Note for more information on the consolidated residential mortgage securitizations, and the table on the previous page of this Note for further information on interests held in nonconsolidated residential mortgage securitizations.

Commercial mortgages and other consumer securitizations
CIB originates and securitizes commercial mortgage loans, and engages in underwriting and trading activities involving the securities issued by securitization trusts. For a more detailed description of the Firm's involvement with commercial mortgage and other consumer securitizations, refer to Note 14 of JPMorgan Chase's 2018 Form 10-K. Refer to the table on page 141 of this Note for more information on the consolidated commercial mortgage securitizations, and the table on the previous page of this Note for further information on interests held in nonconsolidated securitizations.

Re-securitizations

For a more detailed description of JPMorgan Chase's participation in certain re-securitization transactions, refer to Note 14 of JPMorgan Chase's 2018 Form 10-K.

The following table presents the principal amount of securities transferred to re-securitization VIEs.

(in millions)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Transfers of securities to VIEs				
Agency	\$ 2,564	\$ 3,995	\$ 7,067	\$ 8,781

The following table presents information on nonconsolidated re-securitization VIEs.

(in millions)	Nonconsolidated re-securitization VIEs	
	June 30, 2019	December 31, 2018
Firm-sponsored private-label		
Assets held in VIEs with continuing involvement ^(a)	\$ 22	\$ 118
Interest in VIEs	—	10
Agency		
Interest in VIEs	2,192	3,058

(a) Represents the principal amount and includes the notional amount of interest-only securities.

As of June 30, 2019, and December 31, 2018, the Firm did not consolidate any agency re-securitization VIEs or any Firm-sponsored private-label re-securitization VIEs.

Multi-seller conduits

For a more detailed description of JPMorgan Chase's principal involvement with Firm-administered multi-seller conduits, refer to Note 14 of JPMorgan Chase's 2018 Form 10-K.

In the normal course of business, JPMorgan Chase makes markets in and invests in commercial paper issued by the Firm-administered multi-seller conduits. The Firm held \$8.2 billion and \$20.1 billion of the commercial paper issued by the Firm-administered multi-seller conduits at June 30, 2019, and December 31, 2018, respectively, which have been eliminated in consolidation. The Firm's investments reflect the Firm's funding needs and capacity and were not driven by market illiquidity. Other than the amounts required to be held pursuant to credit risk retention rules, the Firm is not obligated under any agreement to purchase the commercial paper issued by the Firm-administered multi-seller conduits.

Deal-specific liquidity facilities, program-wide liquidity and credit enhancement provided by the Firm have been eliminated in consolidation. The Firm or the Firm-administered multi-seller conduits provide lending-related commitments to certain clients of the Firm-administered multi-seller conduits. The unfunded commitments were \$8.4 billion and \$8.0 billion at June 30, 2019, and December 31, 2018, respectively, and are reported as off-balance sheet lending-related commitments in other unfunded commitments to extend credit. For more information on off-balance sheet lending-related commitments, refer to Note 22.

Municipal bond vehicles

Municipal bond vehicles or tender option bond ("TOB") trusts allow institutions to finance their municipal bond investments at short-term rates. TOB transactions are known as customer TOB trusts and non-customer TOB trusts. Customer TOB trusts are sponsored by a third party, refer to pages 141-142 of this Note for further information. The Firm serves as sponsor for all non-customer TOB transactions. For a more detailed description of JPMorgan Chase's Municipal bond vehicles, refer to Note 14 of JPMorgan Chase's 2018 Form 10-K.

Consolidated VIE assets and liabilities

The following table presents information on assets and liabilities related to VIEs consolidated by the Firm as of June 30, 2019, and December 31, 2018.

June 30, 2019 (in millions)	Assets				Liabilities		
	Trading assets	Loans	Other ^(b)	Total assets ^(c)	Beneficial interests in VIE assets ^(d)	Other ^(e)	Total liabilities
VIE program type							
Firm-sponsored credit card trusts	\$ —	\$ 28,230	\$ 412	\$ 28,642	\$ 9,302	\$ 8	\$ 9,310
Firm-administered multi-seller conduits	3	22,575	335	22,913	14,734	36	14,770
Municipal bond vehicles	1,304	—	3	1,307	1,281	2	1,283
Mortgage securitization entities ^(a)	2	3,078	55	3,135	267	146	413
Other	113	—	182	295	1	99	100
Total	\$ 1,422	\$ 53,883	\$ 987	\$ 56,292	\$ 25,585	\$ 291	\$ 25,876

December 31, 2018 (in millions)	Assets				Liabilities		
	Trading assets	Loans	Other ^(b)	Total assets ^(c)	Beneficial interests in VIE assets ^(d)	Other ^(e)	Total liabilities
VIE program type							
Firm-sponsored credit card trusts	\$ —	\$ 31,760	\$ 491	\$ 32,251	\$ 13,404	\$ 12	\$ 13,416
Firm-administered multi-seller conduits	—	24,411	300	24,711	4,842	33	4,875
Municipal bond vehicles	1,779	—	4	1,783	1,685	3	1,688
Mortgage securitization entities ^(a)	53	3,285	40	3,378	308	161	469
Other	134	—	178	312	2	103	105
Total	\$ 1,966	\$ 59,456	\$ 1,013	\$ 62,435	\$ 20,241	\$ 312	\$ 20,553

(a) Includes residential and commercial mortgage securitizations.

(b) Includes assets classified as cash and other assets on the Consolidated balance sheets.

(c) The assets of the consolidated VIEs included in the program types above are used to settle the liabilities of those entities. The assets and liabilities include third-party assets and liabilities of consolidated VIEs and exclude intercompany balances that eliminate in consolidation.

(d) The interest-bearing beneficial interest liabilities issued by consolidated VIEs are classified in the line item on the Consolidated balance sheets titled, "Beneficial interests issued by consolidated variable interest entities." The holders of these beneficial interests generally do not have recourse to the general credit of JPMorgan Chase. For conduits program-wide credit enhancements, refer to note 14 of JPMorgan Chase's 2018 Form 10-K. Included in beneficial interests in VIE assets are long-term beneficial interests of \$9.6 billion and \$13.7 billion at June 30, 2019, and December 31, 2018.

(e) Includes liabilities classified as accounts payable and other liabilities on the Consolidated balance sheets.

VIEs sponsored by third parties

The Firm enters into transactions with VIEs structured by other parties. These include, for example, acting as a derivative counterparty, liquidity provider, investor, underwriter, placement agent, remarketing agent, trustee or custodian. These transactions are conducted at arm's-length, and individual credit decisions are based on the analysis of the specific VIE, taking into consideration the quality of the underlying assets. Where the Firm does not have the power to direct the activities of the VIE that most significantly impact the VIE's economic performance, or a variable interest that could potentially be significant, the Firm generally does not consolidate the VIE, but it records and reports these positions on its Consolidated balance sheets in the same manner it would record and report positions in respect of any other third-party transaction.

Tax credit vehicles

The Firm holds investments in unconsolidated tax credit vehicles, which are limited partnerships and similar entities that construct, own and operate affordable housing, wind, solar and other alternative energy projects. These entities are primarily considered VIEs. A third party is typically the

general partner or managing member and has control over the significant activities of the tax credit vehicles, and accordingly the Firm does not consolidate tax credit vehicles. The Firm generally invests in these partnerships as a limited partner and earns a return primarily through the receipt of tax credits allocated to the projects. The maximum loss exposure, represented by equity investments and funding commitments, was \$16.0 billion and \$16.5 billion, of which \$4.1 billion and \$4.0 billion was unfunded at June 30, 2019 and December 31, 2018, respectively. In order to reduce the risk of loss, the Firm assesses each project and withholds varying amounts of its capital investment until the project qualifies for tax credits. For further information on affordable housing tax credits, refer to Note 24 of JPMorgan Chase's 2018 Form 10-K. For more information on off-balance sheet lending-related commitments, refer to Note 22 of this Form 10-Q.

Customer municipal bond vehicles (TOB trusts)

The Firm may provide various services to Customer TOB trusts, including remarketing agent, liquidity or tender option provider. In certain Customer TOB transactions, the

Firm, as liquidity provider, has entered into a reimbursement agreement with the Residual holder.

In those transactions, upon the termination of the vehicle, the Firm has recourse to the third-party Residual holders for any shortfall. The Firm does not have any intent to protect Residual holders from potential losses on any of the underlying municipal bonds. The Firm does not consolidate Customer TOB trusts, since the Firm does not have the power to make decisions that significantly impact the economic performance of the municipal bond vehicle. The Firm's maximum exposure as a liquidity provider to Customer TOB trusts at June 30, 2019 and December 31,

2018 was \$5.3 billion and \$4.8 billion, respectively. The fair value of assets held by such VIEs at June 30, 2019 and December 31, 2018, was \$8.6 billion and \$7.7 billion, respectively. For more information on off-balance sheet lending-related commitments, refer to Note 22.

Loan securitizations

The Firm has securitized and sold a variety of loans, including residential mortgage, credit card, and commercial mortgage. For a further description of the Firm's accounting policies regarding securitizations, refer to Note 14 of JPMorgan Chase's 2018 Form 10-K.

Securitization activity

The following table provides information related to the Firm's securitization activities for the three and six months ended June 30, 2019 and 2018, related to assets held in Firm-sponsored securitization entities that were not consolidated by the Firm, and where sale accounting was achieved at the time of the securitization.

(in millions)	Three months ended June 30,				Six months ended June 30,			
	2019		2018		2019		2018	
	Residential mortgage ^(e)	Commercial and other ^(f)	Residential mortgage ^(e)	Commercial and other ^(f)	Residential mortgage ^(e)	Commercial and other ^(f)	Residential mortgage ^(e)	Commercial and other ^(f)
Principal securitized	\$ 2,125	\$ 1,974	\$ 3,129	\$ 2,181	\$ 3,907	\$ 2,738	\$ 4,459	\$ 5,172
All cash flows during the period^(a):								
Proceeds received from loan sales as financial instruments ^{(b)(c)}	\$ 2,188	\$ 2,041	\$ 3,122	\$ 2,196	\$ 4,010	\$ 2,823	\$ 4,460	\$ 5,187
Servicing fees collected ^(d)	73	1	80	—	150	1	161	—
Cash flows received on interests	114	98	137	84	199	149	229	131

(a) Excludes re-securitization transactions.

(b) Predominantly includes Level 2 assets.

(c) The carrying value of the loans accounted for at fair value approximated the proceeds received upon loan sale.

(d) The prior period amounts have been revised to conform with the current period presentation.

(e) Includes prime mortgages only. Excludes loan securitization transactions entered into with Ginnie Mae, Fannie Mae and Freddie Mac.

(f) Includes commercial mortgage and other consumer loans.

Loans and excess MSRs sold to U.S. government-sponsored enterprises, and loans in securitization transactions pursuant to Ginnie Mae guidelines

In addition to the amounts reported in the securitization activity tables above, the Firm, in the normal course of business, sells originated and purchased mortgage loans and certain originated excess MSRs on a nonrecourse basis, predominantly to U.S. government-sponsored enterprises ("U.S. GSEs"). These loans and excess MSRs are sold primarily for the purpose of securitization by the U.S. GSEs, who provide certain guarantee provisions (e.g., credit enhancement of the loans). The Firm also sells loans into securitization transactions pursuant to Ginnie Mae guidelines; these loans are typically insured or guaranteed by another U.S. government agency. The Firm does not consolidate the securitization vehicles underlying these transactions as it is not the primary beneficiary. For a limited number of loan sales, the Firm is obligated to share

a portion of the credit risk associated with the sold loans with the purchaser. Refer to Note 22 of this Form 10-Q, and Note 27 of JPMorgan Chase's 2018 Form 10-K for additional information about the Firm's loan sales- and securitization-related indemnifications. Refer to Note 14 for additional information about the impact of the Firm's sale of certain excess MSRs.

The following table summarizes the activities related to loans sold to the U.S. GSEs, and loans in securitization transactions pursuant to Ginnie Mae guidelines.

(in millions)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Carrying value of loans sold	\$ 23,138	\$ 8,076	\$ 38,317	\$ 16,836
Proceeds received from loan sales as cash	2	—	70	—
Proceeds from loan sales as securities ^{(a)(b)}	22,823	7,959	37,660	16,578
Total proceeds received from loan sales^(c)	\$ 22,825	\$ 7,959	\$ 37,730	\$ 16,578
Gains on loan sales ^{(d)(e)}	\$ 104	\$ 9	\$ 153	\$ 23

(a) Includes securities from U.S. GSEs and Ginnie Mae that are generally sold shortly after receipt or retained as part of the Firm's Investment securities portfolio.

(b) Included in level 2 assets.

(c) Excludes the value of MSRs retained upon the sale of loans.

(d) Gains on loan sales include the value of MSRs.

(e) The carrying value of the loans accounted for at fair value approximated the proceeds received upon loan sale.

Options to repurchase delinquent loans

In addition to the Firm's obligation to repurchase certain loans due to material breaches of representations and warranties as discussed in Note 22, the Firm also has the option to repurchase delinquent loans that it services for Ginnie Mae loan pools, as well as for other U.S. government

agencies under certain arrangements. The Firm typically elects to repurchase delinquent loans from Ginnie Mae loan pools as it continues to service them and/or manage the foreclosure process in accordance with the applicable requirements, and such loans continue to be insured or guaranteed. When the Firm's repurchase option becomes exercisable, such loans must be reported on the Consolidated balance sheets as a loan with a corresponding liability. For additional information, refer to Note 11.

The following table presents loans the Firm repurchased or had an option to repurchase, real estate owned, and foreclosed government-guaranteed residential mortgage loans recognized on the Firm's Consolidated balance sheets as of June 30, 2019 and December 31, 2018. Substantially all of these loans and real estate are insured or guaranteed by U.S. government agencies.

(in millions)	Jun 30, 2019	Dec 31, 2018
Loans repurchased or option to repurchase ^(a)	\$ 5,214	\$ 7,021
Real estate owned	56	75
Foreclosed government-guaranteed residential mortgage loans ^(b)	277	361

(a) Predominantly all of these amounts relate to loans that have been repurchased from Ginnie Mae loan pools.

(b) Relates to voluntary repurchases of loans, which are included in accrued interest and accounts receivable.

Loan delinquencies and liquidation losses

The table below includes information about components of nonconsolidated securitized financial assets held in Firm-sponsored private-label securitization entities, in which the Firm has continuing involvement, and delinquencies as of June 30, 2019, and December 31, 2018.

(in millions)	Securitized assets		90 days past due		Net liquidation losses ^(a)			
					Three months ended June 30,		Six months ended June 30,	
	Jun 30, 2019	Dec 31, 2018	Jun 30, 2019	Dec 31, 2018	2019	2018	2019	2018
Securitized loans								
Residential mortgage:								
Prime / Alt-A & option ARMs	\$ 49,625	\$ 50,679	\$ 2,900	\$ 3,354	\$ 171	\$ 168	\$ 328	\$ 271
Subprime	14,441	15,434	2,076	2,478	167	140	311	(462)
Commercial and other	80,511	79,387	131	225	24	21	165	48
Total loans securitized	\$ 144,577	\$ 145,500	\$ 5,107	\$ 6,057	\$ 362	\$ 329	\$ 804	\$ (143)

(a) Includes liquidation gains as a result of private label mortgage settlement payments during the first quarter of 2018, which were reflected as asset recoveries by trustees.

Note 14 – Goodwill and Mortgage servicing rights

For a discussion of the accounting policies related to goodwill and mortgage servicing rights, refer to Note 15 of JPMorgan Chase's 2018 Form 10-K.

Goodwill

The following table presents goodwill attributed to the business segments.

(in millions)	June 30, 2019	December 31, 2018
Consumer & Community Banking	\$ 30,991	\$ 30,984
Corporate & Investment Bank	6,769	6,770
Commercial Banking	2,860	2,860
Asset & Wealth Management	6,857	6,857
Total goodwill	\$ 47,477	\$ 47,471

The following table presents changes in the carrying amount of goodwill.

(in millions)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Balance at beginning of period	\$ 47,474	\$ 47,499	\$ 47,471	\$ 47,507
Changes during the period from:				
Other ^(a)	3	(11)	6	(19)
Balance at June 30,	\$ 47,477	\$ 47,488	\$ 47,477	\$ 47,488

(a) Primarily relates to foreign currency remeasurement.

Goodwill impairment testing

For a further description of the Firm's goodwill impairment testing, including the primary method used to estimate the fair value of the reporting units, and the assumptions used in the goodwill impairment test, refer to Impairment testing on pages 252-253 of JPMorgan Chase's 2018 Form 10-K.

The Firm reviewed current economic conditions, estimated market cost of equity, as well as actual and projections of business performance for all its businesses. Based upon such reviews, the Firm concluded that the goodwill allocated to its reporting units was not impaired as of June 30, 2019 or December 31, 2018, nor was goodwill written off due to impairment during the six months ended June 30, 2019 or 2018.

Declines in business performance, increases in credit losses, increases in capital requirements, as well as deterioration in economic or market conditions, adverse regulatory or legislative changes or increases in the estimated market cost of equity, could cause the estimated fair values of the Firm's reporting units or their associated goodwill to decline in the future, which could result in a material impairment charge to earnings in a future period related to some portion of the associated goodwill.

Mortgage servicing rights

MSRs represent the fair value of expected future cash flows for performing servicing activities for others. The fair value considers estimated future servicing fees and ancillary revenue, offset by estimated costs to service the loans, and generally declines over time as net servicing cash flows are received, effectively amortizing the MSR asset against contractual servicing and ancillary fee income. MSRs are either purchased from third parties or recognized upon sale or securitization of mortgage loans if servicing is retained. For a further description of the MSR asset, interest rate risk management, and the valuation of MSRs, refer to Notes 2 and 15 of JPMorgan Chase's 2018 Form 10-K.

The following table summarizes MSR activity for the three and six months ended June 30, 2019 and 2018.

(in millions, except where otherwise noted)	As of or for the three months ended June 30,		As of or for the six months ended June 30,	
	2019	2018	2019	2018
Fair value at beginning of period	\$ 5,957	\$ 6,202	\$ 6,130	\$ 6,030
MSR activity:				
Originations of MSRs	424	157	756	333
Purchase of MSRs	2	79	106	146
Disposition of MSRs ^(a)	(217)	(104)	(328)	(399)
Net additions/(dispositions)	209	132	534	80
Changes due to collection/realization of expected cash flows	(247)	(187)	(446)	(347)
Changes in valuation due to inputs and assumptions:				
Changes due to market interest rates and other ^(b)	(540)	103	(841)	485
Changes in valuation due to other inputs and assumptions:				
Projected cash flows (e.g., cost to service)	(350) ^(e)	—	(350) ^(e)	—
Discount rates	153	—	153	24
Prepayment model changes and other ^(c)	(89)	(9)	(87)	(31)
Total changes in valuation due to other inputs and assumptions	(286)	(9)	(284)	(7)
Total changes in valuation due to inputs and assumptions	(826)	94	(1,125)	478
Fair value at June 30,	\$ 5,093	\$ 6,241	\$ 5,093	\$ 6,241
Change in unrealized gains/(losses) included in income related to MSRs held at June 30,	\$ (826)	\$ 94	\$ (1,125)	\$ 478
Contractual service fees, late fees and other ancillary fees included in income	437	446	857	911
Third-party mortgage loans serviced at June 30, (in billions)	527	534	527	534
Servicer advances, net of an allowance for uncollectible amounts, at June 30, (in billions) ^(d)	2.2	3.3	2.2	3.3

(a) Includes excess MSRs transferred to agency-sponsored trusts in exchange for stripped mortgage backed securities ("SMBS"). In each transaction, a portion of the SMBS was acquired by third parties at the transaction date; the Firm acquired the remaining balance of those SMBS as trading securities.

(b) Represents both the impact of changes in estimated future prepayments due to changes in market interest rates, and the difference between actual and expected prepayments.

(c) Represents changes in prepayments other than those attributable to changes in market interest rates.

(d) Represents amounts the Firm pays as the servicer (e.g., scheduled principal and interest, taxes and insurance), which will generally be reimbursed within a short period of time after the advance from future cash flows from the trust or the underlying loans. The Firm's credit risk associated with these servicer advances is minimal because reimbursement of the advances is typically senior to all cash payments to investors. In addition, the Firm maintains the right to stop payment to investors if the collateral is insufficient to cover the advance. However, certain of these servicer advances may not be recoverable if they were not made in accordance with applicable rules and agreements.

(e) The decrease in projected cash flows was largely related to default servicing assumption updates.

The following table presents the components of mortgage fees and related income (including the impact of MSR risk management activities) for the three and six months ended June 30, 2019 and 2018.

(in millions)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
CCB mortgage fees and related income				
Net production revenue	\$ 353	\$ 93	\$ 553	\$ 188
Net mortgage servicing revenue:				
Operating revenue:				
Loan servicing revenue	417	441	821	954
Changes in MSR asset fair value due to collection/realization of expected cash flows	(247)	(187)	(446)	(347)
Total operating revenue	170	254	375	607
Risk management:				
Changes in MSR asset fair value due to market interest rates and other ^(a)	(540)	104	(841)	486
Other changes in MSR asset fair value due to other inputs and assumptions in model ^(b)	(286)	(9)	(284)	(7)
Change in derivative fair value and other	582	(118)	872	(485)
Total risk management	(244)	(23)	(253)	(6)
Total net mortgage servicing revenue	(74)	231	122	601
Total CCB mortgage fees and related income	279	324	675	789
All other	—	—	—	—
Mortgage fees and related income	\$ 279	\$ 324	\$ 675	\$ 789

(a) Represents both the impact of changes in estimated future prepayments due to changes in market interest rates, and the difference between actual and expected prepayments.

(b) Represents the aggregate impact of changes in model inputs and assumptions such as projected cash flows (e.g., cost to service), discount rates and changes in prepayments other than those attributable to changes in market interest rates (e.g., changes in prepayments due to changes in home prices).

The table below outlines the key economic assumptions used to determine the fair value of the Firm's MSRs at June 30, 2019, and December 31, 2018, and outlines hypothetical sensitivities of those fair values to immediate adverse changes in those assumptions, as defined below.

(in millions, except rates)	Jun 30, 2019	Dec 31, 2018
Weighted-average prepayment speed assumption (constant prepayment rate)	11.58%	8.78%
Impact on fair value of 10% adverse change	\$ (216)	\$ (205)
Impact on fair value of 20% adverse change	(414)	(397)
Weighted-average option adjusted spread ^{(a)(b)}	7.84%	7.87%
Impact on fair value of a 100 basis point adverse change	\$ (183)	\$ (235)
Impact on fair value of a 200 basis point adverse change	(353)	(452)

(a) Includes the impact of operational risk and regulatory capital.

(b) The prior period amount has been revised to conform with the current period presentation.

Changes in fair value based on variations in assumptions generally cannot be easily extrapolated, because the relationship of the change in the assumptions to the change in fair value are often highly interrelated and may not be linear. In this table, the effect that a change in a particular assumption may have on the fair value is calculated without changing any other assumption. In reality, changes in one factor may result in changes in another, which would either magnify or counteract the impact of the initial change.

Note 15 – Deposits

For further information on deposits, refer to Note 17 of JPMorgan Chase's 2018 Form 10-K.

At June 30, 2019, and December 31, 2018, noninterest-bearing and interest-bearing deposits were as follows.

(in millions)	June 30, 2019	December 31, 2018
U.S. offices		
Noninterest-bearing (included \$26,673 and \$17,204 at fair value) ^{(a)(b)}	\$ 394,237	\$ 386,709
Interest-bearing (included \$2,530 and \$2,487 at fair value) ^{(a)(b)}	841,397	813,881
Total deposits in U.S. offices	1,235,634	1,200,590
Non-U.S. offices		
Noninterest-bearing (included \$2,445 and \$2,367 at fair value) ^{(a)(b)}	20,419	21,459
Interest-bearing (included \$1,276 and \$1,159 at fair value) ^{(a)(b)}	268,308	248,617
Total deposits in non-U.S. offices	288,727	270,076
Total deposits	\$ 1,524,361	\$ 1,470,666

(a) Includes structured notes classified as deposits for which the fair value option has been elected. For a further discussion, refer to Note 3 of JPMorgan Chase's 2018 Form 10-K.

(b) In the second quarter of 2019, the Firm reclassified balances related to certain structured notes from interest-bearing to noninterest-bearing deposits as the associated returns are recorded in principal transactions revenue and not in net interest income. This change was applied retrospectively and, accordingly, prior period amounts were revised to conform with the current presentation.

Note 16 – Leases

Lease commitments

Effective January 1, 2019, the Firm adopted new guidance that requires lessees to recognize on the Consolidated balance sheets all leases with lease terms greater than twelve months as a lease liability with a corresponding right-of-use ("ROU") asset. Accordingly, the Firm recognized operating lease liabilities and ROU assets of \$8.2 billion and \$8.1 billion, respectively. The adoption of the new lease guidance did not have a material impact on the Firm's Consolidated statements of income. The change in accounting due to the adoption of the new lease guidance did not result in a material change to the future net minimum rental payments/receivables or to the net rental expense when compared to December 31, 2018.

Firm as lessee

At June 30, 2019, JPMorgan Chase and its subsidiaries were obligated under a number of noncancelable leases, predominantly operating leases for premises and equipment used primarily for business purposes. These leases generally have terms of 20 years or less, determined based on the contractual maturity of the lease, and include periods covered by options to extend or terminate the lease when the Firm is reasonably certain that it will exercise those options. None of these lease agreements impose restrictions on the Firm's ability to pay dividends, engage in debt or equity financing transactions or enter into further lease agreements. Certain of these leases contain escalation clauses that will increase rental payments based on maintenance, utility and tax increases, which are non-lease components. The Firm elected not to separate lease and non-lease components of a contract for its real estate leases. As such, real estate lease payments represent payments on both lease and non-lease components.

Operating lease liabilities and ROU assets are recognized at the lease commencement date based on the present value of the future minimum lease payments over the lease term. The future lease payments are discounted at a rate that represents the Firm's collateralized borrowing rate for financing instruments of a similar term and are included in accounts payable and other liabilities. The operating lease ROU asset, included in premises and equipment, also includes any lease prepayments made, plus initial direct costs incurred, less any lease incentives received. Rental expense associated with operating leases is recognized on a straight-line basis over the lease term, and generally included in occupancy expense in the Consolidated statements of income.

The following tables provide information related to the Firm's operating leases:

As of June 30, (in millions, except where otherwise noted)	2019
Right-of-use assets	\$ 8,118
Lease liabilities	8,404
Weighted average remaining lease term (in years)	8.7
Weighted average discount rate	3.75%
Supplemental cash flow information	
Cash paid for amounts included in the measurement of lease liabilities - operating cash flows	\$ 778
Supplemental non-cash information	
Right-of-use assets obtained in exchange for operating lease obligations	\$ 587

(in millions)	Three months ended June 30, 2019	Six months ended June 30, 2019
Rental expense		
Gross rental expense	\$ 506	\$ 1,020
Sublease rental income	(42)	(88)
Net rental expense	\$ 464	\$ 932

The following table presents future payments under operating leases as of June 30, 2019:

Year ended December 31, (in millions)	
2019 (excluding six months ended June 30, 2019)	\$ 787
2020	1,535
2021	1,356
2022	1,161
2023	988
After 2023	4,180
Total future minimum lease payments	10,007
Less: Imputed interest	(1,603)
Total	\$ 8,404

In addition to the table above, as of June 30, 2019, the Firm had additional future operating lease commitments of \$1.5 billion that were signed but had not yet commenced. These operating leases will commence between 2019 and 2022 with lease terms up to 25 years.

Firm as lessor

The Firm provides auto and equipment lease financing to its customers through lease arrangements with lease terms that may contain renewal, termination and/or purchase options. Generally, the Firm's lease financings are operating leases. These assets are recognized in other assets on the Firm's Consolidated balance sheets and are depreciated on a straight-line basis over the lease term to reduce the asset to its estimated residual value. Depreciation expense is included in technology, communications and equipment expense in the Consolidated statements of income. The

Firm's lease income is generally recognized on a straight-line basis over the lease term and is included in other income in the Consolidated statements of income.

On a periodic basis, the Firm assesses leased assets for impairment, and if the carrying amount of the leased asset exceeds the undiscounted cash flows from the lease payments and the estimated residual value upon disposition of the leased asset, an impairment loss is recognized.

The risk of loss on auto and equipment leased assets relating to the residual value of the leased assets is monitored through projections of the asset residual values at lease origination and periodic review of residual values, and is mitigated through arrangements with certain manufacturers or lessees.

The following table presents the carrying value of assets subject to leases reported on the Consolidated balance sheets:

(in millions)	June 30, 2019	December 31, 2018
Carrying value of assets subject to operating leases, net of accumulated depreciation	\$ 22,406	\$ 21,428
Accumulated depreciation	5,643	5,303

The following table presents the Firm's operating lease income and the related depreciation expense on the Consolidated statements of income:

(in millions)	Three months ended June 30, 2019	2018	Six months ended June 30, 2019	2018
Operating lease income	\$ 1,327	\$ 1,112	\$ 2,643	\$ 2,159
Depreciation expense	988	852	1,985	1,663

The following table presents future receipts under operating leases as of June 30, 2019:

Year ended December 31, (in millions)	
2019 (excluding six months ended June 30, 2019)	\$ 2,107
2020	3,381
2021	1,866
2022	386
2023	69
After 2023	136
Total future minimum lease payments	\$ 7,945

Note 17 - Preferred stock

For a further discussion on preferred stock, refer to Note 20 of JPMorgan Chase's 2018 Form 10-K.

The following is a summary of JPMorgan Chase's non-cumulative preferred stock outstanding as of June 30, 2019 and December 31, 2018, and the quarterly dividend declarations for the three and six months ended June 30, 2019 and 2018.

	Shares		Carrying value (in millions)		Issue date	Contractual rate in effect at June 30, 2019	Earliest redemption date ^(b)	Floating annual rate of three- month LIBOR plus:	Dividend declared per share ^(c)				
	June 30, 2019 ^(a)	December 31, 2018 ^(a)	June 30, 2019	December 31, 2018					Three months ended June 30,		Six months ended June 30,		
									2019	2018	2019	2018	
Fixed-rate:													
Series P	90,000	90,000	\$ 900	\$ 900	2/5/2013	5.450%	3/1/2018	NA	\$ 136.25	\$136.25	\$272.50	\$272.50	
Series T	—	92,500	—	925	1/30/2014	—	3/1/2019	NA	NA	167.50	167.50	335.00	
Series W	88,000	88,000	880	880	6/23/2014	6.300	9/1/2019	NA	157.50	157.50	315.00	315.00	
Series Y	143,000	143,000	1,430	1,430	2/12/2015	6.125	3/1/2020	NA	153.13	153.13	306.26	306.26	
Series AA	142,500	142,500	1,425	1,425	6/4/2015	6.100	9/1/2020	NA	152.50	152.50	305.00	305.00	
Series BB	115,000	115,000	1,150	1,150	7/29/2015	6.150	9/1/2020	NA	153.75	153.75	307.50	307.50	
Series DD	169,625	169,625	1,696	1,696	9/21/2018	5.750	12/1/2023	NA	143.75	NA	287.50	NA	
Series EE	185,000	—	1,850	—	1/24/2019	6.000	3/1/2024	NA	211.67	NA	211.67	NA	
Fixed-to-floating-rate:													
Series I	430,375	430,375	\$ 4,304	\$ 4,304	4/23/2008	LIBOR + 3.47%	4/30/2018	LIBOR + 3.47%	\$ 153.00	\$147.34	\$308.51	\$344.84	
Series Q	150,000	150,000	1,500	1,500	4/23/2013	5.150	5/1/2023	LIBOR + 3.25	128.75	128.75	257.50	257.50	
Series R	150,000	150,000	1,500	1,500	7/29/2013	6.000	8/1/2023	LIBOR + 3.30	150.00	150.00	300.00	300.00	
Series S	200,000	200,000	2,000	2,000	1/22/2014	6.750	2/1/2024	LIBOR + 3.78	168.75	168.75	337.50	337.50	
Series U	100,000	100,000	1,000	1,000	3/10/2014	6.125	4/30/2024	LIBOR + 3.33	153.13	153.13	306.25	306.25	
Series V	250,000	250,000	2,500	2,500	6/9/2014	5.000	7/1/2019	LIBOR + 3.32	125.00	125.00	250.00	250.00	
Series X	160,000	160,000	1,600	1,600	9/23/2014	6.100	10/1/2024	LIBOR + 3.33	152.50	152.50	305.00	305.00	
Series Z	200,000	200,000	2,000	2,000	4/21/2015	5.300	5/1/2020	LIBOR + 3.80	132.50	132.50	265.00	265.00	
Series CC	125,750	125,750	1,258	1,258	10/20/2017	4.625	11/1/2022	LIBOR + 2.58	115.63	115.63	231.25	231.25	
Total preferred stock	2,699,250	2,606,750	\$26,993	\$ 26,068									

(a) Represented by depositary shares.

(b) Fixed-to-floating rate notes convert to a floating rate at the earliest redemption date.

(c) Dividends are declared quarterly. Dividends are payable quarterly on fixed-rate preferred stock. Dividends are payable semiannually on fixed-to-floating-rate preferred stock while at a fixed rate, and payable quarterly after converting to a floating rate.

(d) Dividends in the amount of \$211.67 per share were declared on April 12, 2019 and include dividends from the original issue date of January 24, 2019 through May 31, 2019.

(e) Prior to April 30, 2018, the dividend rate was fixed at 7.90%.

On July 31, 2019, the Firm issued \$2.25 billion of fixed-to-floating rate non-cumulative preferred stock, Series FF, and on August 2, 2019, the Firm announced that it will redeem all \$880 million of its 6.30% non-cumulative preferred stock, Series W on September 1, 2019.

On January 24, 2019, the Firm issued \$1.85 billion of 6.00% non-cumulative preferred stock, Series EE, and on March 1, 2019, the Firm redeemed all \$925 million of its 6.70% non-cumulative preferred stock, Series T.

Note 18 – Earnings per share

For a discussion of the computation of basic and diluted earnings per share (“EPS”), refer to Note 22 of JPMorgan Chase’s 2018 Form 10-K. The following table presents the calculation of basic and diluted EPS for the three and six months ended June 30, 2019 and 2018.

(in millions, except per share amounts)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Basic earnings per share				
Net income	\$ 9,652	\$ 8,316	\$ 18,831	\$ 17,028
Less: Preferred stock dividends	404	379	778	788
Net income applicable to common equity	9,248	7,937	18,053	16,240
Less: Dividends and undistributed earnings allocated to participating securities	56	57	108	121
Net income applicable to common stockholders	\$ 9,192	\$ 7,880	\$ 17,945	\$ 16,119
Total weighted-average basic shares outstanding	3,250.6	3,415.2	3,274.3	3,436.7
Net income per share	\$ 2.83	\$ 2.31	\$ 5.48	\$ 4.69
Diluted earnings per share				
Net income applicable to common stockholders	\$ 9,192	\$ 7,880	\$ 17,945	\$ 16,119
Total weighted-average basic shares outstanding	3,250.6	3,415.2	3,274.3	3,436.7
Add: Employee stock options, SARs, warrants and unvested PSUs	9.1	19.5	9.6	20.4
Total weighted-average diluted shares outstanding	3,259.7	3,434.7	3,283.9	3,457.1
Net income per share	\$ 2.82	\$ 2.29	\$ 5.46	\$ 4.66

Note 19 – Accumulated other comprehensive income/(loss)

AOCI includes the after-tax change in unrealized gains and losses on investment securities, foreign currency translation adjustments (including the impact of related derivatives), fair value changes of excluded components on fair value hedges, cash flow hedging activities, net loss and prior service costs/(credit) related to the Firm's defined benefit pension and OPEB plans, and on fair value option-elected liabilities arising from changes in the Firm's own credit risk (DVA).

As of or for the three months ended June 30, 2019 (in millions)	Unrealized gains/(losses) on investment securities	Translation adjustments, net of hedges	Fair value hedges	Cash flow hedges	Defined benefit pension and OPEB plans	DVA on fair value option elected liabilities	Accumulated other comprehensive income/(loss)
Balance at April 1, 2019	\$ 2,616	\$ (751)	\$ (159)	\$ 29	\$ (2,272)	\$ (21)	\$ (558)
Net change	1,093	99	86	97	41	256	1,672
Balance at June 30, 2019	\$ 3,709	\$ (652)	\$ (73)	\$ 126	\$ (2,231)	\$ 235	\$ 1,114

As of or for the three months ended June 30, 2018 (in millions)	Unrealized gains/(losses) on investment securities	Translation adjustments, net of hedges	Fair value hedges	Cash flow hedges	Defined benefit pension and OPEB plans	DVA on fair value option elected liabilities	Accumulated other comprehensive income/(loss)
Balance at April 1, 2018	\$ 1,826	\$ (720)	(94)	\$ 19	\$ (1,914)	\$ (180)	\$ (1,063)
Net change	(227)	88	(68)	(166)	38	260	(75)
Balance at June 30, 2018	\$ 1,599	\$ (632)	\$ (162)	\$ (147)	\$ (1,876)	\$ 80	\$ (1,138)

As of or for the six months ended June 30, 2019 (in millions)	Unrealized gains/(losses) on investment securities	Translation adjustments, net of hedges	Fair value hedges	Cash flow hedges	Defined benefit pension and OPEB plans	DVA on fair value option elected liabilities	Accumulated other comprehensive income/(loss)
Balance at January 1, 2019	\$ 1,202	\$ (727)	\$ (161)	\$ (109)	\$ (2,308)	\$ 596	\$ (1,507)
Net change	2,507	75	88	235	77	(361)	2,621
Balance at June 30, 2019	\$ 3,709	\$ (652)	\$ (73)	\$ 126	\$ (2,231)	\$ 235	\$ 1,114

As of or for the six months ended June 30, 2018 (in millions)	Unrealized gains/(losses) on investment securities	Translation adjustments, net of hedges	Fair value hedges	Cash flow hedges	Defined benefit pension and OPEB plans	DVA on fair value option elected liabilities	Accumulated other comprehensive income/(loss)
Balance at January 1, 2018	\$ 2,164	\$ (470)	\$ –	\$ 76	\$ (1,521)	\$ (368)	\$ (119)
Cumulative effect of changes in accounting principles ^(a)	896	(277)	\$ (54)	16	(414)	(79)	88
Net change	(1,461)	115	(108)	(239)	59	527	(1,107)
Balance at June 30, 2018	\$ 1,599	\$ (632)	\$ (162)	\$ (147)	\$ (1,876)	\$ 80	\$ (1,138)

(a) Represents the adjustment to AOCI as a result of the accounting standards adopted in the first quarter of 2018, refer to Note 1 of JPMorgan Chase's 2018 Form 10-K.

The following table presents the pre-tax and after-tax changes in the components of OCI.

Three months ended June 30, (in millions)	2019			2018		
	Pre-tax	Tax effect	After-tax	Pre-tax	Tax effect	After-tax
Unrealized gains/(losses) on investment securities:						
Net unrealized gains/(losses) arising during the period	\$ 1,491	\$ (365)	\$ 1,126	\$ (376)	\$ 88	\$ (288)
Reclassification adjustment for realized (gains)/losses included in net income ^(a)	(44)	11	(33)	80	(19)	61
Net change	1,447	(354)	1,093	(296)	69	(227)
Translation adjustments^(b):						
Translation	123	72	195	(1,056)	208	(848)
Hedges	(128)	32	(96)	1,227	(291)	936
Net change	(5)	104	99	171	(83)	88
Fair value hedges, net change^(c):	112	(26)	86	(89)	21	(68)
Cash flow hedges:						
Net unrealized gains/(losses) arising during the period	101	(24)	77	(199)	47	(152)
Reclassification adjustment for realized (gains)/losses included in net income ^(d)	26	(6)	20	(19)	5	(14)
Net change	127	(30)	97	(218)	52	(166)
Defined benefit pension and OPEB plans:						
Net gain/(loss) arising during the period	(1)	—	(1)	2	—	2
Reclassification adjustments included in net income ^(e) :						
Amortization of net loss	41	(7)	34	26	(6)	20
Amortization of prior service cost/(credit)	1	(1)	—	(6)	2	(4)
Foreign exchange and other	9	(1)	8	31	(11)	20
Net change	50	(9)	41	53	(15)	38
DVA on fair value option elected liabilities, net change:	338	(82)	256	340	(80)	260
Total other comprehensive income/(loss)	\$ 2,069	\$ (397)	\$ 1,672	\$ (39)	\$ (36)	\$ (75)

Six months ended June 30, (in millions)	2019			2018		
	Pre-tax	Tax effect	After-tax	Pre-tax	Tax effect	After-tax
Unrealized gains/(losses) on investment securities:						
Net unrealized gains/(losses) arising during the period	\$ 3,366	\$ (816)	\$ 2,550	\$ (2,234)	\$ 525	\$ (1,709)
Reclassification adjustment for realized (gains)/losses included in net income ^(a)	(57)	14	(43)	325	(77)	248
Net change	3,309	(802)	2,507	(1,909)	448	(1,461)
Translation adjustments^(b):						
Translation	164	36	200	(667)	143	(524)
Hedges	(166)	41	(125)	838	(199)	639
Net change	(2)	77	75	171	(56)	115
Fair value hedges, net change^(c):	115	(27)	88	(141)	33	(108)
Cash flow hedges:						
Net unrealized gains/(losses) arising during the period	242	(57)	185	(243)	58	(185)
Reclassification adjustment for realized (gains)/losses included in net income ^(d)	65	(15)	50	(71)	17	(54)
Net change	307	(72)	235	(314)	75	(239)
Defined benefit pension and OPEB plans:						
Net gain/(loss) arising during the period	2	(2)	—	25	(6)	19
Reclassification adjustments included in net income ^(e) :						
Amortization of net loss	83	(16)	67	52	(12)	40
Amortization of prior service cost/(credit)	2	(1)	1	(12)	3	(9)
Foreign exchange and other	1	8	9	12	(3)	9
Net change	88	(11)	77	77	(18)	59
DVA on fair value option elected liabilities, net change:	\$ (469)	\$ 108	\$ (361)	\$ 690	\$ (163)	\$ 527
Total other comprehensive income/(loss)	\$ 3,348	\$ (727)	\$ 2,621	\$ (1,426)	\$ 319	\$ (1,107)

(a) The pre-tax amount is reported in Investment securities gains/(losses) in the Consolidated statements of income.

(b) Reclassifications of pre-tax realized gains/(losses) on translation adjustments and related hedges are reported in other income/expense in the Consolidated statements of income. During the three and six months ended June 30, 2019, the Firm reclassified net pre-tax gains of \$6 million to other income and \$1 million to other expense, respectively. These amounts, which related to the liquidation of certain legal entities, are comprised of \$5 million related to net investment hedge gains and \$2 million related to cumulative translation adjustments. During the three and six months ended June 30, 2018, the Firm reclassified a net pre-tax loss of \$174 million to other expense related to the liquidation of a legal entity, comprised of \$23 million related to net investment hedge losses and \$151 million related to cumulative translation adjustments.

(c) Represents changes in fair value of cross-currency swaps attributable to changes in cross-currency basis spreads, which are excluded from the assessment of hedge effectiveness and recorded in other comprehensive income. The initial cost of cross-currency basis spreads is recognized in earnings as part of the accrual of interest on the cross currency swap.

(d) The pre-tax amounts are predominantly recorded in noninterest revenue, net interest income and compensation expense in the Consolidated statements of income.

(e) The pre-tax amount is reported in other expense in the Consolidated statements of income.

Note 20 – Restricted cash and other restricted assets

For a detailed discussion of the Firm's restricted cash and other restricted assets, refer to Note 25 of JPMorgan Chase's 2018 Form 10-K.

Certain of the Firm's cash and other assets are restricted as to withdrawal or usage. These restrictions are imposed by various regulatory authorities based on the particular activities of the Firm's subsidiaries.

The Firm is also subject to rules and regulations established by other U.S. and non U.S. regulators. As part of its compliance with the respective regulatory requirements, the Firm's broker-dealer activities are subject to certain restrictions on cash and other assets.

The following table presents the components of the Firm's restricted cash:

(in billions)	June 30, 2019	December 31, 2018
Cash reserves – Federal Reserve Banks	\$ 24.9	\$ 22.1
Segregated for the benefit of securities and futures brokerage customers	16.7	14.6
Cash reserves at non-U.S. central banks and held for other general purposes	3.9	4.1
Total restricted cash^(a)	\$ 45.5	\$ 40.8

(a) Comprises \$44.2 billion and \$39.6 billion in deposits with banks, and \$1.3 billion and \$1.2 billion in cash and due from banks on the Consolidated balance sheets as of June 30, 2019 and December 31, 2018, respectively.

Also, as of June 30, 2019 and December 31, 2018, the Firm had the following other restricted assets:

- Cash and securities pledged with clearing organizations for the benefit of customers of \$21.0 billion and \$20.6 billion, respectively.
- Securities with a fair value of \$3.9 billion and \$9.7 billion, respectively, were also restricted in relation to customer activity.

Note 21 – Regulatory capital

For a detailed discussion on regulatory capital, refer to Note 26 of JPMorgan Chase's 2018 Form 10-K.

The Federal Reserve establishes capital requirements, including well-capitalized standards, for the consolidated financial holding company. The Office of the Comptroller of the Currency ("OCC") establishes similar minimum capital requirements and standards for the Firm's insured depository institutions ("IDI"), including JPMorgan Chase Bank, N.A.

Effective January 1, 2019, the capital adequacy of the Firm and its IDI subsidiaries is evaluated against the fully phased-in measures under Basel III and represents the lower of the Standardized or Advanced approaches. During 2018, the required capital measures were subject to the transitional rules and as of December 31, 2018 were the same on a fully phased-in and on a transitional basis.

Under the risk-based capital and leverage-based guidelines of the Federal Reserve, JPMorgan Chase is required to maintain minimum ratios for CET1, Tier 1, Total, Tier 1 leverage and the SLR. Failure to meet these minimum requirements could cause the Federal Reserve to take action. IDI subsidiaries are also subject to these capital requirements by their respective primary regulators.

The following table represents the minimum and well-capitalized ratios to which the Firm and its IDI subsidiaries were subject as of June 30, 2019.

	Minimum capital ratios		Well-capitalized ratios	
	BHC ^{(a)(e)(f)}	IDI ^{(b)(e)(f)}	BHC ^(c)	IDI ^(d)
Capital ratios				
CET1	10.5%	7.0%	N/A	6.5%
Tier 1	12.0	8.5	6.0	8.0
Total	14.0	10.5	10.0	10.0
Tier 1 leverage	4.0	4.0	N/A	5.0
SLR	5.0	6.0	N/A	6.0

Note: The table above is as defined by the regulations issued by the Federal Reserve, OCC and FDIC and to which the Firm and its IDI subsidiaries are subject.

- (a) Represents the minimum capital ratios applicable to the Firm under Basel III. The CET1 minimum capital ratio includes a capital conservation buffer of 2.5% and GSIB surcharge of 3.5%.
- (b) Represents requirements for JPMorgan Chase's IDI subsidiaries. The CET1 minimum capital ratio includes a capital conservation buffer of 2.5% that is applicable to the IDI subsidiaries. The IDI subsidiaries are not subject to the GSIB surcharge.
- (c) Represents requirements for bank holding companies pursuant to regulations issued by the Federal Reserve.
- (d) Represents requirements for IDI subsidiaries pursuant to regulations issued under the FDIC Improvement Act.
- (e) For the period ended December 31, 2018, the CET1, Tier 1, Total and Tier 1 leverage minimum capital ratios applicable to the Firm were 9.0%, 10.5%, 12.5%, and 4.0% and the CET1, Tier 1, Total and Tier 1 leverage minimum capital ratios applicable to the Firm's IDI subsidiaries were 6.375%, 7.875%, 9.875%, and 4.0%, respectively.
- (f) Represents minimum SLR requirement of 3.0%, as well as, supplementary leverage buffers of 2.0% and 3.0% for BHC and IDI, respectively.

The following tables present the risk-based and leverage-based capital metrics for JPMorgan Chase and JPMorgan Chase Bank, N.A. under both the Basel III Standardized and Basel III Advanced Approaches. As of June 30, 2019 and December 31, 2018, JPMorgan Chase and JPMorgan Chase Bank, N.A. were well-capitalized and met all capital requirements to which each was subject.

June 30, 2019 (in millions, except ratios)	Basel III Standardized Fully Phased-In		Basel III Advanced Fully Phased-In	
	JPMorgan Chase & Co.	JPMorgan Chase Bank, N.A.	JPMorgan Chase & Co.	JPMorgan Chase Bank, N.A.
Regulatory capital				
CET1 capital	\$ 189,169	\$ 217,622	\$ 189,169	\$ 217,622
Tier 1 capital	215,808	217,622	215,808	217,622
Total capital	244,490	235,208	234,507	225,403
Assets				
Risk-weighted	1,545,101	1,452,055	1,449,211	1,302,719
Adjusted average ^(a)	2,692,225	2,325,199	2,692,225	2,325,199
Capital ratios^(b)				
CET1	12.2%	15.0%	13.1%	16.7%
Tier 1	14.0	15.0	14.9	16.7
Total	15.8	16.2	16.2	17.3
Tier 1 leverage ^(c)	8.0	9.4	8.0	9.4

December 31, 2018 (in millions, except ratios)	Basel III Standardized Transitional		Basel III Advanced Transitional	
	JPMorgan Chase & Co.	JPMorgan Chase Bank, N.A. ^(d)	JPMorgan Chase & Co.	JPMorgan Chase Bank, N.A. ^(d)
Regulatory capital				
CET1 capital	\$ 183,474	\$ 211,671	\$ 183,474	\$ 211,671
Tier 1 capital	209,093	211,671	209,093	211,671
Total capital	237,511	229,952	227,435	220,025
Assets				
Risk-weighted	1,528,916	1,446,529	1,421,205	1,283,146
Adjusted average ^(a)	2,589,887	2,250,480	2,589,887	2,250,480
Capital ratios^(b)				
CET1	12.0%	14.6%	12.9%	16.5%
Tier 1	13.7	14.6	14.7	16.5
Total	15.5	15.9	16.0	17.1
Tier 1 leverage ^(c)	8.1	9.4	8.1	9.4

(a) Adjusted average assets, for purposes of calculating the Tier 1 leverage ratio, includes total quarterly average assets adjusted for on-balance sheet assets that are subject to deduction from Tier 1 capital, predominantly goodwill and other intangible assets.

(b) For each of the risk-based capital ratios, the capital adequacy of the Firm and its IDI subsidiaries is evaluated against the lower of the two ratios as calculated under Basel III approaches (Standardized or Advanced).

(c) The Tier 1 leverage ratio is not a risk-based measure of capital.

(d) On May 18, 2019, Chase Bank USA, N.A. merged with and into JPMorgan Chase Bank, N.A., with JPMorgan Chase Bank, N.A. as the surviving entity. The December 31, 2018 amounts reported for JPMorgan Chase Bank, N.A. retrospectively reflect the impact of the merger.

(in millions, except ratios)	June 30, 2019		December 31, 2018	
	Basel III Advanced Fully Phased-In		Basel III Advanced Fully Phased-In	
	JPMorgan Chase & Co.	JPMorgan Chase Bank, N.A.	JPMorgan Chase & Co.	JPMorgan Chase Bank, N.A. ^(a)
Total leverage exposure	\$ 3,367,154	\$ 2,984,420	\$ 3,269,988	\$ 2,915,541
SLR	6.4%	7.3%	6.4%	7.3%

(a) On May 18, 2019, Chase Bank USA, N.A. merged with and into JPMorgan Chase Bank, N.A., with JPMorgan Chase Bank, N.A. as the surviving entity. The December 31, 2018 amounts reported for JPMorgan Chase Bank, N.A. retrospectively reflect the impact of the merger.

Note 22 – Off-balance sheet lending-related financial instruments, guarantees, and other commitments

JPMorgan Chase provides lending-related financial instruments (e.g., commitments and guarantees) to address the financing needs of its customers and clients. The contractual amount of these financial instruments represents the maximum possible credit risk to the Firm should the customer or client draw upon the commitment or the Firm be required to fulfill its obligation under the guarantee, and should the customer or client subsequently fail to perform according to the terms of the contract. Most of these commitments and guarantees are refinanced, extended, cancelled, or expire without being drawn or a default occurring. As a result, the total contractual amount of these instruments is not, in the Firm's view, representative of its expected future credit exposure or funding requirements. For a further discussion of lending-related commitments and guarantees, and the Firm's related accounting policies, refer to Note 27 of JPMorgan Chase's 2018 Form 10-K.

To provide for probable credit losses inherent in wholesale and certain consumer lending-related commitments, an allowance for credit losses on lending-related commitments is maintained. Refer to Note 12 for further information regarding the allowance for credit losses on lending-related commitments. The following table summarizes the contractual amounts and carrying values of off-balance sheet lending-related financial instruments, guarantees and other commitments at June 30, 2019, and December 31, 2018. The amounts in the table below for credit card and home equity lending-related commitments represent the total available credit for these products. The Firm has not experienced, and does not anticipate, that all available lines of credit for these products will be utilized at the same time. The Firm can reduce or cancel credit card lines of credit by providing the borrower notice or, in some cases as permitted by law, without notice. In addition, the Firm typically closes credit card lines when the borrower is 60 days or more past due. The Firm may reduce or close HELOCs when there are significant decreases in the value of the underlying property, or when there has been a demonstrable decline in the creditworthiness of the borrower.

Off-balance sheet lending-related financial instruments, guarantees and other commitments

By remaining maturity (in millions)	Contractual amount					Carrying value ^(g)			
	June 30, 2019					Dec 31, 2018	Jun 30, 2019	Dec 31, 2018	
	Expires in 1 year or less	Expires after 1 year through 3 years	Expires after 3 years through 5 years	Expires after 5 years	Total	Total			
Lending-related									
Consumer, excluding credit card:									
Home equity	\$ 549	\$ 1,202	\$ 2,185	\$ 17,263	\$ 21,199	\$ 20,901	\$ 12	\$ 12	
Residential mortgage ^(a)	9,477	—	—	12	9,489	5,481	—	—	
Auto	7,694	962	95	45	8,796	8,011	2	2	
Consumer & Business Banking	10,503	679	104	721	12,007	11,673	19	19	
Total consumer, excluding credit card	28,223	2,843	2,384	18,041	51,491	46,066	33	33	
Credit card	633,970	—	—	—	633,970	605,379	—	—	
Total consumer^(b)	662,193	2,843	2,384	18,041	685,461	651,445	33	33	
Wholesale:									
Other unfunded commitments to extend credit ^(c)	61,732	129,593	159,234	8,223	358,782	351,490	883	852	
Standby letters of credit and other financial guarantees ^(c)	14,658	10,552	4,776	2,210	32,196	33,498	554	521	
Other letters of credit ^(c)	3,066	220	37	—	3,323	2,825	3	3	
Total wholesale^(b)	79,456	140,365	164,047	10,433	394,301	387,813	1,440	1,376	
Total lending-related	\$ 741,649	\$ 143,208	\$ 166,431	\$ 28,474	\$ 1,079,762	\$ 1,039,258	\$ 1,473	\$ 1,409	
Other guarantees and commitments									
Securities lending indemnification agreements and guarantees ^(d)	\$ 203,868	\$ —	\$ —	\$ —	\$ 203,868	\$ 186,077	\$ —	\$ —	
Derivatives qualifying as guarantees	1,594	135	12,394	40,509	54,632	55,271	228	367	
Unsettled resale and securities borrowed agreements	113,218	875	71	—	114,164	102,008	—	—	
Unsettled repurchase and securities loaned agreements	122,806	—	—	—	122,806	57,732	—	—	
Loan sale and securitization-related indemnifications:									
Mortgage repurchase liability	NA	NA	NA	NA	NA	NA	89	89	
Loans sold with recourse	NA	NA	NA	NA	1,031	1,019	27	30	
Exchange & clearing house guarantees and commitments ^(e)	164,784	—	—	—	164,784	58,960	—	—	
Other guarantees and commitments^(f)	4,505	2,931	1,537	2,749	11,722	8,183	(79)	(73)	

(a) Includes certain commitments to purchase loans from correspondents.

(b) Predominantly all consumer and wholesale lending-related commitments are in the U.S.

(c) At June 30, 2019, and December 31, 2018, reflected the contractual amount net of risk participations totaling \$193 million and \$282 million respectively, for other unfunded commitments to extend credit; \$9.5 billion and \$10.4 billion, respectively, for standby letters of credit and other financial guarantees; and \$682 million and \$385 million, respectively, for other letters of credit. In regulatory filings with the Federal Reserve these commitments are shown gross of risk participations.

(d) At June 30, 2019, and December 31, 2018, collateral held by the Firm in support of securities lending indemnification agreements was \$214.6 billion and \$195.6 billion, respectively. Securities lending collateral primarily consists of cash and securities issued by governments that are members of the G7 and U.S. government agencies.

(e) At June 30, 2019, and December 31, 2018, includes guarantees to the Fixed Income Clearing Corporation under the sponsored member repo program and commitments and guarantees associated with the Firm's membership in certain clearing houses.

(f) At June 30, 2019, and December 31, 2018, primarily includes letters of credit hedged by derivative transactions and managed on a market risk basis, and unfunded commitments related to institutional lending. Additionally, includes unfunded commitments predominantly related to certain tax-oriented equity investments.

(g) For lending-related products, the carrying value represents the allowance for lending-related commitments and the guarantee liability; for derivative-related products, the carrying value represents the fair value.

Other unfunded commitments to extend credit

Other unfunded commitments to extend credit generally consist of commitments for working capital and general corporate purposes, extensions of credit to support commercial paper facilities and bond financings in the event that those obligations cannot be remarketed to new investors, as well as committed liquidity facilities to clearing organizations. The Firm also issues commitments under multipurpose facilities which could be drawn upon in several forms, including the issuance of a standby letter of credit.

Standby letters of credit and other financial guarantees

Standby letters of credit and other financial guarantees are conditional lending commitments issued by the Firm to guarantee the performance of a client or customer to a third party under certain arrangements, such as commercial paper facilities, bond financings, acquisition financings, trade and similar transactions.

The following table summarizes the contractual amount and carrying value of standby letters of credit and other financial guarantees and other letters of credit arrangements as of June 30, 2019, and December 31, 2018.

Standby letters of credit, other financial guarantees and other letters of credit

(in millions)	June 30, 2019		December 31, 2018	
	Standby letters of credit and other financial guarantees	Other letters of credit	Standby letters of credit and other financial guarantees	Other letters of credit
Investment-grade ^(a)	\$ 25,041	\$ 2,181	\$ 26,420	\$ 2,079
Noninvestment-grade ^(a)	7,155	1,142	7,078	746
Total contractual amount	\$ 32,196	\$ 3,323	\$ 33,498	\$ 2,825
Allowance for lending-related commitments	\$ 210	\$ 3	\$ 167	\$ 3
Guarantee liability	344	—	354	—
Total carrying value	\$ 554	\$ 3	\$ 521	\$ 3
Commitments with collateral	\$ 17,373	\$ 768	\$ 17,400	\$ 583

(a) The ratings scale is based on the Firm's internal ratings which generally correspond to ratings as defined by S&P and Moody's.

Derivatives qualifying as guarantees

The Firm transacts certain derivative contracts that have the characteristics of a guarantee under U.S. GAAP. For further information on these derivatives, refer to Note 27 of JPMorgan Chase's 2018 Form 10-K.

The following table summarizes the derivatives qualifying as guarantees as of June 30, 2019, and December 31, 2018.

(in millions)	June 30, 2019	December 31, 2018
Notional amounts		
Derivative guarantees	\$ 54,632	\$ 55,271
Stable value contracts with contractually limited exposure	28,843	28,637
Maximum exposure of stable value contracts with contractually limited exposure	2,958	2,963
Fair value		
Derivative payables	228	367
Derivative receivables	—	—

In addition to derivative contracts that meet the characteristics of a guarantee, the Firm is both a purchaser and seller of credit protection in the credit derivatives market. For a further discussion of credit derivatives, refer to Note 4.

Loan sales- and securitization-related indemnifications

In connection with the Firm's mortgage loan sale and securitization activities with GSEs the Firm has made representations and warranties that the loans sold meet certain requirements, and that may require the Firm to repurchase mortgage loans and/or indemnify the loan purchaser if such representations and warranties are breached by the Firm. Further, although the Firm's securitizations are predominantly nonrecourse, the Firm does provide recourse servicing in certain limited cases where it agrees to share credit risk with the owner of the mortgage loans. For additional information, refer to Note 27 of JPMorgan Chase's 2018 Form 10-K.

The liability related to repurchase demands associated with private label securitizations is separately evaluated by the Firm in establishing its litigation reserves. For additional information regarding litigation, refer to Note 24 of this Form 10-Q and Note 29 of JPMorgan Chase's 2018 Form 10-K.

Sponsored member repo program

In 2018 the Firm commenced the sponsored member repo program, wherein the Firm acts as a sponsoring member to clear eligible overnight resale and repurchase agreements through the Government Securities Division of the Fixed Income Clearing Corporation (“FICC”) on behalf of clients that become sponsored members under the FICC’s rules. The Firm also guarantees to the FICC the prompt and full payment and performance of its sponsored member clients’ respective obligations under the FICC’s rules. The Firm minimizes its liability under these overnight guarantees by obtaining a security interest in the cash or high-quality securities collateral that the clients place with the clearing house therefore the Firm expects the risk of loss to be remote. The Firm’s maximum possible exposure, without taking into consideration the associated collateral, is included in the Exchange & clearing house guarantees and commitments line on page 156. For additional information on credit risk mitigation practices on resale agreements and the types of collateral pledged under repurchase agreements, refer to Note 11 of JPMorgan Chase’s 2018 Form 10-K.

Guarantees of subsidiaries

The Parent Company has guaranteed certain long-term debt and structured notes of its subsidiaries, including JPMorgan Chase Financial Company LLC (“JPMFC”), a 100%-owned finance subsidiary. All securities issued by JPMFC are fully and unconditionally guaranteed by the Parent Company. These guarantees, which rank on a parity with the Firm’s unsecured and unsubordinated indebtedness, are not included in the table on page 156 of this Note. For additional information, refer to Note 19 of JPMorgan Chase’s 2018 Form 10-K.

Note 23 – Pledged assets and collateral

For a discussion of the Firm’s pledged assets and collateral, refer to Note 28 of JPMorgan Chase’s 2018 Form 10-K.

Pledged assets

The Firm may pledge financial assets that it owns to maintain potential borrowing capacity at discount windows with Federal Reserve banks, various other central banks and FHLBs. Additionally, pledged assets are used for other purposes, including to collateralize repurchase and other securities financing agreements, to cover short sales and to collateralize derivative contracts and deposits. Certain of these pledged assets may be sold or repledged or otherwise used by the secured parties and are parenthetically identified on the Consolidated balance sheets as assets pledged.

The following table presents the Firm’s pledged assets.

(in billions)	June 30, 2019	December 31, 2018
Assets that may be sold or repledged or otherwise used by secured parties	\$ 155.0	\$ 104.0
Assets that may not be sold or repledged or otherwise used by secured parties	93.6	83.7
Assets pledged at Federal Reserve banks and FHLBs	490.2	475.3
Total assets pledged	\$ 738.8	\$ 663.0

Total assets pledged do not include assets of consolidated VIEs; these assets are used to settle the liabilities of those entities. Refer to Note 13 for additional information on assets and liabilities of consolidated VIEs. For additional information on the Firm’s securities financing activities, refer to Note 10. For additional information on the Firm’s long-term debt, refer to Note 19 of JPMorgan Chase’s 2018 Form 10-K.

Collateral

The Firm accepts financial assets as collateral that it is permitted to sell or repledge, deliver or otherwise use. This collateral is generally obtained under resale and other securities financing agreements, prime brokerage-related held-for-investment customer receivables and derivative contracts. Collateral is generally used under repurchase and other securities financing agreements, to cover short sales and to collateralize derivative contracts and deposits.

The following table presents the fair value of collateral accepted.

(in billions)	June 30, 2019	December 31, 2018
Collateral permitted to be sold or repledged, delivered, or otherwise used	\$ 1,319.2	\$ 1,245.3
Collateral sold, repledged, delivered or otherwise used	1,033.9	998.3

Note 24 – Litigation

Contingencies

As of June 30, 2019, the Firm and its subsidiaries and affiliates are defendants, putative defendants or respondents in numerous legal proceedings, including private, civil litigations and regulatory/government investigations. The litigations range from individual actions involving a single plaintiff to class action lawsuits with potentially millions of class members. Investigations involve both formal and informal proceedings, by both governmental agencies and self-regulatory organizations. These legal proceedings are at varying stages of adjudication, arbitration or investigation, and involve each of the Firm's lines of business and several geographies and a wide variety of claims (including common law tort and contract claims and statutory antitrust, securities and consumer protection claims), some of which present novel legal theories.

The Firm believes the estimate of the aggregate range of reasonably possible losses, in excess of reserves established, for its legal proceedings is from \$0 to approximately \$1.3 billion at June 30, 2019. This estimated aggregate range of reasonably possible losses was based upon information available as of that date for those proceedings in which the Firm believes that an estimate of reasonably possible loss can be made. For certain matters, the Firm does not believe that such an estimate can be made, as of that date. The Firm's estimate of the aggregate range of reasonably possible losses involves significant judgment, given:

- the number, variety and varying stages of the proceedings, including the fact that many are in preliminary stages,
- the existence in many such proceedings of multiple defendants, including the Firm, whose share of liability (if any) has yet to be determined,
- the numerous yet-unresolved issues in many of the proceedings, including issues regarding class certification and the scope of many of the claims, and
- the attendant uncertainty of the various potential outcomes of such proceedings, including where the Firm has made assumptions concerning future rulings by the court or other adjudicator, or about the behavior or incentives of adverse parties or regulatory authorities, and those assumptions prove to be incorrect.

In addition, the outcome of a particular proceeding may be a result which the Firm did not take into account in its estimate because the Firm had deemed the likelihood of that outcome to be remote. Accordingly, the Firm's estimate of the aggregate range of reasonably possible losses will change from time to time, and actual losses may vary significantly.

Set forth below are descriptions of the Firm's material legal proceedings.

Foreign Exchange Investigations and Litigation. The Firm previously reported settlements with certain government authorities relating to its foreign exchange ("FX") sales and trading activities and controls related to those activities. FX-related investigations and inquiries by government authorities, including competition authorities, are ongoing, and the Firm is cooperating with and working to resolve those matters. In May 2015, the Firm pleaded guilty to a single violation of federal antitrust law. In January 2017, the Firm was sentenced, with judgment entered thereafter and a term of probation ending in January 2020. The Department of Labor has granted the Firm a five-year exemption of disqualification that allows the Firm and its affiliates to continue to rely on the Qualified Professional Asset Manager exemption under the Employee Retirement Income Security Act ("ERISA") until January 2023. The Firm will need to reapply in due course for a further exemption to cover the remainder of the ten-year disqualification period. In addition, the Firm has agreed to pay fines totaling \$265 million in connection with the settlement of FX-related investigations conducted by the European Commission and the Swiss Competition Commission which were announced in May 2019 and June 2019, respectively. Separately, in February 2017 the South Africa Competition Commission referred its FX investigation of the Firm and other banks to the South Africa Competition Tribunal, which is conducting civil proceedings concerning that matter.

In August 2018, the United States District Court for the Southern District of New York granted final approval to the Firm's settlement of a consolidated class action brought by U.S.-based plaintiffs, which principally alleged violations of federal antitrust laws based on an alleged conspiracy to manipulate foreign exchange rates and also sought damages on behalf of persons who transacted in FX futures and options on futures. Certain members of the settlement class filed requests to the Court to be excluded from the class, and certain of them filed a complaint against the Firm and a number of other foreign exchange dealers in November 2018 (the "opt-out action"). The two FX-related actions brought by participants or beneficiaries of qualified ERISA plans have been dismissed. Putative class actions on behalf of consumers who purchased foreign currencies at allegedly inflated rates (the "consumer action") and purported indirect purchasers of FX instruments (the "indirect purchaser action") remain pending in the District Court. In addition, some FX related individual and putative class actions have been filed outside the U.S.

General Motors Litigation. JPMorgan Chase Bank, N.A. participated in, and was the Administrative Agent on behalf of a syndicate of lenders on, a \$1.5 billion syndicated Term Loan facility ("Term Loan") for General Motors Corporation ("GM"). In July 2009, in connection with the GM bankruptcy

proceedings, the Official Committee of Unsecured Creditors of Motors Liquidation Company (“Creditors Committee”) filed a lawsuit against JPMorgan Chase Bank, N.A., in its individual capacity and as Administrative Agent for other lenders on the Term Loan, seeking to hold the underlying lien invalid based on the filing of a UCC-3 termination statement relating to the Term Loan. In January 2015, following several court proceedings, the United States Court of Appeals for the Second Circuit reversed the Bankruptcy Court’s dismissal of the Creditors Committee’s claim and remanded the case to the Bankruptcy Court with instructions to enter partial summary judgment for the Creditors Committee as to the termination statement. The proceedings in the Bankruptcy Court thereafter continued with respect to, among other things, additional defenses asserted by JPMorgan Chase Bank, N.A. and the value of additional collateral on the Term Loan that was unaffected by the filing of the termination statement at issue. In addition, certain Term Loan lenders filed cross-claims in the Bankruptcy Court against JPMorgan Chase Bank, N.A. seeking indemnification and asserting various claims. In April 2019, the parties finalized a settlement agreement to fully resolve the litigation, and the Bankruptcy Court approved that settlement in June 2019. In July 2019, the Bankruptcy Court issued orders dismissing with prejudice all claims filed against the Firm, including the cross-claims that were brought by certain Term Loan lenders.

Interchange Litigation. A group of merchants and retail associations filed a series of class action complaints alleging that Visa and Mastercard, as well as certain banks, conspired to set the price of credit and debit card interchange fees and enacted respective rules in violation of antitrust laws. The parties settled the cases for a cash payment, a temporary reduction of credit card interchange, and modifications to certain credit card network rules. In December 2013, the District Court granted final approval of the settlement.

A number of merchants appealed the settlement to the United States Court of Appeals for the Second Circuit, which, in June 2016, vacated the District Court’s certification of the class action and reversed the approval of the class settlement. In March 2017, the U.S. Supreme Court declined petitions seeking review of the decision of the Court of Appeals. The case was remanded to the District Court for further proceedings consistent with the appellate decision. The original class action was divided into two separate actions, one seeking primarily monetary relief and the other seeking primarily injunctive relief. In September 2018, the parties to the class action seeking monetary relief finalized an agreement which amends and supersedes the prior settlement agreement, and the plaintiffs filed a motion seeking preliminary approval of the modified settlement. Pursuant to this settlement, the defendants have collectively contributed an additional \$900 million to the approximately \$5.3 billion previously held in escrow from the original settlement. In January 2019, the amended agreement was preliminarily approved by the

District Court, and formal notice of the class settlement is proceeding in accordance with the District Court’s order. The class action seeking primarily injunctive relief continues separately.

In addition, certain merchants have filed individual actions raising similar allegations against Visa and Mastercard, as well as against the Firm and other banks, and those actions are proceeding.

LIBOR and Other Benchmark Rate Investigations and Litigation. JPMorgan Chase has received subpoenas and requests for documents and, in some cases, interviews, from federal and state agencies and entities, including the U.S. Commodity Futures Trading Commission and various state attorneys general, as well as the European Commission (“EC”), the Swiss Competition Commission (“ComCo”) and other regulatory authorities and banking associations around the world relating primarily to the process by which interest rates were submitted to the British Bankers Association (“BBA”) in connection with the setting of the BBA’s London Interbank Offered Rate (“LIBOR”) for various currencies, principally in 2007 and 2008. Some of the inquiries also relate to similar processes by which information on rates was submitted to the European Banking Federation (“EBF”) in connection with the setting of the EBF’s Euro Interbank Offered Rate (“EURIBOR”). The Firm continues to cooperate with these investigations to the extent that they are ongoing. ComCo’s investigation relating to EURIBOR, to which the Firm and other banks are subject, continues. In December 2016, the EC issued a decision against the Firm and other banks finding an infringement of European antitrust rules relating to EURIBOR. The Firm has filed an appeal of that decision with the European General Court, and that appeal is pending.

In addition, the Firm has been named as a defendant along with other banks in a series of individual and putative class actions related to benchmarks, including U.S. dollar LIBOR during the period that it was administered by the BBA and, in a separate consolidated putative class action, during the period that it was administered by ICE Benchmark Administration. These actions have been filed, or consolidated for pre-trial purposes, in the United States District Court for the Southern District of New York. In these actions, plaintiffs make varying allegations that in various periods, starting in 2000 or later, defendants either individually or collectively manipulated various benchmark rates by submitting rates that were artificially low or high. Plaintiffs allege that they transacted in loans, derivatives or other financial instruments whose values are affected by changes in these rates and assert a variety of claims including antitrust claims seeking treble damages. These actions are in various stages of litigation.

In actions related to U.S. dollar LIBOR during the period that it was administered by the BBA, the District Court dismissed certain claims, including antitrust claims brought by some plaintiffs whom the District Court found did not have

standing to assert such claims, and permitted certain claims to proceed, including antitrust, Commodity Exchange Act, Section 10(b) of the Securities Exchange Act and common law claims. The plaintiffs whose antitrust claims were dismissed for lack of standing have filed an appeal. The District Court granted class certification of antitrust claims related to bonds and interest rate swaps sold directly by the defendants and denied class certification motions filed by other plaintiffs. The Firm has agreed to settle putative class actions related to Swiss franc LIBOR, the Singapore Interbank Offered Rate, the Singapore Swap Offer Rate and the Australian Bank Bill Swap Reference Rate, as well as certain of the putative class actions related to U.S. dollar LIBOR. The District Court declined to grant preliminary approval to the settlement involving the Singapore Interbank Offered Rate and the Singapore Swap Offer Rate after concluding that plaintiffs lacked standing and dismissing the litigation. The remaining settlements are all subject to further documentation and court approval. The Firm has also settled the putative class action related to EURIBOR, and the Court has granted final approval of that settlement.

Metals Investigations and Litigation. Various authorities, including the Department of Justice's Criminal Division, are conducting investigations relating to trading practices in the metals markets and related conduct. The Firm is responding to and cooperating with these investigations. Several putative class action complaints have been filed in the United States District Court for the Southern District of New York against the Firm and certain current and former employees, alleging a precious metals futures and options price manipulation scheme in violation of the Commodity Exchange Act. Some of the complaints also allege unjust enrichment and deceptive acts or practices under the General Business Law of the State of New York. The Court consolidated these putative class actions in February 2019. The Firm is also a defendant in a consolidated action filed in the United States District Court for the Southern District of New York alleging monopolization of silver futures in violation of the Sherman Act.

Wendel. Since 2012, the French criminal authorities have been investigating a series of transactions entered into by senior managers of Wendel Investissement ("Wendel") during the period from 2004 through 2007 to restructure their shareholdings in Wendel. JPMorgan Chase Bank, N.A., Paris branch provided financing for the transactions to a number of managers of Wendel in 2007. JPMorgan Chase has cooperated with the investigation. The investigating judges issued an *ordonnance de renvoi* in November 2016, referring JPMorgan Chase Bank, N.A. to the French *tribunal correctionnel* for alleged complicity in tax fraud. No date for trial has been set by the court. In January 2018, the Paris Court of Appeal issued a decision cancelling the *mise en examen* of JPMorgan Chase Bank, N.A. In September 2018, the Court of Cassation, France's highest court, ruled that a *mise en examen* is a prerequisite for an *ordonnance de renvoi* and remanded the case to the Court of Appeal. In

June 2019, the Court of Appeal declined to annul the *ordonnance de renvoi* referring JPMorgan Chase Bank, N.A. to the French *tribunal correctionnel*, and the Firm has reapplied to the Court of Cassation for a determination as to whether the Court of Appeal's decision is consistent with the Court of Cassation's September 2018 ruling. Any further actions in the criminal proceedings are stayed pending the outcome of that application. In addition, a number of the managers have commenced civil proceedings against JPMorgan Chase Bank, N.A. The claims are separate, involve different allegations and are at various stages of proceedings.

* * *

In addition to the various legal proceedings discussed above, JPMorgan Chase and its subsidiaries are named as defendants or are otherwise involved in a substantial number of other legal proceedings. The Firm believes it has meritorious defenses to the claims asserted against it in its currently outstanding legal proceedings and it intends to defend itself vigorously. Additional legal proceedings may be initiated from time to time in the future.

The Firm has established reserves for several hundred of its currently outstanding legal proceedings. In accordance with the provisions of U.S. GAAP for contingencies, the Firm accrues for a litigation-related liability when it is probable that such a liability has been incurred and the amount of the loss can be reasonably estimated. The Firm evaluates its outstanding legal proceedings each quarter to assess its litigation reserves, and makes adjustments in such reserves, upwards or downward, as appropriate, based on management's best judgment after consultation with counsel. The Firm's legal expense/(benefit) was \$69 million and \$0 million for the three months ended June 30, 2019 and 2018, respectively, and \$(12) million and \$70 million for the six months ended June 30, 2019 and 2018, respectively. There is no assurance that the Firm's litigation reserves will not need to be adjusted in the future.

In view of the inherent difficulty of predicting the outcome of legal proceedings, particularly where the claimants seek very large or indeterminate damages, or where the matters present novel legal theories, involve a large number of parties or are in early stages of discovery, the Firm cannot state with confidence what will be the eventual outcomes of the currently pending matters, the timing of their ultimate resolution or the eventual losses, fines, penalties or consequences related to those matters. JPMorgan Chase believes, based upon its current knowledge and after consultation with counsel, consideration of the material legal proceedings described above and after taking into account its current litigation reserves and its estimated aggregate range of possible losses, that the other legal proceedings currently pending against it should not have a material adverse effect on the Firm's consolidated financial condition. The Firm notes, however, that in light of the uncertainties involved in such proceedings, there is no assurance that the ultimate resolution of these matters will

not significantly exceed the reserves it has currently accrued or that a matter will not have material reputational consequences. As a result, the outcome of a particular matter may be material to JPMorgan Chase's operating results for a particular period, depending on, among other factors, the size of the loss or liability imposed and the level of JPMorgan Chase's income for that period.

Note 25 – Business segments

The Firm is managed on a line of business basis. There are four major reportable business segments - Consumer & Community Banking, Corporate & Investment Bank, Commercial Banking and Asset & Wealth Management. In addition, there is a Corporate segment. The business segments are determined based on the products and services provided, or the type of customer served, and they reflect the manner in which financial information is currently evaluated by the Firm's Operating Committee. Segment results are presented on a managed basis. For a further discussion concerning JPMorgan Chase's business segments, refer to Segment results below, and Note 31 of JPMorgan Chase's 2018 Form 10-K.

Segment results

The following tables provide a summary of the Firm's segment results as of or for the three and six months ended June 30, 2019 and 2018, on a managed basis. The Firm's

definition of managed basis starts with the reported U.S. GAAP results and includes certain reclassifications to present total net revenue for the Firm (and each of the reportable business segments) on an FTE basis. Accordingly, revenue from investments that receive tax credits and tax-exempt securities is presented in the managed results on a basis comparable to taxable investments and securities. For additional information on the Firm's managed basis, refer to Note 31 of JPMorgan Chase's 2018 Form 10-K.

Business segment capital allocation

The amount of capital assigned to each business is referred to as equity. On at least an annual basis, the assumptions and methodologies used in capital allocation are assessed and as a result, the capital allocated to lines of business may change. For additional information on business segment capital allocation, refer to Line of business equity on page 91 of JPMorgan Chase's 2018 Form 10-K.

Segment results and reconciliation^(a)

As of or for the three months ended June 30, (in millions, except ratios)	Consumer & Community Banking		Corporate & Investment Bank		Commercial Banking		Asset & Wealth Management	
	2019	2018	2019	2018	2019	2018	2019	2018
Noninterest revenue	\$ 4,440	\$ 3,748	\$ 7,483	\$ 7,532	\$ 549	\$ 633	\$ 2,683	\$ 2,687
Net interest income	9,393	8,749	2,158	2,391	1,662	1,683	876	885
Total net revenue	13,833	12,497	9,641	9,923	2,211	2,316	3,559	3,572
Provision for credit losses	1,120	1,108	—	58	29	43	2	2
Noninterest expense	7,162	6,879	5,487	5,403	864	844	2,596	2,566
Income before income tax expense	5,551	4,510	4,154	4,462	1,318	1,429	961	1,004
Income tax expense	1,377	1,098	1,219	1,264	322	342	242	249
Net income	\$ 4,174	\$ 3,412	\$ 2,935	\$ 3,198	\$ 996	\$ 1,087	\$ 719	\$ 755
Average equity	\$ 52,000	\$ 51,000	\$ 80,000	\$ 70,000	\$ 22,000	\$ 20,000	\$ 10,500	\$ 9,000
Total assets	550,690	552,674	962,498	908,954	220,712	220,232	172,149	161,474
ROE	31%	26%	14%	17%	17%	21%	27%	33%
Overhead ratio	52	55	57	54	39	36	73	72

As of or for the three months ended June 30, (in millions, except ratios)	Corporate		Reconciling Items ^(a)		Total	
	2019	2018	2019	2018	2019	2018
Noninterest revenue	\$ (125)	\$ 142	\$ (596)	\$ (474)	\$ 14,434	\$ 14,268
Net interest income	447	(62)	(138)	(161)	14,398	13,485
Total net revenue	322	80	(734)	(635)	28,832	27,753
Provision for credit losses	(2)	(1)	—	—	1,149	1,210
Noninterest expense	232	279	—	—	16,341	15,971
Income/(loss) before income tax expense/(benefit)	92	(198)	(734)	(635)	11,342	10,572
Income tax expense/(benefit)	(736)	(62)	(734)	(635)	1,690	2,256
Net income/(loss)	\$ 828	\$ (136)	\$ —	\$ —	\$ 9,652	\$ 8,316
Average equity	\$ 68,526	\$ 78,901	\$ —	\$ —	\$ 233,026	\$ 228,901
Total assets	821,330	746,716	NA	NA	2,727,379	2,590,050
ROE	NM	NM	NM	NM	16%	14%
Overhead ratio	NM	NM	NM	NM	57	58

(a) Segment managed results reflect revenue on an FTE basis with the corresponding income tax impact recorded within income tax expense/(benefit). These adjustments are eliminated in reconciling items to arrive at the Firm's reported U.S. GAAP results.

Segment results and reconciliation^(a)

As of or for the six months ended June 30, (in millions, except ratios)	Consumer & Community Banking		Corporate & Investment Bank		Commercial Banking		Asset & Wealth Management	
	2019	2018	2019	2018	2019	2018	2019	2018
Noninterest revenue	\$ 8,773	\$ 7,887	\$ 15,146	\$ 15,449	\$ 1,207	\$ 1,182	\$ 5,276	\$ 5,317
Net interest income	18,811	17,207	4,343	4,957	3,342	3,300	1,772	1,761
Total net revenue	27,584	25,094	19,489	20,406	4,549	4,482	7,048	7,078
Provision for credit losses	2,434	2,425	87	(100)	119	38	4	17
Noninterest expense	14,373	13,788	10,940	11,062	1,737	1,688	5,243	5,147
Income before income tax expense	10,777	8,881	8,462	9,444	2,693	2,756	1,801	1,914
Income tax expense	2,640	2,143	2,276	2,272	644	644	421	389
Net income	\$ 8,137	\$ 6,738	\$ 6,186	\$ 7,172	\$ 2,049	\$ 2,112	\$ 1,380	\$ 1,525
Average equity	\$ 52,000	\$ 51,000	\$ 80,000	\$ 70,000	\$ 22,000	\$ 20,000	\$ 10,500	\$ 9,000
Total assets	550,690	552,674	962,498	908,954	220,712	220,232	172,149	161,474
Return on equity	31%	26%	15%	20%	18%	20%	26%	33%
Overhead ratio	52	55	56	54	38	38	74	73

As of or for the six months ended June 30, (in millions, except ratios)	Corporate		Reconciling Items ^(a)		Total	
	2019	2018	2019	2018	2019	2018
Noninterest revenue	\$ (117)	\$ (43)	\$ (1,181)	\$ (929)	\$ 29,104	\$ 28,863
Net interest income	864	(109)	(281)	(319)	28,851	26,797
Total net revenue	747	(152)	(1,462)	(1,248)	57,955	55,660
Provision for credit losses	—	(5)	—	—	2,644	2,375
Noninterest expense	443	366	—	—	32,736	32,051
Income/(loss) before income tax expense/(benefit)	304	(513)	(1,462)	(1,248)	22,575	21,234
Income tax expense/(benefit)	(775)	6	(1,462)	(1,248)	3,744	4,206
Net income/(loss)	\$ 1,079	\$ (519)	\$ —	\$ —	\$ 18,831	\$ 17,028
Average equity	\$ 67,047	\$ 78,261	\$ —	\$ —	\$ 231,547	\$ 228,261
Total assets	821,330	746,716	NA	NA	2,727,379	2,590,050
Return on equity	NM	NM	NM	NM	16%	14%
Overhead ratio	NM	NM	NM	NM	56	58

(a) Segment managed results reflect revenue on an FTE basis with the corresponding income tax impact recorded within income tax expense/(benefit). These adjustments are eliminated in reconciling items to arrive at the Firm's reported U.S. GAAP results.



Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of JPMorgan Chase & Co.:

Results of Review of Interim Financial Statements

We have reviewed the accompanying consolidated balance sheet of JPMorgan Chase & Co. and its subsidiaries (the "Firm") as of June 30, 2019, and the related consolidated statements of income, comprehensive income, and changes in stockholders' equity for the three-month and six-month periods ended June 30, 2019 and 2018 and the consolidated statements of cash flows for the six-month periods ended June 30, 2019 and 2018, including the related notes (collectively referred to as the "interim financial statements"). Based on our reviews, we are not aware of any material modifications that should be made to the accompanying interim financial statements for them to be in conformity with accounting principles generally accepted in the United States of America.

We have previously audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheet of the Firm as of December 31, 2018, and the related consolidated statements of income, comprehensive income, changes in stockholders' equity and of cash flows for the year then ended (not presented herein), and in our report dated February 26, 2019, we expressed an unqualified opinion on those consolidated financial statements. In our opinion, the information set forth in the accompanying consolidated balance sheet information as of December 31, 2018, is fairly stated, in all material respects, in relation to the consolidated balance sheet from which it has been derived.

Basis for Review Results

These interim financial statements are the responsibility of the Firm's management. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Firm in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB. We conducted our review in accordance with the standards of the PCAOB. A review of interim financial information consists principally of applying analytical procedures and making inquiries of persons responsible for financial and accounting matters. It is substantially less in scope than an audit conducted in accordance with the standards of the PCAOB, the objective of which is the expression of an opinion regarding the financial statements taken as a whole. Accordingly, we do not express such an opinion.

A handwritten signature in black ink that reads "PricewaterhouseCoopers LLP".

August 5, 2019

JPMorgan Chase & Co.
Consolidated average balance sheets, interest and rates (unaudited)
(Taxable-equivalent interest and rates; in millions, except rates)

	Three months ended June 30, 2019			Three months ended June 30, 2018		
	Average balance	Interest ^(g)	Rate (annualized)	Average balance	Interest ^(g)	Rate (annualized)
Assets						
Deposits with banks	\$ 289,838	\$ 1,132	1.57%	\$ 425,942	\$ 1,543	1.45%
Federal funds sold and securities purchased under resale agreements	288,781	1,676	2.33	205,001	807	1.58
Securities borrowed ^(a)	126,157	467	1.48	112,464	190	0.68
Trading assets - debt instruments ^(a)	351,716	2,927	3.34	240,254	2,127	3.55
Taxable securities	244,814	1,875	3.07	189,419	1,383	2.93
Nontaxable securities ^(b)	36,418	422	4.65	42,588	494	4.65
Total investment securities	281,232	2,297	3.28 ^(h)	232,007	1,877	3.24 ^(h)
Loans	954,854	12,770	5.36	939,675	11,680	4.99
All other interest-earning assets ^{(a)(c)}	46,516	472	4.07	50,662	503	3.99
Total interest-earning assets^(a)	2,339,094	21,741	3.73	2,206,005	18,727	3.40
Allowance for loan losses	(13,428)			(13,223)		
Cash and due from banks	20,651			22,050		
Trading assets - equity and other instruments ^(a)	120,545			128,414		
Trading assets - derivative receivables	52,659			60,978		
Goodwill, MSRs and other intangible assets	54,144			54,616		
Other assets	165,390			154,129		
Total assets	\$ 2,739,055			\$ 2,612,969		
Liabilities						
Interest-bearing deposits ^(a)	\$ 1,104,051	\$ 2,413	0.88%	\$ 1,044,738	\$ 1,340	0.51%
Federal funds purchased and securities loaned or sold under repurchase agreements	227,313	1,226	2.16	192,136	759	1.58
Short-term borrowings ^{(a)(d)}	58,262	363	2.49	53,016	260	1.97
Trading liabilities - debt and all other interest-bearing liabilities ^{(a)(e)(f)}	191,655	762	1.60	180,541	598	1.33
Beneficial interests issued by consolidated VIEs	26,713	175	2.63	20,906	121	2.33
Long-term debt ^(a)	246,053	2,266	3.69	242,913	2,003	3.31
Total interest-bearing liabilities^(a)	1,854,047	7,205	1.56	1,734,250	5,081	1.17
Noninterest-bearing deposits ^(a)	408,243			415,757		
Trading liabilities - equity and other instruments ^{(a)(f)}	30,170			34,931		
Trading liabilities - derivative payables	40,233			42,168		
All other liabilities, including the allowance for lending-related commitments ^(a)	146,343			130,894		
Total liabilities	2,479,036			2,358,000		
Stockholders' equity						
Preferred stock	26,993			26,068		
Common stockholders' equity	233,026			228,901		
Total stockholders' equity	260,019			254,969		
Total liabilities and stockholders' equity	\$ 2,739,055			\$ 2,612,969		
Interest rate spread ^(a)			2.17%			2.23%
Net interest income and net yield on interest-earning assets ^(a)		\$ 14,536	2.49		\$ 13,646	2.48

(a) In the second quarter of 2019, the Firm implemented certain presentation changes that impacted interest income and interest expense, but had no effect on net interest income. These changes were made to align the accounting treatment between the balance sheet and the related interest income or expense, primarily by offsetting interest income and expense for certain prime brokerage-related held-for-investment customer receivables and payables that are currently presented as a single margin account on the balance sheet. In addition, the Firm reclassified balances related to certain instruments and structured notes from interest-earning/bearing to noninterest-earning/bearing assets and liabilities as the associated returns are recorded in principal transactions revenue and not in net interest income. These changes were applied retrospectively and, accordingly, prior period amounts were revised to conform with the current presentation.

(b) Represents securities which are tax-exempt for U.S. federal income tax purposes.

(c) Includes prime brokerage-related held-for-investment customer receivables, which are classified in accrued interest and accounts receivable, and all other interest-earning assets, which are classified in other assets on the Consolidated Balance Sheets.

(d) Includes commercial paper

(e) Other interest-bearing liabilities include prime brokerage-related customer payables.

(f) The combined balance of trading liabilities - debt and equity instruments was \$111.0 billion each for the three months ended June 30, 2019 and 2018, respectively.

(g) Interest includes the effect of certain related hedging derivatives. Taxable-equivalent amounts are used where applicable.

(h) The annualized rate for securities based on amortized cost was 3.32% and 3.27% for the three months ended June 30, 2019 and 2018, respectively, and does not give effect to changes in fair value that are reflected in AOCI.

JPMorgan Chase & Co.
Consolidated average balance sheets, interest and rates (unaudited)
(Taxable-equivalent interest and rates; in millions, except rates)

	Six months ended June 30, 2019			Six months ended June 30, 2018		
	Average balance	Interest ^(g)	Rate (annualized)	Average balance	Interest ^(g)	Rate (annualized)
Assets						
Deposits with banks	\$ 290,058	\$ 2,302	1.60%	\$ 424,880	\$ 2,864	1.36%
Federal funds sold and securities purchased under resale agreements	288,631	3,323	2.32	201,700	1,538	1.54
Securities borrowed ^(a)	124,820	864	1.40	111,106	301	0.55
Trading assets - debt instruments ^(a)	337,209	5,709	3.41	240,062	4,245	3.57
Taxable securities	232,880	3,580	3.10	192,511	2,696	2.82
Nontaxable securities ^(b)	37,496	875	4.71	43,348	1,004	4.67
Total investment securities	270,376	4,455	3.32 ^(h)	235,859	3,700	3.16 ^(h)
Loans	961,400	25,690	5.39	933,148	22,797	4.93
All other interest-earning assets ^{(a)(c)}	46,611	930	4.03	49,920	934	3.77
Total interest-earning assets^(a)	2,319,105	43,273	3.76	2,196,675	36,379	3.34
Allowance for loan losses	(13,480)			(13,352)		
Cash and due from banks	21,052			22,111		
Trading assets - equity and other instruments ^(a)	114,605			126,149		
Trading assets - derivative receivables	52,591			60,737		
Goodwill, MSRs and other intangible assets	54,222			54,659		
Other assets	163,940			152,602		
Total assets	\$ 2,712,035			\$ 2,599,581		
Liabilities						
Interest-bearing deposits ^(a)	\$ 1,092,228	\$ 4,601	0.85%	\$ 1,038,502	\$ 2,400	0.47%
Federal funds purchased and securities loaned or sold under repurchase agreements	218,240	2,336	2.16	194,113	1,337	1.39
Short-term borrowings ^{(a)(d)}	62,643	790	2.54	50,622	469	1.87
Trading liabilities - debt and all other interest-bearing liabilities ^{(a)(e)(f)}	187,590	1,481	1.59	175,754	1,057	1.21
Beneficial interests issued by consolidated VIEs	24,782	325	2.64	22,226	244	2.22
Long-term debt ^(a)	247,171	4,608	3.76	245,541	3,756	3.08
Total interest-bearing liabilities^(a)	1,832,654	14,141	1.56	1,726,758	9,263	1.08
Noninterest-bearing deposits ^(a)	403,880			414,790		
Trading liabilities - equity and other instruments ^{(a)(f)}	32,440			32,084		
Trading liabilities - derivative payables	39,902			41,958		
All other liabilities, including the allowance for lending-related commitments ^(a)	144,553			129,662		
Total liabilities	2,453,429			2,345,252		
Stockholders' equity						
Preferred stock	27,059			26,068		
Common stockholders' equity	231,547			228,261		
Total stockholders' equity	258,606			254,329		
Total liabilities and stockholders' equity	\$ 2,712,035			\$ 2,599,581		
Interest rate spread ^(a)			2.20%			2.26%
Net interest income and net yield on interest-earning assets ^(a)		\$ 29,132	2.53		\$ 27,116	2.49

(a) In the second quarter of 2019, the Firm implemented certain presentation changes that impacted interest income and interest expense, but had no effect on net interest income. These changes were made to align the accounting treatment between the balance sheet and the related interest income or expense, primarily by offsetting interest income and expense for certain prime brokerage-related held-for-investment customer receivables and payables that are currently presented as a single margin account on the balance sheet. In addition, the Firm reclassified balances related to certain instruments and structured notes from interest-earning/bearing to noninterest-earning/bearing assets and liabilities as the associated returns are recorded in principal transactions revenue and not in net interest income. These changes were applied retrospectively and, accordingly, prior period amounts were revised to conform with the current presentation.

(b) Represents securities which are tax-exempt for U.S. federal income tax purposes.

(c) Includes prime brokerage-related held-for-investment customer receivables, which are classified in accrued interest and accounts receivable, and all other interest-earning assets, which are classified in other assets on the Consolidated Balance Sheets.

(d) Includes commercial paper

(e) Other interest-bearing liabilities include prime brokerage-related customer payables.

(f) The combined balance of trading liabilities - debt and equity instruments were \$109.0 billion and \$104.5 billion for the six months ended June 30, 2019 and 2018, respectively.

(g) Interest includes the effect of certain related hedging derivatives. Taxable-equivalent amounts are used where applicable.

(h) The annualized rate for securities based on amortized cost was 3.36% and 3.19% for the six months ended June 30, 2019 and 2018, respectively, and does not give effect to changes in fair value that are reflected in AOCI.

GLOSSARY OF TERMS AND ACRONYMS

2018 Form 10-K: Annual report on Form 10-K for year ended December 31, 2018, filed with the U.S. Securities and Exchange Commission.

ABS: Asset-backed securities

Active foreclosures: Loans referred to foreclosure where formal foreclosure proceedings are ongoing. Includes both judicial and non-judicial states.

AFS: Available-for-sale

Allowance for loan losses to total retained loans: represents period-end allowance for loan losses divided by retained loans.

AOCI: Accumulated other comprehensive income/(loss)

ARM(s): Adjustable rate mortgage(s)

AWM: Asset & Wealth Management

Beneficial interests issued by consolidated VIEs: represents the interest of third-party holders of debt, equity securities, or other obligations, issued by VIEs that JPMorgan Chase consolidates.

Benefit obligation: refers to the projected benefit obligation for pension plans and the accumulated postretirement benefit obligation for OPEB plans.

BHC: Bank holding company

CB: Commercial Banking

CBB: Consumer & Business Banking

CCAR: Comprehensive Capital Analysis and Review

CCB: Consumer & Community Banking

CDS: Credit default swaps

CEO: Chief Executive Officer

CET1 Capital: Common equity Tier 1 Capital

CFTC: Commodity Futures Trading Commission

CFO: Chief Financial Officer

Chase Bank USA, N.A.: Chase Bank USA, National Association

CIB: Corporate & Investment Bank

CIO: Chief Investment Office

Client deposits and other third-party liabilities: Deposits, as well as deposits that are swept to on-balance sheet liabilities (e.g., commercial paper, federal funds purchased and securities loaned or sold under repurchase agreements) as part of client cash management programs.

CLTV: Combined loan-to-value

Collateral-dependent: A loan is considered to be collateral-dependent when repayment of the loan is expected to be provided solely by the underlying collateral, rather than by cash flows from the borrower's operations, income or other resources.

Commercial Card: provides a wide range of payment services to corporate and public sector clients worldwide through the commercial card products. Services include procurement, corporate travel and entertainment, expense

management services, and business-to-business payment solutions.

Core loans: represents loans central to the Firm's ongoing businesses; core loans excludes loans classified as trading assets, runoff portfolios, discontinued portfolios and portfolios the Firm has an intent to exit.

Credit derivatives: Financial instruments whose value is derived from the credit risk associated with the debt of a third-party issuer (the reference entity) which allow one party (the protection purchaser) to transfer that risk to another party (the protection seller). Upon the occurrence of a credit event by the reference entity, which may include, among other events, the bankruptcy or failure to pay its obligations, or certain restructurings of the debt of the reference entity, neither party has recourse to the reference entity. The protection purchaser has recourse to the protection seller for the difference between the face value of the CDS contract and the fair value at the time of settling the credit derivative contract. The determination as to whether a credit event has occurred is generally made by the relevant International Swaps and Derivatives Association ("ISDA") Determinations Committee.

Criticized: Criticized loans, lending-related commitments and derivative receivables that are classified as special mention, substandard and doubtful categories for regulatory purposes and are generally consistent with a rating of CCC+/Caa1 and below, as defined by S&P and Moody's.

CRO: Chief Risk Officer

CVA: Credit valuation adjustment

DVA: Debit valuation adjustment

EC: European Commission

Eligible LTD: Long-term debt satisfying certain eligibility criteria

Embedded derivatives: are implicit or explicit terms or features of a financial instrument that affect some or all of the cash flows or the value of the instrument in a manner similar to a derivative. An instrument containing such terms or features is referred to as a "hybrid." The component of the hybrid that is the non-derivative instrument is referred to as the "host." For example, callable debt is a hybrid instrument that contains a plain vanilla debt instrument (i.e., the host) and an embedded option that allows the issuer to redeem the debt issue at a specified date for a specified amount (i.e., the embedded derivative). However, a floating rate instrument is not a hybrid composed of a fixed-rate instrument and an interest rate swap.

ERISA: Employee Retirement Income Security Act of 1974

EPS: Earnings per share

Exchange-traded derivatives: Derivative contracts that are executed on an exchange and settled via a central clearing house.

Fannie Mae: Federal National Mortgage Association

FASB: Financial Accounting Standards Board

FCA: Financial Conduct Authority

FDIC: Federal Deposit Insurance Corporation

Federal Reserve: The Board of the Governors of the Federal Reserve System

FFIEC: Federal Financial Institutions Examination Council

FHA: Federal Housing Administration

FHLB: Federal Home Loan Bank

FICO score: A measure of consumer credit risk based on information in consumer credit reports produced by Fair Isaac Corporation. Because certain aged data is excluded from credit reports based on rules in the Fair Credit Reporting Act, FICO scores may not reflect all historical information about a consumer.

Firm: JPMorgan Chase & Co.

Forward points: represents the interest rate differential between two currencies, which is either added to or subtracted from the current exchange rate (i.e., “spot rate”) to determine the forward exchange rate.

Freddie Mac: Federal Home Loan Mortgage Corporation

Free-standing derivatives: is a derivative contract entered into either separate and apart from any of the Firm’s other financial instruments or equity transactions. Or, in conjunction with some other transaction and is legally detachable and separately exercisable.

FTE: Fully taxable-equivalent

FVA: Funding valuation adjustment

FX: Foreign exchange

G7: “Group of Seven nations”: Countries in the G7 are Canada, France, Germany, Italy, Japan, the U.K. and the U.S.

G7 government securities: Securities issued by the government of one of the G7 nations.

Ginnie Mae: Government National Mortgage Association

GSE: Fannie Mae and Freddie Mac

GSIB: Global systemically important banks

HELOAN: Home equity loan

HELOC: Home equity line of credit

Home equity – senior lien: represents loans and commitments where JPMorgan Chase holds the first security interest on the property.

Home equity – junior lien: represents loans and commitments where JPMorgan Chase holds a security interest that is subordinate in rank to other liens.

HQLA: High-quality liquid assets

HTM: Held-to-maturity

IDI: Insured depository institutions

IHC: JPMorgan Chase Holdings LLC, an intermediate holding company

Impaired loan: Impaired loans are loans measured at amortized cost, for which it is probable that the Firm will be unable to collect all amounts due, including principal and interest, according to the contractual terms of the agreement. Impaired loans include the following:

- All wholesale nonaccrual loans
- All TDRs (both wholesale and consumer), including ones that have returned to accrual status

IPO: Initial public offering

Investment-grade: An indication of credit quality based on JPMorgan Chase’s internal risk assessment system. “Investment grade” generally represents a risk profile similar to a rating of a “BBB-”/“Baa3” or better, as defined by independent rating agencies.

IR: Interest rate

ISDA: International Swaps and Derivatives Association

JPMorgan Chase: JPMorgan Chase & Co.

JPMorgan Chase Bank, N.A.: JPMorgan Chase Bank, National Association

J.P. Morgan Securities: J.P. Morgan Securities LLC

LCR: Liquidity coverage ratio

LGD: Loss given default

LIBOR: London Interbank Offered Rate

LLC: Limited Liability Company

LOB: Line of business

Loss emergence period: represents the time period between the date at which the loss is estimated to have been incurred and the ultimate realization of that loss.

LTV: “Loan-to-value ratio”: For residential real estate loans, the relationship, expressed as a percentage, between the principal amount of a loan and the appraised value of the collateral (i.e., residential real estate) securing the loan.

Origination date LTV ratio

The LTV ratio at the origination date of the loan. Origination date LTV ratios are calculated based on the actual appraised values of collateral (i.e., loan-level data) at the origination date.

Current estimated LTV ratio

An estimate of the LTV as of a certain date. The current estimated LTV ratios are calculated using estimated collateral values derived from a nationally recognized home price index measured at the metropolitan statistical area (“MSA”) level. These MSA-level home price indices consist of actual data to the extent available and forecasted data where actual data is not available. As a result, the estimated collateral values used to calculate these ratios do not represent actual appraised loan-level collateral values; as such, the resulting LTV ratios are necessarily imprecise and should therefore be viewed as estimates.

Combined LTV ratio

The LTV ratio considering all available lien positions, as well as unused lines, related to the property. Combined LTV ratios are used for junior lien home equity products.

Managed basis: A non-GAAP presentation of Firmwide financial results that includes reclassifications to present revenue on a fully taxable-equivalent basis. Management also uses this financial measure at the segment level, because it believes this provides information to enable investors to understand the underlying operational

performance and trends of the particular business segment and facilitates a comparison of the business segment with the performance of competitors.

Master netting agreement: A single agreement with a counterparty that permits multiple transactions governed by that agreement to be terminated or accelerated and settled through a single payment in a single currency in the event of a default (e.g., bankruptcy, failure to make a required payment or securities transfer or deliver collateral or margin when due).

Measurement alternative: Measures equity securities without readily determinable fair values at cost less impairment (if any), plus or minus observable price changes from an identical or similar investment of the same issuer.

MBS: Mortgage-backed securities

MD&A: Management's discussion and analysis

Moody's: Moody's Investor Services

Mortgage product types:

Alt-A

Alt-A loans are generally higher in credit quality than subprime loans but have characteristics that would disqualify the borrower from a traditional prime loan. Alt-A lending characteristics may include one or more of the following: (i) limited documentation; (ii) a high CLTV ratio; (iii) loans secured by non-owner occupied properties; or (iv) a debt-to-income ratio above normal limits. A substantial proportion of the Firm's Alt-A loans are those where a borrower does not provide complete documentation of his or her assets or the amount or source of his or her income.

Option ARMs

The option ARM real estate loan product is an adjustable-rate mortgage loan that provides the borrower with the option each month to make a fully amortizing, interest-only or minimum payment. The minimum payment on an option ARM loan is based on the interest rate charged during the introductory period. This introductory rate is usually significantly below the fully indexed rate. The fully indexed rate is calculated using an index rate plus a margin. Once the introductory period ends, the contractual interest rate charged on the loan increases to the fully indexed rate and adjusts monthly to reflect movements in the index. The minimum payment is typically insufficient to cover interest accrued in the prior month, and any unpaid interest is deferred and added to the principal balance of the loan. Option ARM loans are subject to payment recast, which converts the loan to a variable-rate fully amortizing loan upon meeting specified loan balance and anniversary date triggers.

Prime

Prime mortgage loans are made to borrowers with good credit records who meet specific underwriting requirements, including prescriptive requirements related to income and overall debt levels. New prime mortgage borrowers provide full documentation and generally have reliable payment histories.

Subprime

Subprime loans are loans that, prior to mid-2008, were offered to certain customers with one or more high risk characteristics, including but not limited to: (i) unreliable or poor payment histories; (ii) a high LTV ratio of greater than 80% (without borrower-paid mortgage insurance); (iii) a high debt-to-income ratio; (iv) an occupancy type for the loan is other than the borrower's primary residence; or (v) a history of delinquencies or late payments on the loan.

MSA: Metropolitan statistical areas

MSR: Mortgage servicing rights

NA: Data is not applicable or available for the period presented.

Net Capital Rule: Rule 15c3-1 under the Securities Exchange Act of 1934.

Net charge-off/(recovery) rate: represents net charge-offs/ (recoveries) (annualized) divided by average retained loans for the reporting period.

Net interchange income includes the following components:

- **Interchange income:** Fees earned by credit and debit card issuers on sales transactions.
- **Rewards costs:** The cost to the Firm for points earned by cardholders enrolled in credit card rewards programs.
- **Partner payments:** Payments to co-brand credit card partners based on the cost of loyalty program rewards earned by cardholders on credit card transactions.

Net yield on interest-earning assets: The average rate for interest-earning assets less the average rate paid for all sources of funds.

NM: Not meaningful

Nonaccrual loans: Loans for which interest income is not recognized on an accrual basis. Loans (other than credit card loans and certain consumer loans insured by U.S. government agencies) are placed on nonaccrual status when full payment of principal and interest is not expected, regardless of delinquency status, or when principal and interest has been in default for a period of 90 days or more unless the loan is both well-secured and in the process of collection. Collateral-dependent loans are typically maintained on nonaccrual status.

Nonperforming assets: Nonperforming assets include nonaccrual loans, nonperforming derivatives and certain assets acquired in loan satisfactions, predominantly real estate owned and other commercial and personal property.

OCC: Office of the Comptroller of the Currency

OCI: Other comprehensive income/(loss)

OPEB: Other postretirement employee benefit

OTC: "Over-the-counter derivatives": Derivative contracts that are negotiated, executed and settled bilaterally between two derivative counterparties, where one or both counterparties is a derivatives dealer.

OTC cleared: "Over-the-counter cleared derivatives": Derivative contracts that are negotiated and executed bilaterally, but subsequently settled via a central clearing

house, such that each derivative counterparty is only exposed to the default of that clearing house.

OTTI: Other-than-temporary impairment

Overhead ratio: Noninterest expense as a percentage of total net revenue.

Parent Company: JPMorgan Chase & Co.

Participating securities: represents unvested share-based compensation awards containing nonforfeitable rights to dividends or dividend equivalents (collectively, “dividends”), which are included in the earnings per share calculation using the two-class method. JPMorgan Chase grants restricted stock and RSUs to certain employees under its share-based compensation programs, which entitle the recipients to receive nonforfeitable dividends during the vesting period on a basis equivalent to the dividends paid to holders of common stock. These unvested awards meet the definition of participating securities. Under the two-class method, all earnings (distributed and undistributed) are allocated to each class of common stock and participating securities, based on their respective rights to receive dividends.

PCI: “Purchased credit-impaired” loans represents certain loans that were acquired and deemed to be credit-impaired on the acquisition date in accordance with the guidance of the FASB. The guidance allows purchasers to aggregate credit-impaired loans acquired in the same fiscal quarter into one or more pools, provided that the loans have common risk characteristics (e.g., product type, LTV ratios, FICO scores, past due status, geographic location). A pool is then accounted for as a single asset with a single composite interest rate and an aggregate expectation of cash flows.

PD: Probability of default

PRA: Prudential Regulation Authority

Pre-provision profit/(loss): represents total net revenue less noninterest expense. The Firm believes that this financial measure is useful in assessing the ability of a lending institution to generate income in excess of its provision for credit losses.

Principal transactions revenue: Principal transactions revenue is driven by many factors, including the bid-offer spread, which is the difference between the price at which the Firm is willing to buy a financial or other instrument and the price at which the Firm is willing to sell that instrument. It also consists of realized (as a result of closing out or termination of transactions, or interim cash payments) and unrealized (as a result of changes in valuation) gains and losses on financial and other instruments (including those accounted for under the fair value option) primarily used in client-driven market-making activities and on private equity investments. In connection with its client-driven market-making activities, the Firm transacts in debt and equity instruments, derivatives and commodities (including physical commodities inventories and financial instruments that reference commodities). Principal transactions revenue also includes certain realized and unrealized gains and losses related to hedge accounting and specified risk-management activities, including: (a) certain derivatives designated in qualifying hedge accounting relationships (primarily fair value hedges of commodity and foreign

exchange risk), (b) certain derivatives used for specific risk management purposes, primarily to mitigate credit risk and foreign exchange risk, and (c) other derivatives.

PSU(s): Performance share units

Receivables from customers: primarily represents prime brokerage-related held-for-investment customer receivables from brokerage customers that are collateralized through assets maintained in the clients’ brokerage accounts, as such no allowance is held against these receivables. These receivables are reported within accrued interest and accounts receivable on the Firm’s Consolidated balance sheets.

Regulatory VaR: Daily aggregated VaR calculated in accordance with regulatory rules.

REO: Real estate owned

Reported basis: Financial statements prepared under U.S. GAAP, which excludes the impact of taxable-equivalent adjustments.

Retained loans: Loans that are held-for-investment (i.e. excludes loans held-for-sale and loans at fair value).

Revenue wallet: Total fee revenue based on estimates of investment banking fees generated across the industry (i.e., the revenue wallet) from investment banking transactions in M&A, equity and debt underwriting, and loan syndications. Source: Dealogic, a third-party provider of investment banking competitive analysis and volume based league tables for the above noted industry products.

RHS: Rural Housing Service of the U.S. Department of Agriculture

ROE: Return on equity

ROTCE: Return on tangible common equity

ROU assets: Right-of-use assets

RSU(s): Restricted stock units

RWA: “Risk-weighted assets”: Basel III establishes two comprehensive approaches for calculating RWA (a Standardized approach and an Advanced approach) which include capital requirements for credit risk, market risk, and in the case of Basel III Advanced, also operational risk. Key differences in the calculation of credit risk RWA between the Standardized and Advanced approaches are that for Basel III Advanced, credit risk RWA is based on risk-sensitive approaches which largely rely on the use of internal credit models and parameters, whereas for Basel III Standardized, credit risk RWA is generally based on supervisory risk-weightings which vary primarily by counterparty type and asset class. Market risk RWA is calculated on a generally consistent basis between Basel III Standardized and Basel III Advanced.

S&P: Standard and Poors

SAR(s): Stock appreciation rights

SEC: U.S. Securities and Exchange Commission

Seed capital: Initial JPMorgan capital invested in products, such as mutual funds, with the intention of ensuring the fund is of sufficient size to represent a viable offering to clients, enabling pricing of its shares, and allowing the manager to develop a track record. After these goals are

achieved, the intent is to remove the Firm's capital from the investment.

Single-name: Single reference-entities

SLR: Supplementary leverage ratio

SMBS: Stripped mortgage-backed securities

SPES: Special purpose entities

Structural interest rate risk: represents interest rate risk of the non-trading assets and liabilities of the Firm.

Structured notes: Structured notes are financial instruments whose cash flows are linked to the movement in one or more indexes, interest rates, foreign exchange rates, commodities prices, prepayment rates, or other market variables. The notes typically contain embedded (but not separable or detachable) derivatives. Contractual cash flows for principal, interest, or both can vary in amount and timing throughout the life of the note based on non-traditional indexes or non-traditional uses of traditional interest rates or indexes.

Suspended foreclosures: Loans referred to foreclosure where formal foreclosure proceedings have started but are currently on hold, which could be due to bankruptcy or loss mitigation. Includes both judicial and non-judicial states.

Taxable-equivalent basis: In presenting managed results, the total net revenue for each of the business segments and the Firm is presented on a tax-equivalent basis. Accordingly, revenue from investments that receive tax credits and tax-exempt securities is presented in the managed results on a basis comparable to taxable investments and securities; the corresponding income tax impact related to tax-exempt items is recorded within income tax expense.

TBVPS: Tangible book value per share

TCE: Tangible common equity

TDR: "Troubled debt restructuring" is deemed to occur when the Firm modifies the original terms of a loan agreement by granting a concession to a borrower that is experiencing financial difficulty.

TLAC: Total Loss Absorbing Capacity

U.K.: United Kingdom

Unaudited: Financial statements and information that have not been subjected to auditing procedures sufficient to permit an independent certified public accountant to express an opinion.

U.S.: United States of America

U.S. GAAP: Accounting principles generally accepted in the United States of America.

U.S. GSE(s): "U.S. government-sponsored enterprises": In the U.S., GSEs are quasi-governmental, privately-held entities established by Congress to improve the flow of credit to specific sectors of the economy and provide certain essential services to the public. U.S. GSEs include Fannie Mae and Freddie Mac, but do not include Ginnie Mae, which is directly owned by the U.S. Department of Housing and Urban Development. U.S. GSE obligations are not explicitly guaranteed as to the timely payment of principal

and interest by the full faith and credit of the U.S. government.

U.S. Treasury: U.S. Department of the Treasury

VA: U.S. Department of Veterans Affairs

VaR: "Value-at-risk" is a measure of the dollar amount of potential loss from adverse market moves in an ordinary market environment.

VIEs: Variable interest entities

Warehouse loans: consist of prime mortgages originated with the intent to sell that are accounted for at fair value and classified as trading assets.

LINE OF BUSINESS METRICS

CONSUMER & COMMUNITY BANKING (“CCB”)

Debit and credit card sales volume: Dollar amount of cardmember purchases, net of returns.

Deposit margin/deposit spread: represents net interest income expressed as a percentage of average deposits.

Home Lending Production and Home Lending Servicing revenue comprises the following:

Net mortgage servicing revenue: Includes operating revenue earned from servicing third-party mortgage loans which is recognized over the period in which the service is provided, changes in the fair value of MSRs and the impact of risk management activities associated with MSRs.

Net production revenue: Includes fees and income recognized as earned on mortgage loans originated with the intent to sell; the impact of risk management activities associated with the mortgage pipeline and warehouse loans; and changes in the fair value of any residual interests held from mortgage securitizations. Net production revenue also includes gains and losses on sales of mortgage loans, lower of cost or fair value adjustments on mortgage loans held-for-sale, changes in fair value on mortgage loans originated with the intent to sell and measured at fair value under the fair value option, as well as losses recognized as incurred related to repurchases of previously sold loans.

Mortgage origination channels comprise the following:

Retail: Borrowers who buy or refinance a home through direct contact with a mortgage banker employed by the Firm using a branch office, the Internet or by phone. Borrowers are frequently referred to a mortgage banker by a banker in a Chase branch, real estate brokers, home builders or other third parties.

Correspondent: Banks, thrifts, other mortgage banks and other financial institutions that sell closed loans to the Firm.

Card Services: includes the Credit Card and Merchant Services businesses.

Credit Card: is a business that primarily issues credit cards to consumers and small businesses.

Merchant Services: is a business that primarily processes transactions for merchants.

Net revenue rate: represents Card Services net revenue (annualized) expressed as a percentage of average loans for the period.

Auto loan and lease origination volume: Dollar amount of auto loans and leases originated.

CORPORATE & INVESTMENT BANK (“CIB”)

Definition of selected CIB revenue:

Investment Banking: incorporates all revenue associated with investment banking activities, and is reported net of investment banking revenue shared with other lines of business.

Treasury Services: offers a broad range of products and services that enable clients to manage payments and receipts, as well as invest and manage funds. Products include U.S. dollar and multi-currency clearing, ACH, lockbox, disbursement and reconciliation services, check deposits, and currency-related services.

Lending: includes net interest income, fees, gains or losses on loan sale activity, gains or losses on securities received as part of a loan restructuring, and the risk management results related to the credit portfolio. Lending also includes Trade Finance, which includes loans tied directly to goods crossing borders, export/import loans, commercial letters of credit, standby letters of credit, and supply chain finance.

Fixed Income Markets: primarily includes revenue related to market-making across global fixed income markets, including foreign exchange, interest rate, credit and commodities markets.

Equity Markets: primarily includes revenue related to market-making across global equity products, including cash instruments, derivatives, convertibles and prime brokerage.

Securities Services: primarily includes custody, fund accounting and administration, and securities lending products sold principally to asset managers, insurance companies and public and private investment funds. Also includes collateral management and depositary receipts businesses which provide collateral management products, and depositary bank services for American and global depositary receipt programs.

Description of certain business metrics:

Assets under custody (“AUC”): represents activities associated with the safekeeping and servicing of assets on which Securities Services earns fees.

Investment banking fees: represents advisory, equity underwriting, bond underwriting and loan syndication fees.

COMMERCIAL BANKING (“CB”)

Commercial Banking provides comprehensive financial solutions, including lending, treasury services, investment banking and asset management products across three primary client segments: Middle Market Banking, Corporate Client Banking and Commercial Real Estate Banking. Other includes amounts not aligned with a primary client segment.

Middle Market Banking: covers mid-sized corporations, local governments and nonprofit clients.

Corporate Client Banking: covers large corporations.

Commercial Real Estate Banking: covers investors, developers, and owners of multifamily, office, retail, industrial and affordable housing properties.

CB product revenue comprises the following:

Lending: includes a variety of financing alternatives, which are primarily provided on a secured basis; collateral includes receivables, inventory, equipment, real estate or other assets. Products include term loans, revolving lines of credit, bridge financing, asset-based structures, leases, and standby letters of credit.

Treasury services: includes revenue from a broad range of products and services that enable CB clients to manage payments and receipts, as well as invest and manage funds.

Investment banking: includes revenue from a range of products providing CB clients with sophisticated capital-raising alternatives, as well as balance sheet and risk management tools through advisory, equity underwriting, and loan syndications. Revenue from fixed income and equity market products used by CB clients is also included.

Other: product revenue primarily includes tax-equivalent adjustments generated from Community Development Banking activity and certain income derived from principal transactions.

ASSET & WEALTH MANAGEMENT (“AWM”)

Assets under management (“AUM”): represent assets managed by AWM on behalf of its Private Banking, Institutional and Retail clients.

Client assets: represent assets under management, as well as custody, brokerage, administration and deposit accounts.

Multi-asset: Any fund or account that allocates assets under management to more than one asset class.

Alternative assets: The following types of assets constitute alternative investments – hedge funds, currency, real estate, private equity and other investment funds designed to focus on nontraditional strategies.

AWM’s lines of business consist of the following:

Asset Management: provides comprehensive global investment services - including asset management, pension analytics, asset-liability management and active risk-budgeting strategies.

Wealth Management: offers investment advice and wealth management, including investment management, capital markets and risk management, tax and estate planning, banking, lending and specialty-wealth advisory services.

AWM’s client segments consist of the following:

Private Banking: clients include high- and ultra-high-net-worth individuals, families, money managers, business owners and small corporations worldwide.

Institutional: clients include both corporate and public institutions, endowments, foundations, nonprofit organizations and governments worldwide.

Retail: clients include financial intermediaries and individual investors.

Asset Management has two high-level measures of its overall fund performance:

Percentage of mutual fund assets under management in funds rated 4- or 5-star: Mutual fund rating services rank funds based on their risk-adjusted performance over various periods. A 5-star rating is the best rating and represents the top 10% of industry-wide ranked funds.

A 4-star rating represents the next 22.5% of industry-wide ranked funds. A 3-star rating represents the next 35% of industry-wide ranked funds. A 2-star rating represents the next 22.5% of industry-wide ranked funds. A 1-star rating is the worst rating and represents the bottom 10% of industry-wide ranked funds. The “overall Morningstar rating” is derived from a weighted average of the performance associated with a fund’s three-, five- and ten-year (if applicable) Morningstar Rating metrics. For U.S. domiciled funds, separate star ratings are given at the individual share class level. The Nomura “star rating” is based on three-year risk-adjusted performance only. Funds with fewer than three years of history are not rated and

hence excluded from this analysis. All ratings, the assigned peer categories and the asset values used to derive this analysis are sourced from these fund rating providers. The data providers re-denominate the asset values into U.S. dollars. This % of AUM is based on star ratings at the share class level for U.S. domiciled funds, and at a “primary share class” level to represent the star rating of all other funds except for Japan where Nomura provides ratings at the fund level. The “primary share class”, as defined by Morningstar, denotes the share class recommended as being the best proxy for the portfolio and in most cases will be the most retail version (based upon annual management charge, minimum investment, currency and other factors). The performance data could have been different if all funds/accounts would have been included. Past performance is not indicative of future results.

Percentage of mutual fund assets under management in funds ranked in the 1st or 2nd quartile (one, three, and five years): All quartile rankings, the assigned peer categories and the asset values used to derive this analysis are sourced from the fund ranking providers. Quartile rankings are done on the net-of-fee absolute return of each fund. The data providers re-denominate the asset values into U.S. dollars. This % of AUM is based on fund performance and associated peer rankings at the share class level for U.S. domiciled funds, at a “primary share class” level to represent the quartile ranking of the U.K., Luxembourg and Hong Kong funds and at the fund level for all other funds. The “primary share class”, as defined by Morningstar, denotes the share class recommended as being the best proxy for the portfolio and in most cases will be the most retail version (based upon annual management charge, minimum investment, currency and other factors). Where peer group rankings given for a fund are in more than one “primary share class” territory both rankings are included to reflect local market competitiveness (applies to “Offshore Territories” and “HK SFC Authorized” funds only). The performance data could have been different if all funds/accounts would have been included. Past performance is not indicative of future results.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

For a discussion of the quantitative and qualitative disclosures about market risk, refer to the Market Risk Management section of Management's discussion and analysis and pages 124-131 of JPMorgan Chase's 2018 Form 10-K.

Item 4. Controls and Procedures.

As of the end of the period covered by this report, an evaluation was carried out under the supervision and with the participation of the Firm's management, including its Chairman and Chief Executive Officer and its Chief Financial Officer, of the effectiveness of its disclosure controls and procedures (as defined in Rule 13a-15(e) under the Securities Exchange Act of 1934). Based on that evaluation, the Chairman and Chief Executive Officer and the Chief Financial Officer concluded that these disclosure controls and procedures were effective. Refer to Exhibits 31.1 and 31.2 for the Certification statements issued by the Chairman and Chief Executive Officer and Chief Financial Officer.

The Firm is committed to maintaining high standards of internal control over financial reporting. Nevertheless, because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. In addition, in a firm as large and complex as JPMorgan Chase, lapses or deficiencies in internal controls do occur from time to time, and there can be no assurance that any such deficiencies will not result in significant deficiencies or material weaknesses in internal controls in the future. For further information, refer to "Management's report on internal control over financial reporting" on page 148 of JPMorgan Chase's 2018 Form 10-K. There was no change in the Firm's internal control over financial reporting (as defined in Rule 13a-15(f) under the Securities Exchange Act of 1934) that occurred during the three months ended June 30, 2019, that has materially affected, or is reasonably likely to materially affect, the Firm's internal control over financial reporting.

Part II – Other Information

Item 1. Legal Proceedings.

For information that updates the disclosures set forth under Part I, Item 3: Legal Proceedings, in JPMorgan Chase's 2018 Form 10-K, refer to the discussion of the Firm's material legal proceedings in Note 24 of this Form 10-Q.

Item 1A. Risk Factors.

For a discussion of certain risk factors affecting the Firm, refer to Part I, Item 1A: Risk Factors on pages 7-28 of JPMorgan Chase's 2018 Form 10-K and Forward-Looking Statements on page 79 of this Form 10-Q.

Supervision and regulation

For information on Supervision and Regulation, refer to the Supervision and regulation section on pages 1-6 of JPMorgan Chase's 2018 Form 10-K.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds.

The Firm did not have any unregistered sale of equity securities during the three months ended June 30, 2019.

Repurchases under the common equity repurchase program

For information regarding repurchases under the Firm's common equity repurchase program, refer to Capital Risk Management on pages 44-48 of this Form 10-Q and pages 85-94 of JPMorgan Chase's 2018 Form 10-K.

Shares repurchased, on a settlement-date basis, pursuant to the common equity repurchase program during the six months ended June 30, 2019, were as follows.

Six months ended June 30, 2019	Total shares of common stock repurchased	Average price paid per share of common stock ^(a)	Aggregate repurchases of common equity (in millions) ^(a)	Dollar value of remaining authorized repurchase (in millions) ^{(a)(b)}
First quarter	49,534,646	\$ 102.78	\$ 5,091	\$ 5,290
April	15,167,534	108.04	1,639	3,651
May	17,612,730	111.88	1,971	1,680
June	14,653,991	109.21	1,600	80 ^(c)
Second quarter	47,434,255	109.83	5,210	80 ^(c)
Year-to-date	96,968,901	\$ 106.23	\$ 10,301	\$ 80 ^(c)

(a) Excludes commissions cost.

(b) Represents the amount remaining under the \$20.7 billion repurchase program that was authorized by the Board of Directors on June 28, 2018.

(c) The \$80 million unused portion under the prior Board authorization was canceled when the \$29.4 billion program was authorized.

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

Not applicable.

Item 5. Other Information.

None.

Item 6. Exhibits.

Exhibit No.	Description of Exhibit
15	Letter re: Unaudited Interim Financial Information. ^(a)
31.1	Certification. ^(a)
31.2	Certification. ^(a)
32	Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. ^(b)
101.INS	The instance document does not appear in the interactive data file because its XBRL tags are embedded within the inline XBRL document. ^(c)
101.SCH	XBRL Taxonomy Extension Schema Document. ^(a)
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document. ^(a)
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document. ^(a)
101.LAB	XBRL Taxonomy Extension Label Linkbase Document. ^(a)
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document. ^(a)
104	The cover page of this Quarterly Report on Form 10-Q, formatted in inline XBRL.

(a) Filed herewith.

(b) Furnished herewith. This exhibit shall not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, or otherwise subject to the liability of that Section. Such exhibit shall not be deemed incorporated into any filing under the Securities Act of 1933 or the Securities Exchange Act of 1934.

(c) Pursuant to Rule 405 of Regulation S-T, includes the following financial information included in the Firm's Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2019, formatted in XBRL (eXtensible Business Reporting Language) interactive data files: (i) the Consolidated statements of income (unaudited) for the three and six months ended June 30, 2019 and 2018, (ii) the Consolidated statements of comprehensive income (unaudited) for the three and six months ended June 30, 2019 and 2018, (iii) the Consolidated balance sheets (unaudited) as of June 30, 2019, and December 31, 2018, (iv) the Consolidated statements of changes in stockholders' equity (unaudited) for the three and six months ended June 30, 2019 and 2018, (v) the Consolidated statements of cash flows (unaudited) for the six months ended June 30, 2019 and 2018, and (vi) the Notes to Consolidated Financial Statements (unaudited).

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

JPMorgan Chase & Co.

(Registrant)

By:

/s/ Nicole Giles

Nicole Giles

Managing Director and Firmwide Controller
(Principal Accounting Officer)

Date: August 5, 2019

INDEX TO EXHIBITS

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101.LAB	XBRL Taxonomy Extension Label Linkbase Document.
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.
104	The cover page of this Quarterly Report on Form 10-Q, formatted in inline XBRL.
†	This exhibit shall not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, or otherwise subject to the liability of that Section. Such exhibit shall not be deemed incorporated into any filing under the Securities Act of 1933 or the Securities Exchange Act of 1934.

Exhibit 15



August 5, 2019

Securities and Exchange Commission
100 F Street, N.E.
Washington, DC 20549

Re: JPMorgan Chase & Co.

Registration Statements on Form S-3
(No. 333-222672)
(No. 333-222672-01)
(No. 333-230098)

Registration Statements on Form S-8
(No. 333-219702)
(No. 333-219701)
(No. 333-219699)
(No. 333-185584)
(No. 333-185582)
(No. 333-185581)
(No. 333-175681)
(No. 333-158325)
(No. 333-142109)
(No. 333-125827)
(No. 333-112967)

Commissioners:

We are aware that our report dated August 5, 2019 on our review of interim financial information of JPMorgan Chase & Co. and its subsidiaries (the "Firm"), which appears in this Quarterly Report on Form 10-Q, is incorporated by reference in the Registration Statements of the Firm referred to above. Pursuant to Rule 436(c) under the Securities Act of 1933, such report should not be considered a part of such Registration Statements, and is not a report within the meaning of Sections 7 and 11 of that Act.

Very truly yours,

/s/ PricewaterhouseCoopers LLP

PricewaterhouseCoopers LLP, 300 Madison Avenue, New York, NY 10017

Exhibit 31.1
JPMorgan Chase & Co.

CERTIFICATION

I, James Dimon, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of JPMorgan Chase & Co.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent function):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 5, 2019

/s/ James Dimon

James Dimon
Chairman and Chief Executive Officer

Exhibit 31.2
JPMorgan Chase & Co.

CERTIFICATION

I, Jennifer Piepszak, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of JPMorgan Chase & Co.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent function):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 5, 2019

/s/ Jennifer Piepszak

Jennifer Piepszak
Executive Vice President and Chief Financial Officer

Exhibit 32
JPMorgan Chase & Co.

**CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Quarterly Report of JPMorgan Chase & Co. on Form 10-Q for the period ended June 30, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), each of the undersigned officers of JPMorgan Chase & Co., certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of JPMorgan Chase & Co.

Date: August 5, 2019

By: /s/ James Dimon

James Dimon
Chairman and Chief Executive Officer

Date: August 5, 2019

By: /s/ Jennifer Piepszak

Jennifer Piepszak
Executive Vice President and Chief Financial Officer

This certification accompanies this Quarterly Report on Form 10-Q and shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, or otherwise subject to the liability of that Section.

A signed original of this written statement required by Section 906 has been provided to, and will be retained by, JPMorgan Chase & Co. and furnished to the Securities and Exchange Commission or its staff upon request.