Janetschek William J
Form 4
May 10, 2013

FORM 4

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

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934, Section 17(a) of the Public Utility Holding Company Act of 1935 or Section 30(h) of the Investment Company Act of 1940

OMB APPROVAL
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(Print or Type Responses)

1. Name and Address of Reporting Person *
Janetschek William J

(Last) (First) (Middle)

C/O KKR & CO. L.P., 9 WEST 57TH STREET, 42ND FLOOR

(Street)

NEW YORK, NY 10019

(City) (State) (Zip)

2. Issuer Name **and** Ticker or Trading Symbol
KKR & Co. L.P. [KKR]

3. Date of Earliest Transaction (Month/Day/Year)
05/09/2013

4. If Amendment, Date Original Filed(Month/Day/Year)

5. Relationship of Reporting Person(s) to Issuer

(Check all applicable)

_____ Director _____ 10% Owner
__X__ Officer (give title below) _____ Other (specify below)
Chief Financial Officer

6. Individual or Joint/Group Filing(Check Applicable Line)
_X_ Form filed by One Reporting Person
___ Form filed by More than One Reporting Person

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

1.Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transaction Code (Instr. 8)		4. Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5)			5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
			Code	V	Amount	(A) or (D)	Price			
Common Units	05/09/2013		C (2)		80,000	A	(3)	80,000	I	See footnote (1)
Common Units	05/09/2013		S		80,000	D	$ 20.9 (4)	0	I	See footnote (1)
Common Units								22,500	I	See footnote (5)

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

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Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned
(*e.g.*, puts, calls, warrants, options, convertible securities)

1. Title of Derivative Security (Instr. 3)	2. Conversion or Exercise Price of Derivative Security	3. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any (Month/Day/Year)	4. Transaction Code (Instr. 8)		5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5)		6. Date Exercisable and Expiration Date (Month/Day/Year)		7. Title and Amount of Underlying Securities (Instr. 3 and 4)		8 I S (
				Code	V	(A)	(D)	Date Exercisable	Expiration Date	Title	Amount or Number of Shares	
KKR Holdings L.P. Units	(3)	05/09/2013		C (2)			80,000	(3)	(3)	Common Units (3)	80,000	
KKR Holdings L.P. Units	(3)							(3)	(3)	Common Units (3)	3,320,827	

Reporting Owners

Reporting Owner Name / Address	Relationships			
	Director	10% Owner	Officer	Other
Janetschek William J C/O KKR & CO. L.P. 9 WEST 57TH STREET, 42ND FLOOR NEW YORK, NY 10019			Chief Financial Officer	

Signatures

/s/ Christopher B. Lee, Attorney-in-fact	05/10/2013
**Signature of Reporting Person	Date

Explanation of Responses:

* If the form is filed by more than one reporting person, *see* Instruction 4(b)(v).

** Intentional misstatements or omissions of facts constitute Federal Criminal Violations. *See* 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

(1) These securities are held by a limited partnership established for estate planning purposes, whose general partner is a limited liability company of which the Reporting Person is the sole member and investment manager.

(2) The limited partnership received KKR Group Partnership Units (which term refers collectively to Class A partner interests in each of KKR Management Holdings L.P. and KKR Fund Holdings L.P.) from KKR Holdings L.P. in exchange for units of KKR Holdings L.P. and exchanged such KKR Group Partnership Units for common units of KKR & Co. L.P. in each case as described in footnote 3 below.

(3)

Pursuant to an exchange agreement as contemplated by KKR & Co. L.P.'s prospectus dated September 21, 2011, filed with the Securities and Exchange Commission on September 23, 2011, units of KKR Holdings L.P. are exchangeable for KKR Group Partnership Units on a one-for-one basis, and KKR Group Partnership Units are exchangeable for common units of KKR & Co. L.P. on a one-for-one basis.

(4) Reflects a weighted average sale price. These common units were sold in multiple transactions at prices ranging from $20.89 to $20.98, inclusive. The Reporting Person will provide, upon request by the staff of the Securities and Exchange Commission, the Issuer, or a security holder of the Issuer, full information regarding the number of common units sold at each separate price.

(5) These securities are held by a limited liability company established for the purpose of making charitable donations of which the Reporting Person is a member and manager.

Remarks:

Pursuant to Rule 16a-1(a)(4) under the Securities Exchange Act of 1934, as amended, the Reporting Person states that this filin

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Prior service credit/(cost) arising during the period
(29
)

7

(22
)

—

—

—

—

—

—

Net gain/(loss) arising during the period
(558
)

102

(456
)

802

(160
)

642

(366
)

145

(221
)
Reclassification adjustments included in net income(e):

Amortization of net loss
103

(24
)

79

250

(90
)

160

257

(97
)

160

Amortization of prior service cost/(credit)
(23
)

6

(17
)

(36
)

13

(23
)

(36
)

14

(22
)
Curtailment (gain)/loss
21

(5
)

16

—

—

—

—

Explanation of Responses:

—

—

Settlement (gain)/loss
2

—

2

2

(1
)

1

4

(1
)

3

Foreign exchange and other
34

(9
)

25

(54
)

12

(42
)

77

(25
)

52

Net change
(450
)

77

(373
)

964

(226
)

738

(64
)

36

(28
)
DVA on fair value option elected liabilities, net change:
$
1,364

$
(321
)

$
1,043

$
(303
)

$
111

$
(192
)

$
(529
)

$
199

$
(330
)
Total other comprehensive income/(loss)
$
(1,761
)

$
285

$
(1,476
)

$
1,971

$
(915
)

$
1,056

$
(2,451
)

$
930

$
(1,521
)

(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 year ended December 31, 2018, the Firm reclassified a net pre-tax loss of $168 million to other expense related to the liquidation of certain legal entities, $17 million related to net investment hedge losses and $151 million related to cumulative translation adjustments. During the year ended December 31, 2017, the Firm reclassified a net pre-tax loss of $25 million to other expense related to the liquidation of a legal entity, $50 million related to net investment hedge gains and $75 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.

Notes to consolidated financial statements

Note 24 – Income taxes

JPMorgan Chase and its eligible subsidiaries file a consolidated U.S. federal income tax return. JPMorgan Chase uses the asset and liability method to provide income taxes on all transactions recorded in the Consolidated Financial Statements. This method requires that income taxes reflect the expected future tax consequences of temporary differences between the carrying amounts of assets or liabilities for book and tax purposes. Accordingly, a deferred tax asset or liability for each temporary difference is determined based on the tax rates that the Firm expects to be in effect when the underlying items of income and expense are realized. JPMorgan Chase's expense for income taxes includes the current and deferred portions of that expense. A valuation allowance is established to reduce deferred tax assets to the amount the Firm expects to realize.

Due to the inherent complexities arising from the nature of the Firm's businesses, and from conducting business and being taxed in a substantial number of jurisdictions, significant judgments and estimates are required to be made. Agreement of tax liabilities between JPMorgan Chase and the many tax jurisdictions in which the Firm files tax returns may not be finalized for several years. Thus, the Firm's final tax-related assets and liabilities may ultimately be different from those currently reported.

Effective tax rate and expense

A reconciliation of the applicable statutory U.S. federal income tax rate to the effective tax rate for each of the years ended December 31, 2018, 2017 and 2016, is presented in the following table.

Effective tax rate

Year ended December 31,	**2018**	2017	2016
Statutory U.S. federal tax rate	**21.0 %**	35.0 %	35.0 %
Increase/(decrease) in tax rate resulting from:			
U.S. state and local income taxes, net of U.S. federal income tax benefit	**4.0**	2.2	2.4
Tax-exempt income	**(1.5)**	(3.3)	(3.1)
Non-U.S. subsidiary earnings	**0.6**	(3.1) (a)	(1.7) (a)
Business tax credits	**(3.5)**	(4.2)	(3.9)
Impact of the TCJA	**(0.7)**	5.4	—
Other, net	**0.4**	(0.1)	(0.3)
Effective tax rate	**20.3 %**	31.9 %	28.4 %

(a) Predominantly includes earnings of U.K. subsidiaries that were deemed to be reinvested indefinitely through December 31, 2017.

Impact of the TCJA

2018

The Firm's effective tax rate decreased in 2018 due to the TCJA, including the reduction in the U.S. federal statutory income tax rate as well as a $302 million net tax benefit recorded in 2018 resulting from changes in the estimates related to the remeasurement of certain deferred taxes and the deemed repatriation tax on non-U.S. earnings. The change in estimate was recorded under SEC Staff Accounting Bulletin No. 118 ("SAB 118") and the accounting under SAB 118 is complete.

2017

The Firm's effective tax rate increased in 2017 driven by a $1.9 billion income tax expense representing the estimated impact of the enactment of the TCJA. The $1.9 billion tax expense was predominantly driven by a deemed repatriation of the Firm's unremitted non-U.S. earnings and adjustments to the value of certain tax-oriented investments partially offset by a benefit from the revaluation of the Firm's net deferred tax liability.

The deemed repatriation of the Firm's unremitted non-U.S. earnings is based on the post-1986 earnings and profits of each controlled foreign corporation. The calculation resulted in an estimated income tax expense of $3.7 billion. Furthermore, accounting for income taxes requires the remeasurement of certain deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future. The Firm remeasured its deferred tax asset and liability balances in the fourth quarter of 2017 to the new statutory U.S. federal income tax rate of 21% as well as any federal benefit associated with state and local deferred income taxes. The remeasurement resulted in an estimated income tax benefit of $2.1 billion.

Adjustments were also recorded in 2017 to income tax expense for certain tax-oriented investments. These adjustments were driven by changes to affordable housing proportional amortization resulting from the reduction of the federal income tax rate under the TCJA. SAB 118 did not apply to these adjustments.

The components of income tax expense/(benefit) included in the Consolidated statements of income were as follows for each of the years ended December 31, 2018, 2017, and 2016.

Income tax expense/(benefit)

Year ended December 31, (in millions)	**2018**	2017	2016
Current income tax expense/(benefit)			
U.S. federal	**$2,854**	$5,718	$2,488
Non-U.S.	**2,077**	2,400	1,760
U.S. state and local	**1,638**	1,029	904
Total current income tax expense/(benefit)	**6,569**	9,147	5,152
Deferred income tax expense/(benefit)			
U.S. federal	**1,359**	2,174	4,364
Non-U.S.	**(93)**	(144)	(73)
U.S. state and local	**455**	282	360
Total deferred income tax expense/(benefit)	**1,721**	2,312	4,651
Total income tax expense	**$8,290**	$11,459	$9,803

Total income tax expense includes $54 million, $252 million and $55 million of tax benefits recorded in 2018, 2017, and 2016, respectively, as a result of tax audit resolutions.

Tax effect of items recorded in stockholders' equity

The preceding table does not reflect the tax effect of certain items that are recorded each period directly in stockholders' equity. The tax effect of all items recorded directly to stockholders' equity resulted in an increase of $172 million in 2018, a decrease of $915 million in 2017, and an increase of $925 million in 2016.

Results from Non-U.S. earnings

The following table presents the U.S. and non-U.S. components of income before income tax expense for the years ended December 31, 2018, 2017 and 2016.

Year ended December 31, (in millions)	**2018**	2017	2016
U.S.	**$33,052**	$27,103	$26,651
Non-U.S.[(a)]	**7,712**	8,797	7,885
Income before income tax expense	**$40,764**	$35,900	$34,536

(a) For purposes of this table, non-U.S. income is defined as income generated from operations located outside the U.S.

Prior to December 31, 2017, U.S. federal income taxes had not been provided on the undistributed earnings of certain non-U.S. subsidiaries, to the extent that such earnings had been reinvested abroad for an indefinite period of time. The Firm is no longer maintaining the indefinite reinvestment assertion on the undistributed earnings of those non-U.S. subsidiaries in light of the enactment of the TCJA. The U.S. federal and state and local income taxes associated with the undistributed and previously untaxed earnings of those non-U.S. subsidiaries was included in the deemed repatriation charge recorded as of December 31, 2017.

Affordable housing tax credits

The Firm recognized $1.5 billion, $1.7 billion and $1.7 billion of tax credits and other tax benefits associated with investments in affordable housing projects within income tax expense for the years 2018, 2017 and 2016, respectively. The amount of amortization of such investments reported in income tax expense was $1.2 billion, $1.7 billion and $1.2 billion, respectively. The carrying value of these investments, which are reported in other assets on the Firm's Consolidated balance sheets, was $7.9 billion and $7.8 billion at December 31, 2018 and 2017, respectively. The amount of commitments related to these investments, which are reported in accounts payable and other liabilities on the Firm's Consolidated balance sheets, was $2.3 billion and $2.4 billion at December 31, 2018 and 2017, respectively.

Notes to consolidated financial statements

Deferred taxes

Deferred income tax expense/(benefit) results from differences between assets and liabilities measured for financial reporting purposes versus income tax return purposes. Deferred tax assets are recognized if, in management's judgment, their realizability is determined to be more likely than not. If a deferred tax asset is determined to be unrealizable, a valuation allowance is established. The significant components of deferred tax assets and liabilities are reflected in the following table as of December 31, 2018 and 2017.

December 31, (in millions)	**2018**	2017
Deferred tax assets		
Allowance for loan losses	**$ 3,433**	$ 3,395
Employee benefits	**1,129**	688
Accrued expenses and other	**2,701**	3,528
Non-U.S. operations	**629**	327
Tax attribute carryforwards	**163**	219
Gross deferred tax assets	**8,055**	8,157
Valuation allowance	**(89)**	(46)
Deferred tax assets, net of valuation allowance	**$ 7,966**	$ 8,111
Deferred tax liabilities		
Depreciation and amortization	**$ 2,533**	$ 2,299
Mortgage servicing rights, net of hedges	**2,586**	2,757
Leasing transactions	**4,719**	3,483
Non-U.S. operations	**—**	200
Other, net	**3,713**	3,502
Gross deferred tax liabilities	**13,551**	12,241
Net deferred tax (liabilities)/assets	**$ (5,585)**	$ (4,130)

JPMorgan Chase has recorded deferred tax assets of $163 million at December 31, 2018, in connection with U.S. federal and non-U.S. net operating loss ("NOL") carryforwards and state and local capital loss carryforwards. At December 31, 2018, total U.S. federal NOL carryforwards were approximately $423 million, non-U.S. NOL carryforwards were approximately $120 million and state and local capital loss carryforwards were $1.3 billion. If not utilized, the U.S. federal NOL carryforwards will expire between 2022 and 2036 and the state and local capital loss carryforwards will expire between 2020 and 2022. Certain non-U.S. NOL carryforwards will expire between 2028 and 2034 whereas others have an unlimited carryforward period.

The valuation allowance at December 31, 2018, was due to the state and local capital loss carryforwards and certain non-U.S. deferred tax assets, including NOL carryforwards.

Unrecognized tax benefits

At December 31, 2018, 2017 and 2016, JPMorgan Chase's unrecognized tax benefits, excluding related interest expense and penalties, were $4.9 billion, $4.7 billion and $3.5 billion, respectively, of which $3.8 billion, $3.5 billion and $2.6 billion, respectively, if recognized, would reduce the annual effective tax rate. Included in the amount of unrecognized tax benefits are certain items that would not affect the effective tax rate if they were recognized in the Consolidated statements of income. These unrecognized items include the tax effect of certain temporary differences, the portion of gross state and local unrecognized tax benefits that would be offset by the benefit from associated U.S. federal income tax deductions, and the portion of gross non-U.S. unrecognized tax benefits that would have offsets in other jurisdictions. JPMorgan Chase is presently under audit by a number of taxing authorities, most notably by the Internal Revenue Service as summarized in the Tax examination status table below. As JPMorgan Chase is presently under audit by a number of taxing authorities, it is reasonably possible that over the next 12 months the resolution of these examinations may increase or decrease the gross balance of unrecognized tax benefits by as much as $0.9 billion. Upon settlement of an audit, the change in the unrecognized tax benefit would result from payment or income statement recognition.

The following table presents a reconciliation of the beginning and ending amount of unrecognized tax benefits for the years ended December 31, 2018, 2017 and 2016.

Year ended December 31, (in millions)	**2018**	2017	2016
Balance at January 1,	**$4,747**	$3,450	$3,497
Increases based on tax positions related to the current period	**980**	1,355	262
Increases based on tax positions related to prior periods	**649**	626	583
Decreases based on tax positions related to prior periods	**(1,249)**	(350)	(785)
Decreases related to cash settlements with taxing authorities	**(266)**	(334)	(56)
Decreases related to a lapse of applicable statute of limitations	**—**	—	(51)
Balance at December 31,	**$4,861**	$4,747	$3,450

After-tax interest expense/(benefit) and penalties related to income tax liabilities recognized in income tax expense were $192 million, $102 million and $86 million in 2018, 2017 and 2016, respectively.

At December 31, 2018 and 2017, in addition to the liability for unrecognized tax benefits, the Firm had accrued $887 million and $639 million, respectively, for income tax-related interest and penalties.

Tax examination status

JPMorgan Chase is continually under examination by the Internal Revenue Service, by taxing authorities throughout the world, and by many state and local jurisdictions throughout the U.S. The following table summarizes the status of significant income tax examinations of JPMorgan Chase and its consolidated subsidiaries as of December 31, 2018.

December 31, 2018	Periods under examination	Status
JPMorgan Chase – U.S.	2006 – 2010	Field examination of amended returns
JPMorgan Chase – U.S.	2011 – 2013	Field Examination
JPMorgan Chase – U.S.	2014 - 2016	Field Examination
JPMorgan Chase – New York State	2012 - 2014	Field Examination
JPMorgan Chase – New York City	2012 - 2014	Field Examination
JPMorgan Chase – California	2011 – 2012	Field Examination
JPMorgan Chase – U.K.	2006 – 2016	Field examination of certain select entities

Notes to consolidated financial statements

Note 25 – Restricted cash, other restricted assets and intercompany funds transfers

Restricted cash and other restricted assets

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 business of JPMorgan Chase Bank, N.A. is subject to examination and regulation by the OCC. The Bank is a member of the U.S. Federal Reserve System, and its deposits in the U.S. are insured by the FDIC, subject to applicable limits.

The Federal Reserve requires depository institutions to maintain cash reserves with a Federal Reserve Bank. The average required amount of reserve balances is deposited by the Firm's bank subsidiaries. In addition, the Firm is required to maintain cash reserves at certain non-US central banks.

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-dealers (principally J.P. Morgan Securities LLC in the U.S and J.P. Morgan Securities plc in the U.K.) are subject to certain restrictions on cash and other assets.

Upon the adoption of the restricted cash guidance in the first quarter of 2018, restricted and unrestricted cash are reported together on the Consolidated balance sheets and Consolidated statements of cash flows. The following table presents the components of the Firm's restricted cash:

December 31, (in billions)	**2018**	2017
Cash reserves – Federal Reserve Banks	**$ 22.1**	$ 25.7
Segregated for the benefit of securities and futures brokerage customers	**14.6**	16.8
Cash reserves at non-U.S. central banks and held for other general purposes	**4.1**	3.3
Total restricted cash[(a)]	**$ 40.8**	$ 45.8

(a) Comprises $39.6 billion and $44.8 billion in deposits with banks, and $1.2 billion and $1.0 billion in cash and due from banks on the Consolidated balance sheets as of December 31, 2018 and 2017, respectively.

Also, as of December 31, 2018 and 2017, the Firm had the following other restricted assets:

- Cash and securities pledged with clearing organizations for the benefit of customers of $20.6 billion and $18.0 billion, respectively.
- Securities with a fair value of $9.7 billion and $3.5 billion, respectively, were also restricted in relation to customer activity.

Intercompany funds transfers

Restrictions imposed by U.S. federal law prohibit JPMorgan Chase & Co. ("Parent Company") and certain of its affiliates from borrowing from banking subsidiaries unless the loans are secured in specified amounts. Such secured loans provided by any banking subsidiary to the Parent Company or to any particular affiliate, together with certain other transactions with such affiliate (collectively referred to as "covered transactions"), are generally limited to 10% of the banking subsidiary's total capital, as determined by the risk-based capital guidelines; the aggregate amount of covered transactions between any banking subsidiary and all of its affiliates is limited to 20% of the banking subsidiary's total capital.

The Parent Company's two principal subsidiaries are JPMorgan Chase Bank, N.A. and JPMorgan Chase Holdings LLC, an intermediate holding company (the "IHC"). The IHC holds the stock of substantially all of JPMorgan Chase's subsidiaries other than JPMorgan Chase Bank, N.A. and its subsidiaries. The IHC also owns other assets and intercompany indebtedness owing to the holding company. The Parent Company is obligated to contribute to the IHC substantially all the net proceeds received from securities issuances (including issuances of senior and subordinated debt securities and of preferred and common stock).

The principal sources of income and funding for the Parent Company are dividends from JPMorgan Chase Bank, N.A. and dividends and extensions of credit from the IHC. In addition to dividend restrictions set forth in statutes and regulations, the Federal Reserve, the OCC and the FDIC have authority under the Financial Institutions Supervisory Act to prohibit or to limit the payment of dividends by the banking organizations they supervise, including the Parent

Company and its subsidiaries that are banks or bank holding companies, if, in the banking regulator's opinion, payment of a dividend would constitute an unsafe or unsound practice in light of the financial condition of the banking organization. The IHC is prohibited from paying dividends or extending credit to the Parent Company if certain capital or liquidity "thresholds" are breached or if limits are otherwise imposed by the Parent Company's management or Board of Directors.

At January 1, 2019, the Parent Company's banking subsidiaries could pay, in the aggregate, approximately $10 billion in dividends to their respective bank holding companies without the prior approval of their relevant banking regulators. The capacity to pay dividends in 2019 will be supplemented by the banking subsidiaries' earnings during the year.

Note 26 – Regulatory capital

The Federal Reserve establishes capital requirements, including well-capitalized standards, for the consolidated financial holding company. The OCC establishes similar minimum capital requirements and standards for the Firm's IDI, including JPMorgan Chase Bank, N.A. and Chase Bank USA, N.A.

Capital rules under Basel III establish minimum capital ratios and overall capital adequacy standards for large and internationally active U.S. bank holding companies and banks, including the Firm and its IDI subsidiaries. Basel III set forth two comprehensive approaches for calculating RWA: a standardized approach ("Basel III Standardized") and an advanced approach ("Basel III Advanced"). Certain of the requirements of Basel III were subject to phase-in periods that began on January 1, 2014 and continued through the end of 2018 ("transitional period").

The three components of regulatory capital under the Basel III rules are as illustrated below:

Under the risk-based and leverage-based capital 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 presents the minimum and well-capitalized ratios to which the Firm and its IDI subsidiaries were subject as of December 31, 2018.

	Minimum capital ratios		Well-capitalized ratios	
	BHC[a][e][f]	IDI[b][e][f]	BHC[c]	IDI[d]
Capital ratios				
CET1	9.0 %	6.375 %	— %	6.5 %
Tier 1	10.5	7.875	6.0	8.0
Total	12.5	9.875	10.0	10.0
Tier 1 leverage	4.0	4.00	5.0	5.0
SLR	5.0	6.00	—	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 Transitional minimum capital ratios applicable to the Firm under Basel III at December 31, 2018. At December 31, 2018, the CET1 minimum capital ratio includes 1.875% resulting from the phase in of the Firm's2.5% capital conservation buffer, and 2.625% resulting from the phase in of the Firm's 3.5% GSIB surcharge.

(b) Represents requirements for JPMorgan Chase's IDI subsidiaries. The CET1 minimum capital ratio includes1.875% resulting from the phase in of the 2.5% capital conservation buffer 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, 2017 the CET1, Tier 1, Total and Tier 1 leverage minimum capital ratios applicable to the Firm were 7.5%, 9.0%, 11.0% and 4.0% and the CET1, Tier 1, Total and Tier 1 leverage minimum capital ratios applicable to the Firm's IDI subsidiaries were5.75%, 7.25%, 9.25% 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.

Notes to consolidated financial statements

The following tables present the risk-based and leverage-based capital metrics for JPMorgan Chase and its significant IDI subsidiaries under both the Basel III Standardized and Basel III Advanced Approaches. As of December 31, 2018 and 2017, JPMorgan Chase and all of its IDI subsidiaries were well-capitalized and met all capital requirements to which each was subject.

December 31, 2018 (in millions, except ratios)	**Basel III Standardized Transitional**			**Basel III Advanced Transitional**		
	JPMorgan Chase & Co.	JPMorgan Chase Bank, N.A.	Chase Bank USA, N.A.	JPMorgan Chase & Co.	JPMorgan Chase Bank, N.A.	Chase Bank USA, N.A.
Regulatory capital						
CET1 capital	**$ 183,474**	**$ 187,259**	**$ 23,696**	**$ 183,474**	**$ 187,259**	**$ 23,696**
Tier 1 capital	**209,093**	**187,259**	**23,696**	**209,093**	**187,259**	**23,696**
Total capital	**237,511**	**198,494**	**28,628**	**227,435**	**192,250**	**27,196**
Assets						
Risk-weighted	**1,528,916**	**1,348,230**	**112,513**	**1,421,205**	**1,205,539**	**174,469**
Adjusted average(a)	**2,589,887**	**2,189,293**	**118,036**	**2,589,887**	**2,189,293**	**118,036**
Capital ratios(b)						
CET1	**12.0** %	**13.9** %	**21.1** %	**12.9** %	**15.5** %	**13.6** %
Tier 1	**13.7**	**13.9**	**21.1**	**14.7**	**15.5**	**13.6**
Total	**15.5**	**14.7**	**25.4**	**16.0**	**15.9**	**15.6**
Tier 1 leverage(c)	**8.1**	**8.6**	**20.1**	**8.1**	**8.6**	**20.1**

December 31, 2017 (in millions, except ratios)	**Basel III Standardized Transitional**			**Basel III Advanced Transitional**		
	JPMorgan Chase & Co.	JPMorgan Chase Bank, N.A.	Chase Bank USA, N.A.	JPMorgan Chase & Co.	JPMorgan Chase Bank, N.A.	Chase Bank USA, N.A.
Regulatory capital						
CET1 capital	$ 183,300	$ 184,375	$ 21,600	$ 183,300	$ 184,375	$ 21,600
Tier 1 capital	208,644	184,375	21,600	208,644	184,375	21,600
Total capital	238,395	195,839	27,691	227,933	189,510 (d)	26,250
Assets						
Risk-weighted	1,499,506	1,338,970 (d)	113,108	1,435,825	1,241,916 (d)	190,523
Adjusted average(a)	2,514,270	2,116,031	126,517	2,514,270	2,116,031	126,517
Capital ratios(b)						
CET1	12.2 %	13.8 %	19.1 %	12.8 %	14.8 % (d)	11.3 %
Tier 1	13.9	13.8	19.1	14.5	14.8 (d)	11.3
Total	15.9	14.6 (d)	24.5	15.9	15.3 (d)	13.8
Tier 1 leverage(c)	8.3	8.7	17.1	8.3	8.7	17.1

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

	December 31, 2018			December 31, 2017		
	Basel III Advanced Fully Phased-In			**Basel III Advanced Transitional**		
(in millions, except ratios)	JPMorgan Chase & Co.	JPMorgan Chase Bank, N.A.	Chase Bank USA, N.A.	JPMorgan Chase & Co.	JPMorgan Chase Bank, N.A.	Chase Bank USA, N.A.

Total leverage exposure[(a)]	**3,269,988**	**$ 2,813,396**	**$ 177,328**	$ 3,204,463	$ 2,775,041	$ 182,803
SLR[(a)]	**6.4 %**	**6.7 %**	**13.4 %**	6.5 %	6.6 %	11.8 %

(a) Effective January 1, 2018, the SLR was fully phased-in under Basel III. The December 31, 2017 amounts were calculated under the Basel III Transitional rules.

Note 27 – 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.

To provide for probable credit losses inherent in wholesale and certain consumer lending-commitments, an allowance for credit losses on lending-related commitments is maintained. Refer to Note 13 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 December 31, 2018 and 2017. 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.

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Off–balance sheet lending-related financial instruments, guarantees and other commitments

By remaining maturity at December 31, (in millions)	Contractual amount						Carrying value[i]	
	2018					2017	**2018**	2017
	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	**$796**	**$1,095**	**$1,813**	**$17,197**	**$20,901**	$20,360	**$12**	$12
Residential mortgage[a]	**5,469**	**—**	**—**	**12**	**5,481**	5,736	**—**	—
Auto	**6,954**	**878**	**78**	**101**	**8,011**	9,255	**2**	2
Consumer & Business Banking	**10,580**	**566**	**102**	**425**	**11,673**	13,202	**19**	19
Total consumer, excluding credit card	**23,799**	**2,539**	**1,993**	**17,735**	**46,066**	48,553	**33**	33
Credit card	**605,379**	**—**	**—**	**—**	**605,379**	572,831	**—**	—
Total consumer[b]	**629,178**	**2,539**	**1,993**	**17,735**	**651,445**	621,384	**33**	33
Wholesale:								
Other unfunded commitments to extend credit[c]	**62,384**	**123,751**	**154,177**	**11,178**	**351,490**	331,160	**852**	840
Standby letters of credit and other financial guarantees[c]	**14,408**	**11,462**	**5,248**	**2,380**	**33,498**	35,226	**521**	636
Other letters of credit[c]	**2,608**	**177**	**40**	**—**	**2,825**	3,712	**3**	3
Total wholesale[d]	**79,400**	**135,390**	**159,465**	**13,558**	**387,813**	370,098	**1,376**	1,479
Total lending-related	**$708,578**	**$137,929**	**$161,458**	**$31,293**	**$1,039,258**	$991,482	**$1,409**	$1,512
Other guarantees and commitments								
Securities lending indemnification agreements and guarantees[e]	**$186,077**	**$—**	**$—**	**$—**	**$186,077**	$179,490	**$—**	$—
Derivatives qualifying as guarantees	**2,099**	**299**	**12,614**	**40,259**	**55,271**	57,174	**367**	304
Unsettled resale and securities borrowed agreements	**102,008**	**—**	**—**	**—**	**102,008**	76,859	**—**	—
Unsettled repurchase and securities loaned agreements	**57,732**	—	—	—	**57,732**	44,205	**—**	—
Loan sale and securitization-related indemnifications:								
Mortgage repurchase liability	**NA**	**NA**	**NA**	**NA**	**NA**	NA	**89**	111
Loans sold with recourse	**NA**	**NA**	**NA**	**NA**	**1,019**	1,169	**30**	38
Exchange & clearing house guarantees and commitments[f][g]	**58,960**	**—**	**—**	**—**	**58,960**	13,871	**—**	—
Other guarantees and commitments[g][h]	**3,874**	**542**	**299**	**3,468**	**8,183**	8,206	**(73)**	(76)

(a) Includes certain commitments to purchase loans from correspondents.

(b) Predominantly all consumer lending-related commitments are in the U.S.

(c) At December 31, 2018 and 2017, reflected the contractual amount net of risk participations totaling $282 million and $334 million, respectively, for other unfunded commitments to extend credit; $10.4 billion and $10.4 billion, respectively, for standby letters of credit and other financial guarantees; and $385 million and $405 million, respectively, for other letters of credit. In regulatory filings with the Federal Reserve these commitments are shown gross of risk participations.

(d) Predominantly all wholesale lending-related commitments are in the U.S.

(e) At December 31, 2018 and 2017, collateral held by the Firm in support of securities lending indemnification agreements was $195.6 billion and $188.7 billion, respectively. Securities lending collateral primarily consists of cash and securities issued by governments that are members of G7 and U.S. government agencies.

(f) At 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. At December 31, 2017 includes commitments and guarantees associated with the Firm's membership in certain clearing houses.

(g) Certain guarantees and commitments associated with the Firm's membership in clearing houses previously disclosed in "other guarantees and commitments" are now disclosed in "Exchange and clearing house guarantees and commitments". Prior period amounts have been revised to conform with the current period presentation.

(h) At December 31, 2018 and 2017, 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.

(i) 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.

The Firm acts as a settlement and custody bank in the U.S. tri-party repurchase transaction market. In its role as settlement and custody bank, the Firm in part is exposed to the intra-day credit risk of its cash borrower clients, usually broker-dealers. This exposure arises under secured clearance advance facilities that the Firm extended to its clients (i.e. cash borrowers); these facilities contractually limit the Firm's intra-day credit risk to the facility amount and must be repaid by the end of the day. As of December 31, 2017, the secured clearance advance facility maximum outstanding commitment amount was $1.5 billion. As of December 31, 2018 the Firm no longer offers such arrangements to its clients.

Guarantees

U.S. GAAP requires that a guarantor recognize, at the inception of a guarantee, a liability in an amount equal to the fair value of the obligation undertaken in issuing the guarantee. U.S. GAAP defines a guarantee as a contract that contingently requires the guarantor to pay a guaranteed party based upon: (a) changes in an underlying asset, liability or equity security of the guaranteed party; or (b) a third party's failure to perform under a specified agreement. The Firm considers the following off–balance sheet arrangements to be guarantees under U.S. GAAP: standby letters of credit and other financial guarantees, securities lending indemnifications, certain indemnificat

ion agreements included within third-party contractual arrangements, certain derivative contracts and the guarantees under the sponsored member repo program.

As required by U.S. GAAP, the Firm initially records guarantees at the inception date fair value of the obligation assumed (e.g., the amount of consideration received or the net present value of the premium receivable). For certain types of guarantees, the Firm records this fair value amount in other liabilities with an offsetting entry recorded in cash (for premiums received), or other assets (for premiums receivable). Any premium receivable recorded in other assets is reduced as cash is received under the contract, and the fair value of the liability recorded at inception is amortized into income as lending and deposit-related fees over the life of the guarantee contract. For indemnifications provided in sales agreements, a portion of the sale proceeds is allocated to the guarantee, which adjusts the gain or loss that would otherwise result from the transaction. For these indemnifications, the initial liability is amortized to income as the Firm's risk is reduced (i.e., over time or when the indemnification expires). Any contingent liability that exists as a result of issuing the guarantee or indemnification is recognized when it becomes probable and reasonably estimable. The contingent portion of the liability is not recognized if the estimated amount is less than the carrying amount of the liability recognized at inception (adjusted for any amortization). The contractual amount and carrying value of guarantees and indemnifications are included in the table on page 272. For additional information on the guarantees, see below.

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 December 31, 2018 and 2017.

Standby letters of credit, other financial guarantees and other letters of credit

	2018		2017	
December 31, (in millions)	Standby letters of credit and other financial	Other letters of credit	Standby letters of credit and other financial	Other letters of credit

	guarantees		guarantees	
Investment-grade(a)	**$26,420**	**$2,079**	$28,492	$2,646
Noninvestment-grade(a)	**7,078**	**746**	6,734	1,066
Total contractual amount	**$33,498**	**$2,825**	$35,226	$3,712
Allowance for lending-related commitments	**$167**	**$3**	$192	$3
Guarantee liability	**354**	**—**	444	—
Total carrying value	**$521**	**$3**	$636	$3
Commitments with collateral	**$17,400**	**$583**	$17,421	$878

(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.

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Securities lending indemnifications

Through the Firm's securities lending program, counterparties' securities, via custodial and non-custodial arrangements, may be lent to third parties. As part of this program, the Firm provides an indemnification in the lending agreements which protects the lender against the failure of the borrower to return the lent securities. To minimize its liability under these indemnification agreements, the Firm obtains cash or other highly liquid collateral with a market value exceeding 100% of the value of the securities on loan from the borrower. Collateral is marked to market daily to help assure that collateralization is adequate. Additional collateral is called from the borrower if a shortfall exists, or collateral may be released to the borrower in the event of overcollateralization. If a borrower defaults, the Firm would use the collateral held to purchase replacement securities in the market or to credit the lending client or counterparty with the cash equivalent thereof.

Derivatives qualifying as guarantees

The Firm transacts certain derivative contracts that have the characteristics of a guarantee under U.S. GAAP. These contracts include written put options that require the Firm to purchase assets upon exercise by the option holder at a specified price by a specified date in the future. The Firm may enter into written put option contracts in order to meet client needs, or for other trading purposes. The terms of written put options are typically five years or less.

Derivatives deemed to be guarantees also includes stable value contracts, commonly referred to as "stable value products", that require the Firm to make a payment of the difference between the market value and the book value of a counterparty's reference portfolio of assets in the event that market value is less than book value and certain other conditions have been met. Stable value products are transacted in order to allow investors to realize investment returns with less volatility than an unprotected portfolio. These contracts are typically longer-term or may have no stated maturity, but allow the Firm to elect to terminate the contract under certain conditions.

The notional value of derivatives guarantees generally represents the Firm's maximum exposure. However, exposure to certain stable value products is contractually limited to a substantially lower percentage of the notional amount.

The fair value of derivative guarantees reflects the probability, in the Firm's view, of whether the Firm will be required to perform under the contract. The Firm reduces exposures to these contracts by entering into offsetting transactions, or by entering into contracts that hedge the market risk related to the derivative guarantees.

The following table summarizes the derivatives qualifying as guarantees as of December 31, 2018 and 2017.

(in millions)	**December 31, 2018**	December 31, 2017
Notional amounts		
Derivative guarantees	**$ 55,271**	$ 57,174
Stable value contracts with contractually limited exposure	**28,637**	29,104
Maximum exposure of stable value contracts with contractually limited exposure	**2,963**	3,053
Fair value		
Derivative payables	**367**	304
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 5.

Unsettled securities financing agreements

In the normal course of business, the Firm enters into resale and securities borrowed agreements. At settlement, these commitments result in the Firm advancing cash to and receiving securities collateral from the counterparty. The Firm also enters into repurchase and securities loaned agreements. At settlement, these commitments result in the Firm receiving cash from and providing securities collateral to the counterparty. Such agreements settle at a future date. These agreements generally do not meet the definition of a derivative, and therefore, are not recorded on the Consolidated balance sheets until settlement date. These agreements predominantly have regular-way settlement terms. For a further discussion of securities financing agreements, refer to Note 11.

Loan sales- and securitization-related indemnifications

Mortgage repurchase liability

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. To the extent that repurchase demands that are received relate to loans that the Firm purchased from third parties that remain viable, the Firm typically will have the right to seek a recovery of related repurchase losses from the third party. Generally, the maximum amount of future payments the Firm would be required to make for breaches of these representations and warranties would be equal to the unpaid principal balance of such loans that are deemed to have defects that were sold to purchasers (including securitization-related SPEs) plus, in certain circumstances, accrued interest on such loans and certain expenses.

Private label securitizations

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 29.

Loans sold with recourse

The Firm provides servicing for mortgages and certain commercial lending products on both a recourse and nonrecourse basis. In nonrecourse servicing, the principal credit risk to the Firm is the cost of temporary servicing advances of funds (i.e., normal servicing advances). In recourse servicing, the servicer agrees to share credit risk with the owner of the mortgage loans, such as Fannie Mae or Freddie Mac or a private investor, insurer or guarantor. Losses on recourse servicing predominantly occur when foreclosure sales proceeds of the property underlying a defaulted loan are less than the sum of the outstanding principal balance, plus accrued interest on the loan and the cost of holding and disposing of the underlying property. The Firm's securitizations are predominantly nonrecourse, thereby effectively transferring the risk of future credit losses to the purchaser of the mortgage-backed securities issued by the trust. At December 31, 2018 and 2017, the unpaid principal balance of loans sold with recourse totaled $1.0 billion and $1.2 billion, respectively. The carrying value of the related liability that the Firm has recorded in accounts payable and other liabilities on the Consolidated balance sheets, which is representative of the Firm's view of the likelihood it will have to perform under its recourse obligations, was $30 million and $38 million at December 31, 2018 and 2017, respectively.

Other off-balance sheet arrangements

Indemnification agreements – general

In connection with issuing securities to investors outside the U.S., the Firm may agree to pay additional amounts to the holders of the securities in the event that, due to a change in tax law, certain types of withholding taxes are imposed on payments on the securities. The terms of the securities may also give the Firm the right to redeem the securities if such additional amounts are payable. The Firm may also enter into indemnification clauses in connection with the licensing of software to clients ("software licensees") or when it sells a business or assets to a third party ("third-party purchasers"), pursuant to which it indemnifies software licensees for claims of liability or damages that may occur subsequent to the licensing of the software, or third-party purchasers for losses they may incur due to actions taken by the Firm prior to the sale of the business or assets. It is difficult to estimate the Firm's maximum exposure under these indemnification arrangements, since this would require an assessment of future changes in tax law and future claims that may be made against the Firm that have not yet occurred. However, based on historical experience, management expects the risk of loss to be remote.

Card charge-backs

Under the rules of Visa USA, Inc., and MasterCard International, JPMorgan Chase Bank, N.A., is primarily liable for the amount of each processed card sales transaction that is the subject of a dispute between a cardmember and a merchant. If a dispute is resolved in the cardmember's favor, Merchant Services will (through the cardmember's issuing bank) credit or refund the amount to the cardmember and will charge back the transaction to the merchant. If Merchant Services is unable to collect the amount from the merchant, Merchant Services will bear the loss for the amount credited or refunded to the cardmember. Merchant Services mitigates this risk by withholding future settlements, retaining cash reserve accounts or by obtaining other collateral. However, in the unlikely event that: (1) a merchant ceases operations and is unable to deliver products, services or a refund; (2) Merchant Services does not have sufficient collateral from the merchant to provide cardmember refunds; and (3) Merchant Services does not have sufficient financial resources to provide cardmember refunds, JPMorgan Chase Bank, N.A., would recognize the loss. Merchant Services incurred aggregate losses of $30 million, $28 million, and $85 million on $1,366.1 billion, $1,191.7 billion, and $1,063.4 billion of aggregate volume processed for the years ended December 31, 2018, 2017 and 2016, respectively. Incurred losses from merchant charge-backs are charged to other expense, with the offset recorded in a valuation allowance against accrued interest and accounts receivable on the Consolidated balance sheets. The carrying value of the valuation allowance was $23 million and $7 million at December 31, 2018 and 2017, respectively, which the Firm believes, based on historical experience and the collateral held by Merchant Services of $144 million and $141 million at December 31, 2018 and 2017, respectively, is representative of the payment or performance risk to the Firm related to charge-backs.

Clearing Services – Client Credit Risk

The Firm provides clearing services for clients by entering into securities purchases and sales and derivative contracts with CCPs, including ETDs such as futures and options, as well as OTC-cleared derivative contracts. As a clearing member, the Firm stands behind the performance of its clients, collects cash and securities collateral (margin) as well as any settlement amounts due from or to clients, and remits them to the relevant CCP or client in whole or part. There are two types of margin: variation margin is posted on a daily basis based on the value of clients' derivative contracts and initial margin is posted at inception of a derivative contract, generally on the basis of the potential changes in the variation margin requirement for the contract.

As a clearing member, the Firm is exposed to the risk of nonperformance by its clients, but is not liable to clients for the performance of the CCPs. Where possible, the Firm seeks to mitigate its risk to the client through the collection of appropriate amounts of margin at inception and throughout the life of the transactions. The Firm can also cease providing clearing services if clients do not adhere to

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their obligations under the clearing agreement. In the event of nonperformance by a client, the Firm would close out the client's positions and access available margin. The CCP would utilize any margin it holds to make itself whole, with any remaining shortfalls required to be paid by the Firm as a clearing member.
The Firm reflects its exposure to nonperformance risk of the client through the recognition of margin receivables from clients and margin payables to CCPs; the clients' underlying securities or derivative contracts are not reflected in the Firm's Consolidated Financial Statements.
It is difficult to estimate the Firm's maximum possible exposure through its role as a clearing member, as this would require an assessment of transactions that clients may execute in the future. However, based upon historical experience, and the credit risk mitigants available to the Firm, management believes it is unlikely that the Firm will have to make any material payments under these arrangements and the risk of loss is expected to be remote.
For information on the derivatives that the Firm executes for its own account and records in its Consolidated Financial Statements, refer to Note 5.

Exchange & Clearing House Memberships

The Firm is a member of several securities and derivative exchanges and clearing houses, both in the U.S. and other countries, and it provides clearing services to its clients. Membership in some of these organizations requires the Firm to pay a pro rata share of the losses incurred by the organization as a result of the default of another member. Such obligations vary with different organizations. These obligations may be limited to the amount (or a multiple of the amount) of the Firm's contribution to the guarantee fund maintained by a clearing house or exchange as part of the resources available to cover any losses in the event of a member default. Alternatively, these obligations may also include a pro rata share of the residual losses after applying the guarantee fund. Additionally, certain clearing houses require the Firm as a member to pay a pro rata share of losses that may result from the clearing house's investment of guarantee fund contributions and initial margin, unrelated to and independent of the default of another member. Generally a payment would only be required should such losses exceed the resources of the clearing house or exchange that are contractually required to absorb the losses in the first instance. In certain cases, it is difficult to estimate the Firm's maximum possible exposure under these membership agreements, since this would require an assessment of future claims that may be made against the Firm that have not yet occurred. However, based on historical experience, management expects the risk of loss to the Firm to be remote. Where the Firm's maximum possible exposure can be estimated, the amount is disclosed in the table on page 272, in the Exchange & clearing house guarantees and commitments line.

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 272. For additional information on credit risk mitigation practices on resale agreements and the types of collateral pledged under repurchase agreements, refer to Note 11.

Guarantees of subsidiaries

In the normal course of business, the Parent Company may provide counterparties with guarantees of certain of the trading and other obligations of its subsidiaries on a contract-by-contract basis, as negotiated with the Firm's counterparties. The obligations of the subsidiaries are included on the Firm's Consolidated balance sheets or are reflected as off-balance sheet commitments; therefore, the Parent Company has not recognized a separate liability for these guarantees. The Firm believes that the occurrence of any event that would trigger payments by the Parent Company under these guarantees is remote.

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 272 of this Note. For additional information, refer to Note 19.

Note 28 – Commitments, pledged assets and collateral

Lease commitments

At December 31, 2018, JPMorgan Chase and its subsidiaries were obligated under a number of noncancelable operating leases for premises and equipment used primarily for banking purposes. Certain leases contain renewal options or escalation clauses providing for increased rental payments based on maintenance, utility and tax increases, or they require the Firm to perform restoration work on leased premises. No lease agreement imposes restrictions on the Firm's ability to pay dividends, engage in debt or equity financing transactions or enter into further lease agreements.

The following table presents required future minimum rental payments under operating leases with noncancelable lease terms that expire after December 31, 2018.

Year ended December 31, (in millions)	
2019	1,561
2020	1,520
2021	1,320
2022	1,138
2023	973
After 2023	4,480
Total minimum payments required	10,992
Less: Sublease rentals under noncancelable subleases	(825)
Net minimum payments required	$ 10,167

Total rental expense was as follows.

Year ended December 31, (in millions)	**2018**	2017	2016
Gross rental expense	**$ 1,881**	$ 1,853	$ 1,860
Sublease rental income	**(239)**	(251)	(241)
Net rental expense	**$ 1,642**	$ 1,602	$ 1,619

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.

December 31, (in billions)	**2018**	2017
Assets that may be sold or repledged or otherwise used by secured parties	**$ 104.0**	$ 135.8
Assets that may not be sold or repledged or otherwise used by secured parties	**83.7**	68.1
Assets pledged at Federal Reserve banks and FHLBs	**475.3**	493.7
Total assets pledged	**$ 663.0**	$ 697.6

Total assets pledged do not include assets of consolidated VIEs; these assets are used to settle the liabilities of those entities. Refer to Note 14 for additional information on assets and liabilities of consolidated VIEs. For additional information on the Firm's securities financing activities, refer to Note 11. For additional information on the Firm's long-term debt, refer to Note 19. The significant components of the Firm's pledged assets were as follows.

December 31, (in billions)	**2018**	2017

Investment securities	**$59.5**	$86.2
Loans	**440.1**	437.7
Trading assets and other	**163.4**	173.7
Total assets pledged	**$663.0**	$697.6

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, customer margin loans 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.

December 31, (in billions)	**2018**	2017
Collateral permitted to be sold or repledged, delivered, or otherwise used	**$1,245.3**	$968.8
Collateral sold, repledged, delivered or otherwise used	**998.3**	771.0

Certain prior period amounts for both collateral and pledged assets (including the corresponding pledged assets parenthetical disclosure for trading assets and other assets on the Consolidated balance sheets) have been revised to conform with the current period presentation.

Notes to consolidated financial statements

Note 29 – Litigation

Contingencies

As of December 31, 2018, the Firm and its subsidiaries and affiliates are defendants or putative defendants 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 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 $1.5 billion at December 31, 2018. This estimated aggregate range of reasonably possible losses was based upon currently available information 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.

American Depositary Receipts Pre-Release Inquiry. In December 2018, JPMorgan Chase Bank, N.A. reached a settlement with the U.S. Securities and Exchange Commission regarding its inquiry into activity relating to pre-released American Depositary Receipts.

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. 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.
The Firm is also one of a number of foreign exchange dealers named as defendants in a class action filed in the United States District Court for the Southern District of New York by U.S.-based plaintiffs, principally alleging violations of federal antitrust laws based on an alleged conspiracy to manipulate foreign exchange rates (the "U.S. class action"). In January 2015, the Firm entered into a settlement agreement in the U.S. class action. Following this settlement, a

number of additional putative class actions were filed seeking damages for persons who transacted FX futures and options on futures (the “exchanged-based actions”), consumers who purchased foreign currencies at allegedly inflated rates (the “consumer action”), participants or beneficiaries of qualified ERISA plans (the “ERISA actions”), and purported indirect purchasers of FX instruments (the “indirect purchaser action”). Since then, the Firm has entered into a revised settlement agreement to resolve the consolidated U.S. class action, including the exchange-based actions. The Court granted final approval of that settlement agreement in August 2018. 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 District Court has dismissed one of the ERISA actions, and the United States Court of Appeals for the Second Circuit affirmed that dismissal in July 2018. The second ERISA action was voluntarily dismissed with prejudice in November 2018. The indirect purchaser action, the consumer action and the opt-out action remain pending in the District Court.

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 January 2019, the parties reached an agreement in principle to fully resolve the litigation, including the cross-claims filed against the Firm. The agreement is subject to definitive documentation and court approval, and is not expected to have any material impact on the Firm. The Bankruptcy Court has stayed all deadlines in the action to allow the parties to finalize the settlement agreement for submission to the Bankruptcy Court.

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. This settlement provides for the defendants to contribute an additional $900 million to the approximately $5.3 billion currently 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 will proceed in accordance with the District Court's order. $600 million of the additional amount will be funded from the litigation escrow account established under the Visa defendants' Retrospective Responsibility Plan, and $300 million will be paid by Mastercard and certain banks in accordance with an agreement among themselves regarding their respective shares. In June 2018, Visa deposited an additional $600 million into its litigation escrow account, which in turn led to a corresponding change in the conversion rate of Visa Class B to Class A shares. Of the Mastercard-related portion, the Firm's share is approximately $36 million. 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

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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 filed in various United States District Courts, including two putative class actions relating to U.S. dollar LIBOR 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 matters are in various stages of litigation.

The Firm has agreed to settle putative class actions related to exchange-traded Eurodollar futures contracts, Swiss franc LIBOR, EURIBOR, the Singapore Interbank Offered Rate, the Singapore Swap Offer Rate and the Australian Bank Bill Swap Reference Rate. Those settlements are all subject to further documentation and court approval.

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 antitrust claims, claims under the Commodity Exchange Act and common law claims to proceed. The plaintiffs whose antitrust claims were dismissed for lack of standing have filed an appeal. In February 2018, as to those actions which the Firm has not agreed to settle, the District Court (i) granted class certification with respect to certain antitrust claims related to bonds and interest rate swaps sold directly by the defendants, (ii) denied class certification with respect to state common law claims brought by the holders of those bonds and swaps and (iii) denied class certification with respect to the putative class action related to LIBOR-based loans held by plaintiff lending institutions.

Municipal Derivatives Litigation. Several civil actions were commenced against the Firm relating to certain Jefferson County, Alabama (the “County”) warrant underwritings and swap transactions. The actions generally alleged that the Firm made payments to certain third parties in exchange for being chosen to underwrite more than $3.0 billion in warrants issued by the County and to act as the counterparty for certain swaps executed by the County. The County subsequently filed for bankruptcy and in November 2013, the Bankruptcy Court confirmed a Plan of Adjustment pursuant to which the above-described actions against the Firm were released and dismissed with prejudice. Certain sewer rate payers filed an appeal challenging the

confirmation of the Plan of Adjustment, and that appeal was dismissed by the United States Court of Appeals for the Eleventh Circuit. The appellants have filed a petition seeking review by the Supreme Court of the United States.

Precious Metals Investigations and Litigation. Various authorities, including the Department of Justice’s Criminal Division, are conducting investigations relating to trading practices in the precious 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. 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. The Firm has been successful in legal challenges made to the Court of Cassation, France’s highest court, with respect to the criminal proceedings. In January 2018, the Paris Court of Appeal issued a decision cancelling the *mise en examen* of JPMorgan

Chase Bank, N.A. The Court of Cassation ruled in September 2018 that a *mise en examen* is a prerequisite for an *ordonnance de renvoi* and remanded the case to the Court of Appeal to consider JPMorgan Chase Bank, N.A.'s application for the annulment of the *ordonnance de renvoi* referring JPMorgan Chase Bank, N.A. to the French *tribunal correctionnel*. 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. During the year ended December 31, 2018, the Firm's legal expense was $72 million, and for the years ended December 31, 2017 and 2016, it was a benefit of $(35) million and $(317) million, 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.

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Note 30 – International operations

The following table presents income statement and balance sheet-related information for JPMorgan Chase by major international geographic area. The Firm defines international activities for purposes of this footnote presentation as business transactions that involve clients residing outside of the U.S., and the information presented below is based predominantly on the domicile of the client, the location from which the client relationship is managed, or the location of the trading desk. However, many of the Firm's U.S. operations serve international businesses.

As the Firm's operations are highly integrated, estimates and subjective assumptions have been made to apportion revenue and expense between U.S. and international operations. These estimates and assumptions are consistent with the allocations used for the Firm's segment reporting as set forth in Note 31.
The Firm's long-lived assets for the periods presented are not considered by management to be significant in relation to total assets. The majority of the Firm's long-lived assets are located in the U.S.

As of or for the year ended December 31, (in millions)	Revenue[(b)(c)]	Expense[(c)(d)]	Income before income tax expense	Net income	Total assets	
2018						
Europe/Middle East/Africa	**$ 16,181**	**$ 9,953**	**$ 6,228**	**$ 4,444**	**$ 423,835**	(e)
Asia/Pacific	**7,119**	**4,866**	**2,253**	**1,593**	**171,242**	
Latin America/Caribbean	**2,435**	**1,413**	**1,022**	**718**	**46,560**	
Total international	**25,735**	**16,232**	**9,503**	**6,755**	**641,637**	
North America[(a)]	**83,294**	**52,033**	**31,261**	**25,719**	**1,980,895**	
Total	**$ 109,029**	**$ 68,265**	**$ 40,764**	**$ 32,474**	**$ 2,622,532**	
2017						
Europe/Middle East/Africa	$ 15,120	$ 9,347	$ 5,773	$ 4,007	$ 407,145	(e)
Asia/Pacific	6,028	4,500	1,528	852	163,718	
Latin America/Caribbean	1,994	1,523	471	299	44,569	
Total international	23,142	15,370	7,772	5,158	615,432	
North America[(a)]	77,563	49,435	28,128	19,283	1,918,168	
Total	$ 100,705	$ 64,805	$ 35,900	$ 24,441	$ 2,533,600	
2016						
Europe/Middle East/Africa	$ 14,418	$ 9,126	$ 5,292	$ 3,783	$ 394,134	(e)
Asia/Pacific	6,313	4,414	1,899	1,212	156,946	
Latin America/Caribbean	1,959	1,632	327	208	42,971	
Total international	22,690	15,172	7,518	5,203	594,051	
North America[(a)]	73,879	46,861	27,018	19,530	1,896,921	
Total	$ 96,569	$ 62,033	$ 34,536	$ 24,733	$ 2,490,972	

(a) Substantially reflects the U.S.
(b) Revenue is composed of net interest income and noninterest revenue.
(c) Effective January 1, 2018, the Firm adopted the revenue recognition guidance. The revenue recognition guidance was applied retrospectively and, accordingly, prior period amounts were revised. For additional information, refer to Note 1.
(d) Expense is composed of noninterest expense and the provision for credit losses.
(e) Total assets for the U.K. were approximately $296 billion, $309 billion, and $310 billion at December 31, 2018, 2017 and 2016, respectively.

Note 31 – 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 of this footnote.

The following is a description of each of the Firm's business segments, and the products and services they provide to their respective client bases.

Consumer & Community Banking

CCB offers services to consumers and businesses through bank branches, ATMs, digital (including online and mobile) and telephone banking. CCB is organized into Consumer & Business Banking (including Consumer Banking/Chase Wealth Management and Business Banking), Home Lending (including Home Lending Production, Home Lending Servicing and Real Estate Portfolios) and Card, Merchant Services & Auto. Consumer & Business Banking offers deposit and investment products and services to consumers, and lending, deposit, and cash management and payment solutions to small businesses. Home Lending includes mortgage origination and servicing activities, as well as portfolios consisting of residential mortgages and home equity loans. Card, Merchant Services & Auto issues credit cards to consumers and small businesses, offers payment processing services to merchants, and originates and services auto loans and leases.

Corporate & Investment Bank

The CIB, which consists of Banking and Markets & Investor Services, offers a broad suite of investment banking, market-making, prime brokerage, and treasury and securities products and services to a global client base of corporations, investors, financial institutions, government and municipal entities. Banking offers a full range of investment banking products and services in all major capital markets, including advising on corporate strategy and structure, capital-raising in equity and debt markets, as well as loan origination and syndication. Banking also includes Treasury Services, which provides transaction services, consisting of cash management and liquidity solutions. Markets & Investor Services is a global market-

maker in cash securities and derivative instruments, and also offers sophisticated risk management solutions, prime brokerage, and research. Markets & Investor Services also includes Securities Services, a leading global custodian which provides custody, fund accounting and administration, and securities lending products principally for asset managers, insurance companies and public and private investment funds.

Commercial Banking

CB delivers extensive industry knowledge, local expertise and dedicated service to U.S. and U.S. multinational clients, including corporations, municipalities, financial institutions and nonprofit entities with annual revenue generally ranging from $20 million to $2 billion. In addition, CB provides financing to real estate investors and owners. Partnering with the Firm's other businesses, CB provides comprehensive financial solutions, including lending, treasury services, investment banking and asset management to meet its clients' domestic and international financial needs.

Asset & Wealth Management

AWM, with client assets of $2.7 trillion, is a global leader in investment and wealth management. AWM clients include institutions, high-net-worth individuals and retail investors in many major markets throughout the world. AWM offers investment management across most major asset classes including equities, fixed income, alternatives and money market funds. AWM also offers multi-asset investment management, providing solutions for a broad range of clients' investment needs. For Wealth Management clients, AWM also provides retirement products and services, brokerage and banking services including trusts and estates, loans, mortgages and deposits. The majority of AWM's client assets are in actively managed portfolios.

Corporate

The Corporate segment consists of Treasury and Chief Investment Office and Other Corporate, which includes corporate staff functions and expense that is centrally managed. Treasury and CIO is predominantly responsible for measuring, monitoring, reporting and managing the Firm's liquidity, funding, capital, structural interest rate and foreign exchange risks. The major Other Corporate functions include Real Estate, Technology, Legal, Corporate Finance, Human Resources, Internal Audit, Risk Management, Compliance, Control Management, Corporate Responsibility and various Other Corporate groups.

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Segment results

The following table provides a summary of the Firm’s segment results as of or for the years ended December 31, 2018, 2017 and 2016, 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. This allows management to assess the comparability of revenue from year-to-year arising from both taxable and tax-exempt sources. The corresponding income tax impact related to tax-exempt items is recorded within income tax expense/(benefit). These adjustments have no impact on net income as reported by the Firm as a whole or by the lines of business.

Each business segment is allocated capital by taking into consideration capital levels of similarly rated peers and applicable regulatory capital requirements. ROE is measured and internal targets for expected returns are established as key measures of a business segment’s performance.
The Firm’s allocation methodology incorporates Basel III Standardized RWA, Basel III Advanced RWA, leverage, the GSIB surcharge, and a simulation of capital in a severe stress environment. 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.

Effective January 1, 2018, the Firm adopted several new accounting standards. Certain of the new accounting standards were applied retrospectively and, accordingly, prior period amounts were revised. For additional information, refer to Note 1.
Net income in 2018 for each of the business segments reflects the favorable impact of the reduction in the U.S. federal statutory income tax rate as a result of the TCJA.

Segment results and reconciliation

(Table continued on next page)

As of or for the year ended December 31,	Consumer & Community Banking			Corporate & Investment Bank			Commercial Banking			Asset & Wealth Management		
(in millions, except ratios)	**2018**	2017	2016	**2018**	2017	2016	**2018**	2017	2016	**2018**	2017	2016
Noninterest revenue	**$ 16,260**	$ 14,710	$ 15,255	**$ 26,968**	$ 24,539	$ 24,449	**$ 2,343**	$ 2,522	$ 2,320	**$ 10,539**	$ 10,456	$ 9,789
Net interest income	**35,819**	31,775	29,660	**9,480**	10,118	10,891	**6,716**	6,083	5,133	**3,537**	3,379	3,033
Total net revenue	**52,079**	46,485	44,915	**36,448**	34,657	35,340	**9,059**	8,605	7,453	**14,076**	13,835	12,822
Provision for credit losses	**4,753**	5,572	4,494	**(60)**	(45)	563	**129**	(276)	282	**53**	39	26
Noninterest expense	**27,835**	26,062	24,905	**20,918**	19,407	19,116	**3,386**	3,327	2,934	**10,353**	10,218	9,255
Income/(loss) before income tax expense/(benefit)	**19,491**	14,851	15,516	**15,590**	15,295	15,661	**5,544**	5,554	4,237	**3,670**	3,578	3,541
Income tax expense/(benefit)	**4,639**	5,456	5,802	**3,817**	4,482	4,846	**1,307**	2,015	1,580	**817**	1,241	1,290
Net income/(loss)	**$ 14,852**	$ 9,395	$ 9,714	**$ 11,773**	$ 10,813	$ 10,815	**$ 4,237**	$ 3,539	$ 2,657	**$ 2,853**	$ 2,337	$ 2,251
Average equity	**$ 51,000**	$ 51,000	$ 51,000	**$ 70,000**	$ 70,000	$ 64,000	**$ 20,000**	$ 20,000	$ 16,000	**$ 9,000**	$ 9,000	$ 9,000
Total assets	**557,441**	552,601	535,310	**903,051**	826,384	803,511	**220,229**	221,228	214,341	**170,024**	151,909	138,384
Return on equity	**28%**	17%	18%	**16%**	14%	16%	**20%**	17%	16%	**31%**	25%	24%
Overhead ratio	**53**	56	55	**57**	56	54	**37**	39	39	**74**	74	72

(Table continued from previous page)

As of or for the year ended December 31, (in millions, except ratios)	Corporate			Reconciling Items[a]			Total		
	2018	2017	2016	**2018**	2017	2016	**2018**	2017	2016
Noninterest revenue	**$(263)**	$1,085	$938	**$(1,877)**	$(2,704)[b]	$(2,265)	**$53,970**	$50,608	$50,486
Net interest income	**135**	55	(1,425)	**(628)**	(1,313)	(1,209)	**55,059**	50,097	46,083
Total net revenue	**(128)**	1,140	(487)	**(2,505)**	(4,017)	(3,474)	**109,029**	100,705	96,569
Provision for credit losses	**(4)**	—	(4)	**—**	—	—	**4,871**	5,290	5,361
Noninterest expense	**902**	501	462	**—**	—	—	**63,394**	59,515	56,672
Income/(loss) before income tax expense/(benefit)	**(1,026)**	639	(945)	**(2,505)**	(4,017)	(3,474)	**40,764**	35,900	34,536
Income tax expense/(benefit)	**215**	2,282	(241)	**(2,505)**	(4,017)[b]	(3,474)	**8,290**	11,459	9,803
Net income/(loss)	**$(1,241)**	$(1,643)	$(704)	**$—**	$—	$—	**$32,474**	$24,441	$24,733
Average equity	**$79,222**	$80,350	$84,631	**$—**	$—	$—	**$229,222**	$230,350	$224,631
Total assets	**771,787**	781,478	799,426	**NA**	NA	NA	**2,622,532**	2,533,600	2,490,972
Return on equity	**NM**	NM	NM	**NM**	NM	NM	**13%**	10%	10%
Overhead ratio	**NM**	NM	NM	**NM**	NM	NM	**58**	59	59

(a) Segment results on a managed basis reflect revenue on a 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.

(b) Included $375 million related to tax-oriented investments as a result of the enactment of the TCJA.

Note 32 – Parent Company

The following tables present Parent Company-only financial statements. Effective January 1, 2018, the Parent Company adopted several new accounting standards. Certain of the new accounting standards were applied retrospectively and, accordingly, prior period amounts were revised. For additional information, refer to Note 1.

Statements of income and comprehensive income[(a)]

Year ended December 31, (in millions)	**2018**	2017	2016
Income			
Dividends from subsidiaries and affiliates:			
Bank and bank holding company	**$ 32,501**	$ 13,000	$ 10,000
Non-bank[(b)]	**2**	540	3,873
Interest income from subsidiaries	**216**	72	794
Other interest income	**—**	41	207
Other income from subsidiaries:			
Bank and bank holding company	**515**	1,553	852
Non-bank	**(444)**	(88)	1,165
Other income	**888**	(623)	(846)
Total income	**33,678**	14,495	16,045
Expense			
Interest expense to subsidiaries and affiliates[(b)]	**2,291**	400	105
Other interest expense	**4,581**	5,202	4,413
Noninterest expense	**1,793**	(1,897)	1,643
Total expense	**8,665**	3,705	6,161
Income before income tax benefit and undistributed net income of subsidiaries	**25,013**	10,790	9,884
Income tax benefit	**1,838**	1,007	876
Equity in undistributed net income of subsidiaries	**5,623**	12,644	13,973
Net income	**$ 32,474**	$ 24,441	$ 24,733
Other comprehensive income, net	**(1,476)**	1,056	(1,521)
Comprehensive income	**$ 30,998**	$ 25,497	$ 23,212

Balance sheets[(a)]

December 31, (in millions)	**2018**	2017
Assets		
Cash and due from banks	**$ 55**	$ 163
Deposits with banking subsidiaries	**5,315**	5,338
Trading assets	**3,304**	4,773
Advances to, and receivables from, subsidiaries:		
Bank and bank holding company	**3,334**	2,106
Non-bank	**74**	82
Investments (at equity) in subsidiaries and affiliates:		
Bank and bank holding company	**449,628**	451,713
Non-bank[(b)]	**1,077**	422
Other assets	**10,478**	10,426
Total assets	**$ 473,265**	$ 475,023
Liabilities and stockholders' equity		
Borrowings from, and payables to, subsidiaries and affiliates[(b)]	**$ 20,017**	$ 23,426
Short-term borrowings	**2,672**	3,350
Other liabilities	**8,821**	8,302
Long-term debt[(c)(d)]	**185,240**	184,252
Total liabilities[(d)]	**216,750**	219,330
Total stockholders' equity	**256,515**	255,693

Total liabilities and stockholders' equity	**$ 473,265**	$ 475,023

Statements of cash flows[(a)]

Year ended December 31, (in millions)	2018	2017	2016
Operating activities			
Net income	**$ 32,474**	$ 24,441	$ 24,733
Less: Net income of subsidiaries and affiliates[(b)]	**38,125**	26,185	27,846
Parent company net loss	**(5,651)**	(1,744)	(3,113)
Cash dividends from subsidiaries and affiliates[(b)]	**32,501**	13,540	13,873
Other operating adjustments	**(4,400)**	4,635	(18,166)
Net cash provided by/(used in) operating activities	**22,450**	16,431	(7,406)
Investing activities			
Net change in:			
Proceeds from paydowns and maturities from available-for-sale securities Securities	**—**	—	353
Other changes in loans, net	**—**	78	1,793
Advances to and investments in subsidiaries and affiliates, net	**8,036**	(280)	(51,967)
All other investing activities, net	**63**	49	114
Net cash provided by/(used in) investing activities	**8,099**	(153)	(49,707)
Financing activities			
Net change in:			
Borrowings from subsidiaries and affiliates[(b)]	**(2,273)**	13,862	2,957
Short-term borrowings	**(678)**	(481)	109
Proceeds from long-term borrowings	**25,845**	25,855	41,498
Payments of long-term borrowings	**(21,956)**	(29,812)	(29,298)
Proceeds from issuance of preferred stock	**1,696**	1,258	—
Redemption of preferred stock	**(1,696)**	(1,258)	—
Treasury stock repurchased	**(19,983)**	(15,410)	(9,082)
Dividends paid	**(10,109)**	(8,993)	(8,476)
All other financing activities, net	**(1,526)**	(1,361)	(905)
Net cash used in financing activities	**(30,680)**	(16,340)	(3,197)
Net decrease in cash and due from banks and deposits with banking subsidiaries	**(131)**	(62)	(60,310)
Cash and due from banks and deposits with banking subsidiaries at the beginning of the year	**5,501**	5,563	65,873
Cash and due from banks and deposits with banking subsidiaries at the end of the year	**$ 5,370**	$ 5,501	$ 5,563
Cash interest paid	**$ 6,911**	$ 5,426	$ 4,550
Cash income taxes paid, net[(e)]	**1,782**	1,775	1,053

(a) In 2016, in connection with the Firm's 2016 Resolution Submission, the Parent Company established the IHC, and contributed substantially all of its direct subsidiaries (totaling $55.4 billion) other than JPMorgan Chase Bank, N.A., as well as most of its other assets (totaling $160.5 billion) and intercompany indebtedness to the IHC. Total noncash assets contributed were $62.3 billion. In 2017, the Parent Company transferred $16.2 billion of noncash assets to the IHC to complete the contributions to the IHC.

(b) Affiliates include trusts that issued guaranteed capital debt securities ("issuer trusts"). For further discussion on these issuer trusts, refer to Note 19.

(c) At December 31, 2018, long-term debt that contractually matures in 2019 through 2023 totaled 13.1 billion, $22.1 billion, $20.3 billion, $12.8 billion, and $16.2 billion, respectively.

(d) For information regarding the Parent Company's guarantees of its subsidiaries' obligations, refer to Notes 19 and 27.

(e) Represents payments, net of refunds, made by the Parent Company to various taxing authorities and includes taxes paid on behalf of certain of its subsidiaries that are subsequently reimbursed. The reimbursements were $1.2 billion, $4.1 billion, and $3.0 billion for the years ended December 31, 2018, 2017, and 2016, respectively.

Supplementary information

Selected quarterly financial data (unaudited)

As of or for the period ended	2018				2017			
(in millions, except per share, ratio, headcount data and where otherwise noted)	4th quarter	3rd quarter	2nd quarter	1st quarter	4th quarter	3rd quarter	2nd quarter	1st quarter
Selected income statement data								
Total net revenue	**$ 26,109**	**$ 27,260**	**$ 27,753**	**$ 27,907**	$ 24,457	$ 25,578	$ 25,731	$ 24,939
Total noninterest expense	**15,720**	**15,623**	**15,971**	**16,080**	14,895	14,570	14,767	15,283
Pre-provision profit	**10,389**	**11,637**	**11,782**	**11,827**	9,562	11,008	10,964	9,656
Provision for credit losses	**1,548**	**948**	**1,210**	**1,165**	1,308	1,452	1,215	1,315
Income before income tax expense	**8,841**	**10,689**	**10,572**	**10,662**	8,254	9,556	9,749	8,341
Income tax expense	**1,775**	**2,309**	**2,256**	**1,950**	4,022	2,824	2,720	1,893
Net income	**$ 7,066**	**$ 8,380**	**$ 8,316**	**$ 8,712**	$ 4,232 [g]	$ 6,732	$ 7,029	$ 6,448
Earnings per share data								
Net income: Basic	**$ 1.99**	**$ 2.35**	**$ 2.31**	**$ 2.38**	$ 1.08	$ 1.77	$ 1.83	$ 1.66
Diluted	**1.98**	**2.34**	**2.29**	**2.37**	1.07	1.76	1.82	1.65
Average shares: Basic	**3,335.8**	**3,376.1**	**3,415.2**	**3,458.3**	3,489.7	3,534.7	3,574.1	3,601.7
Diluted	**3,347.3**	**3,394.3**	**3,434.7**	**3,479.5**	3,512.2	3,559.6	3,599.0	3,630.4
Market and per common share data								
Market capitalization	**$ 319,780**	**$ 375,239**	**$ 350,204**	**$ 374,423**	$ 366,301	$ 331,393	$ 321,633	$ 312,078
Common shares at period-end	**3,275.8**	**3,325.4**	**3,360.9**	**3,404.8**	3,425.3	3,469.7	3,519.0	3,552.8
Book value per share	**70.35**	**69.52**	**68.85**	**67.59**	67.04	66.95	66.05	64.68
TBVPS[a]	**56.33**	**55.68**	**55.14**	**54.05**	53.56	54.03	53.29	52.04
Cash dividends declared per share	**0.80**	**0.80**	**0.56**	**0.56**	0.56	0.56	0.50	0.50
Selected ratios and metrics								
ROE[b]	**12 %**	**14 %**	**14 %**	**15 %**	7 %	11 %	12 %	11 %
ROTCE[a][b]	**14**	**17**	**17**	**19**	8	13	14	13
ROA[b]	**1.06**	**1.28**	**1.28**	**1.37**	0.66	1.04	1.10	1.03
Overhead ratio	**60**	**57**	**58**	**58**	61	57	57	61
Loans-to-deposits ratio	**67**	**65**	**65**	**63**	64	63	63	63
LCR (average)[c]	**113**	**115**	**115**	**115**	119	120	115	N/A
CET1 capital ratio[d]	**12.0**	**12.0**	**12.0**	**11.8**	12.2	12.5	12.5	12.4
Tier 1 capital ratio[d]	**13.7**	**13.6**	**13.6**	**13.5**	13.9	14.1	14.2	14.1
Total capital ratio[d]	**15.5**	**15.4**	**15.5**	**15.3**	15.9	16.1	16.0	15.6
Tier 1 leverage ratio[d]	**8.1**	**8.2**	**8.2**	**8.2**	8.3	8.4	8.5	8.4
SLR[e]	**6.4**	**6.5**	**6.5**	**6.5**	6.5	6.6	6.7	6.6
Selected balance sheet data (period-end)								
Trading assets	**$ 413,714**	**$ 419,827**	**$ 418,799**	**$ 412,282**	$ 381,844	$ 420,418	$ 407,064	$ 402,513
Investment Securities	**261,828**	**231,398**	**233,015**	**238,188**	$ 249,958	263,288	263,458	281,850
Loans	**984,554**	**954,318**	**948,414**	**934,424**	$ 930,697	913,761	908,767	895,974
Core loans	**931,856**	**899,006**	**889,433**	**870,536**	863,683	843,432	834,935	812,119
Average core loans	**907,271**	**894,279**	**877,640**	**861,089**	850,166	837,522	824,583	805,382
Total assets	**2,622,532**	**2,615,183**	**2,590,050**	**2,609,785**	2,533,600	2,563,074	2,563,174	2,546,290
Deposits	**1,470,666**	**1,458,762**	**1,452,122**	**1,486,961**	1,443,982	1,439,027	1,439,473	1,422,999
Long-term debt	**282,031**	**270,124**	**273,114**	**274,449**	284,080	288,582	292,973	289,492
Common stockholders' equity	**230,447**	**231,192**	**231,390**	**230,133**	229,625	232,314	232,415	229,795
Total stockholders' equity	**256,515**	**258,956**	**257,458**	**256,201**	255,693	258,382	258,483	255,863
Headcount	**256,105**	**255,313**	**252,942**	**253,707**	252,539	251,503	249,257	246,345
Credit quality metrics								
Allowance for credit losses	**$ 14,500**	**$ 14,225**	**$ 14,367**	**$ 14,482**	$ 14,672	$ 14,648	$ 14,480	$ 14,490

Allowance for loan losses to total retained loans	**1.39** %	**1.39** %	**1.41** %	**1.44** %	1.47 %	1.49 %	1.49 %	1.52 %
Allowance for loan losses to retained loans excluding purchased credit-impaired loans(f)	**1.23**	**1.23**	**1.22**	**1.25**	1.27	1.29	1.28	1.31
Nonperforming assets	**$ 5,190**	**$ 5,034**	**$ 5,767**	**$ 6,364**	$ 6,426	$ 6,154	$ 6,432	$ 6,826
Net charge-offs	**1,236**	**1,033**	**1,252**	**1,335**	1,264	1,265	1,204	1,654 (h)
Net charge-off rate	**0.52** %	**0.43** %	**0.54** %	**0.59** %	0.55 %	0.56 %	0.54 %	0.76 % (h)

Effective January 1, 2018, the Firm adopted several new accounting standards. Certain of the new accounting standards were applied retrospectively and, accordingly, prior period amounts were revised. For additional information, refer to Note 1.

(a) TBVPS and ROTCE are non-GAAP financial measures. For 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 57-59.

(b) Quarterly ratios are based upon annualized amounts.

(c) The percentage represents the Firm's reported average LCR per the U.S. LCR public disclosure requirements, which became effective April 1, 2017.

(d) Ratios presented are calculated under the Basel III Transitional rules and for the capital ratios represent the lower of the Standardized or Advanced approach. As of December 31, 2018, and September 30, 2018, the Firm's capital ratios were equivalent whether calculated on a transitional or fully phased-in basis. Refer to Capital Risk Management on pages 85-94 for additional information on Basel III.

(e) Effective January 1, 2018, the SLR was fully phased-in under Basel III. The SLR is defined as Tier 1 capital divided by the Firm's total leverage exposure. Ratios prior to March 31, 2018 were calculated under the Basel III Transitional rules.

(f) Excludes the impact of residential real estate PCI loans, a non-GAAP financial measure. For further discussion of these measures, refer to Explanation and Reconciliation of the Firm's Use of Non-GAAP Financial Measures and Key Performance Measures onpages 57-59, and the Allowance for credit losses on pages 120–122.

(g) The Firm's results for the three months ended December 31, 2017, included a $2.4 billion decrease to net income as a result of the enactment of the TCJA. For additional information related to the impact of the TCJA, refer to Note 24.

(h) Excluding net charge-offs of $467 million related to the student loan portfolio sale, the net charge-off rates for the three months ended March 31, 2017 would have been 0.54%.

Distribution of assets, liabilities and stockholders’ equity; interest rates and interest differentials

Consolidated average balance sheet, interest and rates

Provided below is a summary of JPMorgan Chase’s consolidated average balances, interest rates and interest differentials on a taxable-equivalent basis for the years 2016 through 2018. Income computed on a taxable-equivalent basis is the income reported in the Consolidated statements of income, adjusted to present interest income

and average rates earned on assets exempt from income taxes (i.e. federal taxes) on a basis comparable with other taxable investments. The incremental tax rate used for calculating the taxable-equivalent adjustment was approximately 24%, 37% and 38% in 2018, 2017 and 2016, respectively.

(Table continued on next page)

(Unaudited) Year ended December 31, (Taxable-equivalent interest and rates; in millions, except rates)	2018 Average balance	Interest[g]	Average rate
Assets			
Deposits with banks	**$405,514**	**$ 5,907**	**1.46 %**
Federal funds sold and securities purchased under resale agreements	**217,150**	**3,819**	**1.76**
Securities borrowed	**115,082**	**728**	**0.63**
Trading assets – debt instruments	**261,051**	**8,763**	**3.36**
Taxable securities	**194,232**	**5,653**	**2.91**
Non-taxable securities[a]	**42,456**	**1,987**	**4.68**
Total investment securities	**236,688**	**7,640**	**3.23** [i]
Loans	**944,885**	**47,796** [h]	**5.06**
All other interest-earning assets[b]	**48,818**	**3,417**	**7.00**
Total interest-earning assets	**2,229,188**	**78,070**	**3.50**
Allowance for loan losses	**(13,269)**		
Cash and due from banks	**21,694**		
Trading assets – equity instruments	**101,872**		
Trading assets – derivative receivables	**60,734**		
Goodwill, MSRs and other intangible assets	**54,669**		
Other assets	**154,010**		
Total assets	**$2,608,898**		
Liabilities			
Interest-bearing deposits	**$1,060,605**	**$ 5,973**	**0.56 %**
Federal funds purchased and securities loaned or sold under repurchase agreements	**189,282**	**3,066**	**1.62**
Short-term borrowings[c]	**63,523**	**1,144**	**1.80**
Trading liabilities – debt and all other interest-bearing liabilities[d][e]	**178,161**	**3,729**	**2.09**
Beneficial interests issued by consolidated VIEs	**21,079**	**493**	**2.34**
Long-term debt	**276,414**	**7,978**	**2.89**
Total interest-bearing liabilities	**1,789,064**	**22,383**	**1.25**
Noninterest-bearing deposits	**395,856**		
Trading liabilities – equity instruments[e]	**34,295**		
Trading liabilities – derivative payables	**43,075**		
All other liabilities, including the allowance for lending-related commitments	**91,137**		
Total liabilities	**2,353,427**		
Stockholders’ equity			
Preferred stock	**26,249**		
Common stockholders’ equity	**229,222**		
Total stockholders’ equity	**255,471** [f]		
Total liabilities and stockholders’ equity	**$2,608,898**		

Interest rate spread		**2.25 %**
Net interest income and net yield on interest-earning assets	**$ 55,687**	**2.50**

Effective January 1, 2018, the Firm adopted several new accounting standards. Certain of the new accounting standards were applied retrospectively and, accordingly, prior period amounts were revised. For additional information, refer to Note 1.

(a) Represents securities that are tax-exempt for U.S. federal income tax purposes.

(b) Includes held-for-investment margin loans, 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.

(c) Includes commercial paper.

(d) Other interest-bearing liabilities include brokerage customer payables.

(e) The combined balance of trading liabilities – debt and equity instruments were $107.0 billion, $90.7 billion and $92.8 billion for the years ended December 31, 2018, 2017 and 2016, respectively.

(f) The ratio of average stockholders' equity to average assets was9.8% for 2018, 10.0% for 2017, and 10.2% for 2016. The return on average stockholders' equity, based on net income, was 12.7% for 2018, 9.5% for 2017, and 9.9% for 2016.

(g) Interest includes the effect of related hedging derivatives. Taxable-equivalent amounts are used where applicable.

(h) Fees and commissions on loans included in loan interest amounted to $1.2 billion in 2018, $1.0 billion in 2017, and $808 million in 2016.

(i) The annualized rate for securities based on amortized cost was 3.25% in 2018, 3.13% in 2017, and 2.99% in 2016, and does not give effect to changes in fair value that are reflected in AOCI.

(j) Negative interest income and yield is related to client-driven demand for certain securities combined with the impact of low interest rates; this is matched book activity and the negative interest expense on the corresponding securities loaned is recognized in interest expense and reported within trading liabilities – debt and all other interest-bearing liabilities.

Within the Consolidated average balance sheets, interest and rates summary, the principal amounts of nonaccrual loans have been included in the average loan balances used to determine the average interest rate earned on loans. For additional information on nonaccrual loans, including interest accrued, refer to Note 12.

(Table continued from previous page)

2017			2016		
Average balance	Interest[g]	Average rate	Average balance	Interest[g]	Average rate
$439,663	$4,238	0.96 %	$393,599	$1,879	0.48 %
191,820	2,327	1.21	205,367	2,265	1.10
95,324	(37)[j]	(0.04)	102,964	(332)[j]	(0.32)
237,206	7,714	3.25	215,565	7,373	3.42
223,592	5,534	2.48	235,211	5,538	2.35
45,086	2,769	6.14	44,176	2,662	6.03
268,678	8,303	3.09 [i]	279,387	8,200	2.94 [i]
906,397	41,296 [h]	4.56	866,378	36,866 [h]	4.26
41,504	1,844	4.44	38,344	859	2.24
2,180,592	65,685	3.01	2,101,604	57,110	2.72
(13,453)			(13,965)		
20,432			18,705		
115,913			95,528		
59,588			70,897		
53,999			53,752		
138,991			135,098		
$2,556,062			$2,461,619		
$1,013,221	$2,857	0.28 %	$925,270	$1,356	0.15 %
187,386	1,611	0.86	178,720	1,089	0.61
46,532	481	1.03	36,140	203	0.56
171,814	2,070	1.21	177,765	1,102	0.62
32,457	503	1.55	40,180	504	1.25
291,489	6,753	2.32	295,573	5,564	1.88
1,742,899	14,275	0.82	1,653,648	9,818	0.59
404,165			402,698		
21,022			20,737		
44,122			55,927		
87,292			77,910		
2,299,500			2,210,920		
26,212			26,068		
230,350			224,631		
256,562 [f]			250,699 [f]		
$2,556,062			$2,461,619		
		2.19 %			2.13 %
	$51,410	2.36		$47,292	2.25

Interest rates and interest differential analysis of net interest income – U.S. and non-U.S.

Presented below is a summary of interest rates and interest differentials segregated between U.S. and non-U.S. operations for the years 2016 through 2018. The segregation of U.S. and non-U.S. components is based on

the location of the office recording the transaction. Intercompany funding generally consists of dollar-denominated deposits originated in various locations that are centrally managed by Treasury and CIO.

(Table continued on next page)

(Unaudited) Year ended December 31, (Taxable-equivalent interest and rates; in millions, except rates)	2018 Average balance	Interest	Average rate
Interest-earning assets			
Deposits with banks:			
U.S.	**$ 305,117**	**$ 5,703**	**1.87** %
Non-U.S.	**100,397**	**204**	**0.20**
Federal funds sold and securities purchased under resale agreements:			
U.S.	**102,144**	**2,427**	**2.38**
Non-U.S.	**115,006**	**1,392**	**1.21**
Securities borrowed:			
U.S.	**77,027**	**640**	**0.83**
Non-U.S.	**38,055**	**88**	**0.23**
Trading assets – debt instruments:			
U.S.	**141,134**	**5,068**	**3.59**
Non-U.S.	**119,917**	**3,695**	**3.08**
Investment securities:			
U.S.	**200,883**	**6,943**	**3.46**
Non-U.S.	**35,805**	**697**	**1.95**
Loans:			
U.S.	**864,149**	**45,395**	**5.25**
Non-U.S.	**80,736**	**2,401**	**2.97**
All other interest-earning assets, predominantly U.S.	**48,818**	**3,417**	**7.00**
Total interest-earning assets	**2,229,188**	**78,070**	**3.50**
Interest-bearing liabilities			
Interest-bearing deposits:			
U.S.	**816,305**	**4,562**	**0.56**
Non-U.S.	**244,300**	**1,411**	**0.58**
Federal funds purchased and securities loaned or sold under repurchase agreements:			
U.S.	**117,754**	**2,562**	**2.18**
Non-U.S.	**71,528**	**504**	**0.70**
Trading liabilities – debt, short-term and all other interest-bearing liabilities:[a]			
U.S.	**150,694**	**3,389**	**2.25**
Non-U.S.	**90,990**	**1,484**	**1.63**
Beneficial interests issued by consolidated VIEs, predominantly U.S.	**21,079**	**493**	**2.34**
Long-term debt:			
U.S.	**256,220**	**7,954**	**3.10**
Non-U.S.	**20,194**	**24**	**0.12**
Intercompany funding:			
U.S.	**(51,933)**	**(746)**	**—**
Non-U.S.	**51,933**	**746**	**—**

Total interest-bearing liabilities	**1,789,064**	**22,383**	**1.25**
Noninterest-bearing liabilities(b)	**440,124**		
Total investable funds	**$ 2,229,188**	**$ 22,383**	**1.00** %
Net interest income and net yield:		**$ 55,687**	**2.50** %
U.S.		**50,236**	**2.91**
Non-U.S.		**5,451**	**1.09**
Percentage of total assets and liabilities attributable to non-U.S. operations:			
Assets			**24.7**
Liabilities			**22.3**

Effective January 1, 2018, the Firm adopted several new accounting standards. Certain of the new accounting standards were applied retrospectively and, accordingly, prior period amounts were revised. For additional information, refer to Note 1.

(a) Includes commercial paper.

(b) Represents the amount of noninterest-bearing liabilities funding interest-earning assets.

(c) Negative interest income and yield is related to client-driven demand for certain securities combined with the impact of low interest rates; this is matched book activity and the negative interest expense on the corresponding securities loaned is recognized in interest expense and reported within trading liabilities – debt, short-term and all other interest-bearing liabilities.

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For further information, refer to the “Net interest income” discussion in Consolidated Results of Operations on pages 48–51.

(Table continued from previous page)

2017			2016		
Average balance	Interest	Average rate	Average balance	Interest	Average rate
$366,814	$4,093	1.12 %	$329,498	$1,707	0.52 %
72,849	145	0.20	64,101	172	0.27
90,879	1,360	1.50	112,901	1,166	1.03
100,941	967	0.96	92,466	1,099	1.19
68,110	(66)[(c)]	(0.10)	73,297	(341)[(c)]	(0.46)
27,214	29	0.11	29,667	9	0.03
128,293	4,186	3.26	116,211	3,825	3.29
108,913	3,528	3.24	99,354	3,548	3.57
223,140	7,490	3.36	216,726	6,971	3.22
45,538	813	1.79	62,661	1,229	1.97
832,608	39,439	4.74	788,213	35,110	4.45
73,789	1,857	2.52	78,165	1,756	2.25
41,504	1,844	4.44	38,344	859	2.24
2,180,592	65,685	3.01	2,101,604	57,110	2.72
776,049	2,223	0.29	703,738	1,029	0.15
237,172	634	0.27	221,532	327	0.15
115,574	1,349	1.17	121,945	773	0.63
71,812	262	0.37	56,775	316	0.56
138,470	1,271	0.92	133,788	86	0.06
79,876	1,280	1.60	80,117	1,219	1.52
32,457	503	1.55	40,180	504	1.25
276,750	6,745	2.44	283,169	5,533	1.95
14,739	8	0.05	12,404	31	0.25
(2,874)	(25)	—	(20,405)	10	—
2,874	25	—	20,405	(10)	—
1,742,899	14,275	0.82	1,653,648	9,818	0.59
437,693			447,956		
$2,180,592	$14,275	0.65 %	$2,101,604	$9,818	0.47 %

$51,410	2.36 %	$47,292	2.25 %
46,059	2.68	40,705	2.49
5,351	1.15	6,587	1.42
	22.5		23.1
	21.1		20.7

Changes in net interest income, volume and rate analysis

The table below presents an attribution of net interest income between volume and rate. The attribution between volume and rate is calculated using annual average balances for each category of assets and liabilities shown in the table and the corresponding annual average rates (refer to pages 288–292 for more information on average balances and rates). In this analysis, when the change cannot be isolated to either volume or rate, it has been allocated to volume. The average annual rates include the impact of changes in market rates as well as the impact of any change in composition of the various products within each category of asset or liability. This analysis is calculated separately for each category without consideration of the relationship between categories (for example, the net spread between the rates earned on assets and the rates paid on liabilities that fund those assets). As a result, changes in the granularity or groupings considered in this analysis would produce a different attribution result, and due to the complexities involved, precise allocation of changes in interest rates between volume and rates is inherently complex and judgmental.

	2018 versus 2017			2017 versus 2016		
(Unaudited)	Increase/(decrease) due to change in:			Increase/(decrease) due to change in:		
Year ended December 31, (On a taxable-equivalent basis; in millions)	Volume	Rate	Net change	Volume	Rate	Net change
Interest-earning assets						
Deposits with banks:						
U.S.	**$ (1,141)**	**$ 2,751**	**$ 1,610**	$ 409	$ 1,977	$ 2,386
Non-U.S.	**59**	**—**	**59**	18	(45)	(27)
Federal funds sold and securities purchased under resale agreements:						
U.S.	**267**	**800**	**1,067**	(337)	531	194
Non-U.S.	**173**	**252**	**425**	81	(213)	(132)
Securities borrowed:						
U.S.	**73**	**633**	**706**	11	264	275
Non-U.S.	**26**	**33**	**59**	(4)	24	20
Trading assets – debt instruments:						
U.S.	**459**	**423**	**882**	396	(35)	361
Non-U.S.	**341**	**(174)**	**167**	308	(328)	(20)
Investment securities:						
U.S.	**(770)**	**223**	**(547)**	216	303	519
Non-U.S.	**(189)**	**73**	**(116)**	(303)	(113)	(416)
Loans:						
U.S.	**1,710**	**4,246**	**5,956**	2,043	2,286	4,329
Non-U.S.	**212**	**332**	**544**	(110)	211	101
All other interest-earning assets, predominantly U.S.	**510**	**1,063**	**1,573**	141	844	985
Change in interest income	**1,730**	**10,655**	**12,385**	2,869	5,706	8,575
Interest-bearing liabilities						
Interest-bearing deposits:						
U.S.	**244**	**2,095**	**2,339**	209	985	1,194
Non-U.S.	**42**	**735**	**777**	41	266	307
Federal funds purchased and securities loaned or sold under repurchase agreements:						
U.S.	**46**	**1,167**	**1,213**	(83)	659	576
Non-U.S.	**5**	**237**	**242**	54	(108)	(54)
Trading liabilities – debt, short-term and all other interest-bearing liabilities:[a]						
U.S.	**276**	**1,842**	**2,118**	45	1,140	1,185
Non-U.S.	**180**	**24**	**204**	(3)	64	61
Beneficial interests issued by consolidated VIEs, predominantly U.S.	**(266)**	**256**	**(10)**	(122)	121	(1)
Long-term debt:						

U.S.	**(618)**	**1,827**	**1,209**	(176)	1,388	1,212
Non-U.S.	**6**	**10**	**16**	2	(25)	(23)
Intercompany funding:						
U.S.	**(704)**	**(17)**	**(721)**	151	(186)	(35)
Non-U.S.	**704**	**17**	**721**	(151)	186	35
Change in interest expense	**(85)**	**8,193**	**8,108**	(33)	4,490	4,457
Change in net interest income	**$1,815**	**$2,462**	**$4,277**	$2,902	$1,216	$4,118

Effective January 1, 2018, the Firm adopted several new accounting standards. Certain of the new accounting standards were applied retrospectively and, accordingly, prior period amounts were revised. For additional information, refer to Note 1.
(a) Includes commercial paper.

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
AFS: Available-for-sale
ALCO: Asset Liability Committee
AWM: Asset & Wealth Management
AOCI: Accumulated other comprehensive income/(loss)
ARM: Adjustable rate mortgage(s)
AUC: Assets under custody
AUM: "Assets under management": Represent assets managed by AWM on behalf of its Private Banking, Institutional and Retail clients. Includes "Committed capital not Called."
Auto loan and lease origination volume: Dollar amount of auto loans and leases originated.
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
Card Services includes the Credit Card and Merchant Services businesses.
CB: Commercial Banking
CBB: Consumer & Business Banking
CCAR: Comprehensive Capital Analysis and Review
CCB: Consumer & Community Banking
CCO: Chief Compliance Officer
CCP: "Central counterparty" is a clearing house that interposes itself between counterparties to contracts traded in one or more financial markets, becoming the buyer to every seller and the seller to every buyer and thereby ensuring the future performance of open contracts. A CCP becomes counterparty to trades with market participants through novation, an open offer system, or another legally binding arrangement.
CDS: Credit default swaps
CEO: Chief Executive Officer
CET1 Capital: Common equity Tier 1 capital
CFTC: Commodity Futures Trading Commission
CFO: Chief Financial Officer
CFP: Contingency funding plan

Chase Bank USA, N.A.: Chase Bank USA, National Association
CIB: Corporate & Investment Bank
CIO: Chief Investment Office
Client assets: Represent assets under management as well as custody, brokerage, administration and deposit accounts.
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.
CLO: Collateralized loan obligations
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 considered 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 cycle: A period of time over which credit quality improves, deteriorates and then improves again (or vice versa). The duration of a credit cycle can vary from a couple of years to several years.
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 CC

Glossary of Terms and Acronyms

C+/Caa1 and below, as defined by S&P and Moody's.
CRO: Chief Risk Officer
CRSC: Conduct Risk Steering Committee
CTC: CIO, Treasury and Corporate
CVA: Credit valuation adjustment
Debit and credit card sales volume: Dollar amount of card member purchases, net of returns.
Deposit margin/deposit spread: Represents net interest income expressed as a percentage of average deposits.
Distributed denial-of-service attack: The use of a large number of remote computer systems to electronically send a high volume of traffic to a target website to create a service outage at the target. This is a form of cyberattack.
Dodd-Frank Act: Wall Street Reform and Consumer Protection Act
DRPC: Board of Directors' Risk Policy Committee
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
ETD: "Exchange-traded derivatives": Derivative contracts that are executed on an exchange and settled via a central clearing house.
EU: European Union
Fannie Mae: Federal National Mortgage Association
FASB: Financial Accounting Standards Board
FCA: Financial Conduct Authority
FCC: Firmwide Control Committee
FDIA: Federal Depository Insurance Act
FDIC: Federal Deposit Insurance Corporation

Federal Reserve: The Board of the Governors of the Federal Reserve System
FFELP: Federal Family Education Loan Program
FFIEC: Federal Financial Institutions Examination Council
FHA: Federal Housing Administration
FHLB: Federal Home Loan Bank
FICC: The Fixed Income Clearing Corporation
FICO score: A measure of consumer credit risk provided by credit bureaus, typically produced from statistical models by Fair Isaac Corporation utilizing data collected by the credit bureaus.
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.
FRC: Firmwide Risk Committee
Freddie Mac: Federal Home Loan Mortgage Corporation

Free standing derivatives: 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.
FSB: Financial Stability Board
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 bonds: Bonds 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
Headcount-related expense: Includes salary and benefits (excluding performance-based incentives), and other noncompensation costs related to employees.
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.

Glossary of Terms and Acronyms

Households: A household is a collection of individuals or entities aggregated together by name, address, tax identifier and phone number.
HQLA: High quality liquid assets
HTM: Held-to-maturity
ICAAP: Internal capital adequacy assessment process
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
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.
ISDA: International Swaps and Derivatives Association
JPMorgan Chase: JPMorgan Chase & Co.
JPMorgan Chase Bank, N.A.: JPMorgan Chase Bank, National Association
JPMorgan Clearing: J.P. Morgan Clearing Corp.
JPMorgan Securities: J.P. Morgan Securities LLC
Loan-equivalent: Represents the portion of the unused commitment or other contingent exposure that is expected, based on historical portfolio experience, to become drawn prior to an event of a default by an obligor.
LCR: Liquidity coverage ratio
LDA: Loss Distribution Approach
LGD: Loss given default
LIBOR: London Interbank Offered Rate
LLC: Limited Liability Company
LOB: Line of business
LOB CROs: Line of Business and CTC Chief Risk Officers
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.
LTIP: Long-term incentive plan
LTV: "Loan-to-value": 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., resi

dential 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
Merchant Services: is a business that primarily processes transactions for merchants.
MMDA: Money Market Deposit Accounts
Moody's: Moody's Investor Services
Mortgage origination channels:

Glossary of Terms and Acronyms

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.
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
Multi-asset: Any fund or account that allocates assets under management to more than one asset class.
NA: Data is not applicable or available for the period presented.
NAV: Net Asset Value
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 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.

Net revenue rate: Represents Card Services net revenue (annualized) expressed as a percentage of average loans for the 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

NOL: Net operating loss

Nonaccrual loans: Loans for which interest income is not recognized on an

Glossary of Terms and Acronyms

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 have 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 satisfaction, predominantly real estate owned and other commercial and personal property.
NOW: Negotiable Order of Withdrawal
OAS: Option-adjusted spread
OCC: Office of the Comptroller of the Currency
OCI: Other comprehensive income/(loss)
OPEB: Other postretirement employee benefit
ORMF: Operational Risk Management Framework
OTTI: Other-than-temporary impairment
Over-the-counter ("OTC") derivatives: Derivative contracts that are negotiated, executed and settled bilaterally between two derivative counterparties, where one or both counterparties is a derivatives dealer.
Over-the-counter cleared ("OTC-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.
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 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.
PCA: Prompt corrective action
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 s

ame 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 Regulatory 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.
Pretax margin: Represents income before income tax expense divided by total net revenue, which is, in management's view, a comprehensive measure of pretax performance derived by measuring earnings after all costs are taken into consideration. It is one basis upon which management evaluates the performance of AWM against the performance of their respective competitors.
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, foreign exchange risk and commodity risk, and (c) other derivatives.

PSU(s): Performance share units

REIT: "Real estate investment trust": A special purpose investment vehicle that provides investors with the ability to participate directly in the ownership or financing of real-estate related assets by pooling their capital to purchase and manage income property (i.e., equity REIT) and/or mortgage loans (i.e., mortgage REIT). REITs can be publicly or privately held and they also qualify for certain favorable tax considerations.

Glossary of Terms and Acronyms

Receivables from customers: These receivables are reported within accrued interest and accounts receivable on the Firm's Consolidated balance sheets. Primarily represents held-for-investment margin loans to 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: Proportion of 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
Risk-rated portfolio: Credit loss estimates are based on estimates of the probability of default ("PD") and loss severity given a default. The probability of default is the likelihood that a borrower will default on its obligation; the loss given default ("LGD") is the estimated loss on the loan that would be realized upon the default and takes into consideration collateral and structural support for each credit facility.
ROA: Return on assets
ROE: Return on equity
ROTCE: Return on tangible common equity
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 Poor's 500 Index

SAR(s): Stock appreciation rights
Scored portfolio: The scored portfolio predominantly includes residential real estate loans, credit card loans and certain auto and business banking loans where credit loss estimates are based on statistical analysis of credit losses over discrete periods of time. The statistical analysis uses portfolio modeling, credit scoring and decision-support tools.
SEC: 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.
Taxable-equivalent basis: In presenting results on a managed basis, 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 managed basis results on a level 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 su

Glossary of Terms and Acronyms

bjected 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 U.S.
U.S. government-sponsored enterprises ("U.S. GSEs") and U.S. GSE obligations: 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. LCR: Liquidity coverage ratio under the final U.S. rule.
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.
VCG: Valuation Control Group
VGF: Valuation Governance Forum
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.

Investment securities portfolio

For information regarding the securities portfolio as of December 31, 2018 and 2017, and for the years ended December 31, 2018 and 2017, refer to Note 10.

	2016	
(Unaudited) **December 31, (in millions)**	Amortized cost	Fair value
Available-for-sale securities		
Mortgage-backed securities: U.S Government agencies	$63,367	$64,005
U.S. Treasury and government agencies	44,822	44,101
All other AFS securities	128,241	130,785
Total available-for-sale securities	**$236,430**	**$238,891**
Held-to-maturity securities		
Mortgage-backed securities: U.S Government agencies	29,910	30,511
All other HTM securities	20,258	20,378
Total held-to-maturity securities	**$50,168**	**$50,889**
Total investment securities	**$286,598**	**$289,780**

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Loan portfolio

The table below presents loans by portfolio segment and loan class that are presented in Credit and Investment Risk Management on page 105, pages 106–111 and page 112, and in Note 12, at the periods indicated.

(Unaudited) December 31, (in millions)	**2018**	2017	2016	2015	2014
U.S. consumer, excluding credit card loans					
Residential mortgage	**$ 246,244**	$ 236,157	$ 215,178	$ 192,714	$ 139,973
Home equity	**37,303**	44,249	51,965	60,548	69,837
Auto	**63,573**	66,242	65,814	60,255	54,536
Other	**26,612**	26,033	31,687	31,304	31,028
Total U.S. consumer, excluding credit card loans	**373,732**	372,681	364,644	344,821	295,374
Credit card Loans					
U.S. credit card loans	**156,312**	149,107	141,447	131,132	129,067
Non-U.S. credit card loans	**320**	404	369	331	1,981
Total credit card loans	**156,632**	149,511	141,816	131,463	131,048
Total consumer loans	**530,364**	522,192	506,460	476,284	426,422
U.S. wholesale loans					
Commercial and industrial	**111,208**	93,522	91,393	83,739	78,664
Real estate	**115,401**	112,562	104,268	90,836	77,022
Financial institutions	**29,165**	23,819	20,499	12,708	13,743
Governments & Agencies	**11,037**	12,603	12,655	9,838	7,574
Other	**83,386**	69,602	66,363	67,925	49,838
Total U.S. wholesale loans	**350,197**	312,108	295,178	265,046	226,841
Non-U.S. wholesale loans					
Commercial and industrial	**30,450**	29,233	31,340	30,385	34,782
Real estate	**3,397**	3,302	3,975	4,577	2,224
Financial institutions	**18,563**	16,845	15,196	17,188	21,099
Governments & Agencies	**3,150**	2,906	3,726	1,788	1,122
Other	**48,433**	44,111	38,890	42,031	44,846
Total non-U.S. wholesale loans	**103,993**	96,397	93,127	95,969	104,073
Total wholesale loans					
Commercial and industrial	**141,658**	122,755	122,733	114,124	113,446
Real estate	**118,798**	115,864	108,243	95,413	79,246
Financial institutions	**47,728**	40,664	35,695	29,896	34,842
Governments & Agencies	**14,187**	15,509	16,381	11,626	8,696
Other	**131,819**	113,713	105,253	109,956	94,684
Total wholesale loans	**454,190**	408,505	388,305	361,015	330,914
Total loans[(a)]	**$ 984,554**	$ 930,697	$ 894,765	$ 837,299	$ 757,336
Memo:					
Loans held-for-sale	**$ 11,988**	$ 3,351	$ 2,628	$ 1,646	$ 7,217
Loans at fair value	**3,151**	2,508	2,230	2,861	2,611
Total loans held-for-sale and loans at fair value	**$ 15,139**	$ 5,859	$ 4,858	$ 4,507	$ 9,828

(a) Loans (other than purchased credit-impaired loans and those for which the fair value option have been elected) are presented net of unamortized discounts and premiums and net deferred loan fees or costs. These amounts were not material as of December 31, 2018, 2017, 2016, 2015 and 2014.

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Maturities and sensitivity to changes in interest rates

The table below sets forth, at December 31, 2018, wholesale loan maturity and distribution between fixed and floating interest rates based on the stated terms of the loan agreements. The table below also presents loans by loan class that are presented in Wholesale credit portfolio on pages 112–119 and Note 12. The table does not include the impact of derivative instruments.

(Unaudited) December 31, 2018 (in millions)	Within 1 year [(a)]	1-5 years	After 5 years	Total
U.S.				
Commercial and industrial	**$31,145**	**$69,357**	**$10,706**	**$111,208**
Real estate	**10,440**	**23,554**	**81,407**	**115,401**
Financial institutions	**15,190**	**13,639**	**336**	**29,165**
Governments & Agencies	**1,498**	**3,308**	**6,231**	**11,037**
Other	**28,066**	**52,722**	**2,598**	**83,386**
Total U.S.	**86,339**	**162,580**	**101,278**	**350,197**
Non-U.S.				
Commercial and industrial	**11,636**	**16,390**	**2,424**	**30,450**
Real estate	**1,073**	**2,261**	**63**	**3,397**
Financial institutions	**12,879**	**5,653**	**31**	**18,563**
Governments & Agencies	**497**	**1,843**	**810**	**3,150**
Other	**35,423**	**12,040**	**970**	**48,433**
Total non-U.S.	**61,508**	**38,187**	**4,298**	**103,993**
Total wholesale loans	**$147,847**	**$200,767**	**$105,576**	**$454,190**
Loans at fixed interest rates		**$14,221**	**$11,335**	
Loans at variable interest rates		**186,546**	**94,241**	
Total wholesale loans		**$200,767**	**$105,576**	

(a) Includes demand loans and overdrafts.

Risk elements

The following tables set forth nonperforming assets, contractually past-due assets, and accruing restructured loans by portfolio segment and loan class that are presented in Credit and Investment Risk Management on page 105, page 107 and page 112, at the periods indicated.

(Unaudited) December 31, (in millions)	**2018**	2017	2016	2015	2014
Nonperforming assets					
U.S. nonaccrual loans:					
Consumer, excluding credit card loans	**$3,461**	$4,209	$4,820	$5,413	$6,509
Credit card loans	**—**	—	—	—	—
Total U.S. nonaccrual consumer loans	**3,461**	4,209	4,820	5,413	6,509
Wholesale:					
Commercial and industrial	**624**	703	1,145	315	184
Real estate	**212**	95	148	175	237
Financial institutions	**4**	2	4	4	12
Governments & Agencies	**—**	—	—	—	—
Other	**89**	137	198	86	59
Total U.S. wholesale nonaccrual loans	**929**	937	1,495	580	492
Total U.S. nonaccrual loans	**4,390**	5,146	6,315	5,993	7,001
Non-U.S. nonaccrual loans:					
Consumer, excluding credit card loans	—	—	—	—	—
Credit card loans	—	—	—	—	—
Total non-U.S. nonaccrual consumer loans	—	—	—	—	—
Wholesale:					

Commercial and industrial	**358**	654	454	314	21
Real estate	**12**	41	52	63	23
Financial institutions	**—**	—	5	6	7
Governments & Agencies	**—**	—	—	—	—
Other	**71**	102	57	53	81
Total non-U.S. wholesale nonaccrual loans	**441**	797	568	436	132
Total non-U.S. nonaccrual loans	**441**	797	568	436	132
Total nonaccrual loans	**4,831**	5,943	6,883	6,429	7,133
Derivative receivables	**60**	130	223	204	275
Assets acquired in loan satisfactions	**299**	353	429	401	559
Nonperforming assets	**$5,190**	$6,426	$7,535	$7,034	$7,967
Memo:					
Loans held-for-sale	**$—**	$—	$162	$101	$95
Loans at fair value	**220**	—	—	25	21
Total loans held-for-sale and loans at fair value	**$220**	$—	$162	$126	$116

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(Unaudited) December 31, (in millions)	**2018**	2017	2016	2015	2014
Contractually past-due loans[a]					
U.S. loans:					
Consumer, excluding credit card loans[b]	**$—**	$—	$—	$—	$—
Credit card loans	**1,442**	1,378	1,143	944	893
Total U.S. consumer loans	**1,442**	1,378	1,143	944	893
Wholesale:					
Commercial and industrial	**167**	107	86	6	14
Real estate	**3**	12	2	15	33
Financial institutions	**8**	14	12	1	—
Governments & Agencies	**4**	4	4	6	—
Other	**2**	2	19	28	26
Total U.S. wholesale loans	**184**	139	123	56	73
Total U.S. loans	**1,626**	1,517	1,266	1,000	966
Non-U.S. loans:					
Consumer, excluding credit card loans	**—**	—	—	—	—
Credit card loans	**3**	1	2	—	2
Total non-U.S. consumer loans	**3**	1	2	—	2
Wholesale:					
Commercial and industrial	**1**	1	—	1	—
Real estate	**—**	—	—	—	—
Financial institutions	**2**	1	9	10	—
Governments & Agencies	**—**	—	—	—	—
Other	**1**	—	—	—	3
Total non-U.S. wholesale loans	**4**	2	9	11	3
Total non-U.S. loans	**7**	3	11	11	5
Total contractually past due loans	**$1,633**	$1,520	$1,277	$1,011	$971

(a) Represents accruing loans past-due 90 days or more as to principal and interest, which are not characterized as nonaccrual loans. 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.

(b) At December 31, 2018, 2017, 2016, 2015 and 2014, excluded loans 90 or more days past due and still accruing as follows: (1) mortgage loans insured by U.S. government agencies of $1.6 billion, $2.7 billion, $2.7 billion, $2.8 billion and $3.4 billion, respectively; and (2) student loans insured by U.S. government agencies under the FFELP of $0 million, $0 million, $263 million, $290 million and $367 million, respectively. These amounts have been excluded from the nonaccrual loans based upon the government guarantee.

(Unaudited) December 31, (in millions)	**2018**	2017	2016	2015	2014
Accruing restructured loans[a]					
U.S.:					
Consumer, excluding credit card loans	**$4,185**	$4,993	$5,561	$5,980	$7,814
Credit card loans[b]	**1,319**	1,215	1,240	1,465	2,029
Total U.S. consumer loans	**5,504**	6,208	6,801	7,445	9,843
Wholesale:					
Commercial and industrial	**50**	32	34	12	10
Real estate	**3**	5	11	28	31
Financial institutions	**—**	79	—	—	—
Other	**5**	—	4	—	1
Total U.S. wholesale loans	**58**	116	49	40	42
Total U.S.	**5,562**	6,324	6,850	7,485	9,885
Non-U.S.:					

Consumer, excluding credit card loans	**—**	—	—	—	—
Credit card loans(b)	**—**	—	—	—	—
Total non-U.S. consumer loans	**—**	—	—	—	—
Wholesale:					
Commercial and industrial	**45**	10	17	—	—
Real estate	**—**	—	—	—	—
Financial institutions	**—**	11	—	—	—
Other	**—**	—	—	—	—
Total non-U.S. wholesale loans	**45**	21	17	—	—
Total non-U.S.	**45**	21	17	—	—
Total accruing restructured notes	**$5,607**	$6,345	$6,867	$7,485	$9,885

(a) Represents performing loans modified in TDRs in which an economic concession was granted by the Firm and the borrower has demonstrated its ability to repay the loans according to the terms of the restructuring. As defined in U.S. GAAP, concessions include the reduction of interest rates or the deferral of interest or principal payments, resulting from deterioration in the borrowers' financial condition. Excludes nonaccrual assets and contractually past-due assets, which are included in the sections above.

(b) Includes credit card loans that have been modified in a TDR.

For a discussion of nonaccrual loans, past-due loan accounting policies, and accruing restructured loans refer to Credit and Investment Risk Management on pages 102-123, and Note 12.

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Impact of nonaccrual loans and accruing restructured loans on interest income

The negative impact on interest income from nonaccrual loans represents the difference between the amount of interest income that would have been recorded on such nonaccrual loans according to their original contractual terms had they been performing and the amount of interest that actually was recognized on a cash basis. The negative impact on interest income from accruing restructured loans represents the difference between the amount of interest income that would have been recorded on such loans according to their original contractual terms and the amount of interest that actually was recognized under the modified terms. The following table sets forth this data for the years specified. The change in forgone interest income from 2016 through 2018 was primarily driven by the change in the levels of nonaccrual loans.

(Unaudited) Year ended December 31, (in millions)	**2018**	2017	2016
Nonaccrual loans			
U.S.:			
Consumer, excluding credit card:			
Gross amount of interest that would have been recorded at the original terms	**$318**	$367	$464
Interest that was recognized in income	**(187)**	(175)	(207)
Total U.S. consumer, excluding credit card	**131**	192	257
Credit card:			
Gross amount of interest that would have been recorded at the original terms	**—**	—	—
Interest that was recognized in income	**—**	—	—
Total U.S. credit card	**—**	—	—
Total U.S. consumer	**131**	192	257
Wholesale:			
Gross amount of interest that would have been recorded at the original terms	**51**	46	56
Interest that was recognized in income	**(16)**	(30)	(5)
Total U.S. wholesale	**35**	16	51
Negative impact — U.S.	**166**	208	308
Non-U.S.:			
Consumer, excluding credit card:			
Gross amount of interest that would have been recorded at the original terms	**—**	—	—
Interest that was recognized in income	**—**	—	—
Total non-U.S. consumer, excluding credit card	**—**	—	—
Credit card:			
Gross amount of interest that would have been recorded at the original terms	**—**	—	—
Interest that was recognized in income	**—**	—	—
Total non-U.S. credit card	**—**	—	—
Total non-U.S. consumer	**—**	—	—
Wholesale:			
Gross amount of interest that would have been recorded at the original terms	**13**	24	25
Interest that was recognized in income	**(3)**	(12)	(2)
Total non-U.S. wholesale	**10**	12	23
Negative impact — non-U.S.	**10**	12	23
Total negative impact on interest income	**$176**	$220	$331

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(Unaudited) Year ended December 31, (in millions)	**2018**	2017	2016
Accruing restructured loans			
U.S.:			
Consumer, excluding credit card:			
Gross amount of interest that would have been recorded at the original terms	**$ 329**	$ 401	$ 451
Interest that was recognized in income	**(217)**	(245)	(256)
Total U.S. consumer, excluding credit card	**112**	156	195
Credit card:			
Gross amount of interest that would have been recorded at the original terms	**227**	202	207
Interest that was recognized in income	**(65)**	(59)	(63)
Total U.S. credit card	**162**	143	144
Total U.S. consumer	**274**	299	339
Wholesale:			
Gross amount of interest that would have been recorded at the original terms	**4**	13	2
Interest that was recognized in income	**(4)**	(13)	(2)
Total U.S. wholesale	**—**	—	—
Negative impact — U.S.	**274**	299	339
Non-U.S.:			
Consumer, excluding credit card:			
Gross amount of interest that would have been recorded at the original terms	**—**	—	—
Interest that was recognized in income	**—**	—	—
Total non-U.S. consumer, excluding credit card	**—**	—	—
Credit card:			
Gross amount of interest that would have been recorded at the original terms	**—**	—	—
Interest that was recognized in income	**—**	—	—
Total non-U.S. credit card	**—**	—	—
Total non-U.S. consumer	—	—	—
Wholesale:			
Gross amount of interest that would have been recorded at the original terms	**—**	—	—
Interest that was recognized in income	**—**	—	—
Total non-U.S. wholesale	**—**	—	—
Negative impact — non-U.S.	**—**	—	—
Total negative impact on interest income	**$ 274**	$ 299	$ 339

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Cross-border outstandings

Cross-border disclosure is based on the FFIEC guidelines governing the determination of cross-border risk. The reporting of country exposure under the FFIEC bank regulatory requirements provides information on the distribution, by country and sector, of claims on, and liabilities to, foreign residents held by U.S. banks and bank holding companies and is used by the regulatory agencies to determine the presence of credit and related risks,

including transfer and country risk. Country location under the FFIEC bank regulatory reporting is based on where the entity or counterparty is legally established.

JPMorgan Chase's total cross-border exposure tends to fluctuate greatly, and the amount of exposure at year-end tends to be a function of timing rather than representing a consistent trend. For a further discussion of JPMorgan Chase's country risk exposure, refer to Country Risk Management on pages 132–133.

The following table lists all countries in which JPMorgan Chase's cross-border outstandings exceed 0.75% of consolidated assets as of the dates specified.

Cross-border outstandings exceeding 0.75% of total assets

(Unaudited) (in millions)	December 31,	Governments	Banks	Other[(a)]	Net local country assets	Total cross-border outstandings[(b)]	Commitments[(c)]	**Total exposure**[(d)]
Germany	**2018**	**$ 12,793**	**$7,769**	**$15,393**	**$29,577**	**$ 65,532**	**$ 67,973**	**$ 133,505**
	2017	17,751	5,357	12,320	20,117	55,545	65,333	120,878
	2016	22,332	2,118	14,310	25,269	64,029	74,099	138,128
Cayman Islands	**2018**	**$ 1**	**$308**	**$105,857**	**$20**	**$ 106,186**	**$ 45,073**	**$ 151,259**
	2017	5	462	61,268	58	61,793	12,361	74,154
	2016	18	107	74,810	84	75,019	10,805	85,824
Japan	**2018**	**$ 282**	**$9,803**	**$4,167**	**$40,247**	**$ 54,499**	**$ 51,901**	**$ 106,400**
	2017	1,082	17,159	12,239	25,229	55,709	52,928	108,637
	2016	865	16,522	5,209	48,505	71,101	52,553	123,654
France	**2018**	**$ 12,556**	**$3,499**	**$21,571**	**$2,771**	**$ 40,397**	**$ 105,845**	**$ 146,242**
	2017	12,975	7,083	15,329	2,471	37,858	83,572	121,430
	2016	10,871	4,076	26,195	3,723	44,865	89,780	134,645
Italy	**2018**	**$ 9,401**	**$4,098**	**$5,145**	**$1,375**	**$ 20,019**	**$ 61,326**	**$ 81,345**
	2017	11,516	4,524	4,499	611	21,150	61,005	82,155
	2016	12,290	4,760	4,487	848	22,385	63,647	86,032
Ireland	**2018**	**$ 185**	**$45**	**$19,439**	**$—**	**$ 19,669**	**$ 5,585**	**$ 25,254**
	2017	630	318	19,630	—	20,578	5,728	26,306
	2016	148	664	18,916	—	19,728	5,467	25,195

(a) Consists primarily of non-banking financial institutions.

(b) Outstandings include loans and accrued interest receivable, interest-bearing deposits with banks, acceptances, resale agreements, other monetary assets, cross-border trading debt and equity instruments, fair value of foreign exchange and derivative contracts, and local country assets, net of local country liabilities. The amounts associated with foreign exchange and derivative contracts are presented after taking into account the impact of legally enforceable master netting agreements.

(c) Commitments include outstanding letters of credit, undrawn commitments to extend credit, and the gross notional value of credit derivatives where JPMorgan Chase is a protection seller.

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

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The following tables summarize the changes in the allowance for loan losses and the allowance for lending-related commitments, as well as loan loss analysis during the periods indicated. For a further discussion, refer to Allowance for credit losses on pages 120–122, and Note 13.

Allowance for loan losses

(Unaudited) Year ended December 31, (in millions)	**2018**	2017	2016	2015	2014
Balance at beginning of year	**$13,604**	$13,776	$13,555	$14,185	$16,264
U.S. charge-offs					
U.S. consumer, excluding credit card	**1,025**	1,779	1,500	1,658	2,132
U.S. credit card	**5,011**	4,521	3,799	3,475	3,682
Total U.S. consumer charge-offs	**6,036**	6,300	5,299	5,133	5,814
U.S. wholesale:					
Commercial and industrial	**161**	87	240	63	44
Real estate	**3**	3	7	6	14
Financial institutions	**—**	—	—	5	14
Governments & Agencies	**—**	5	—	—	25
Other	**97**	19	13	6	22
Total U.S. wholesale charge-offs	**261**	114	260	80	119
Total U.S. charge-offs	**6,297**	6,414	5,559	5,213	5,933
Non-U.S. charge-offs					
Non-U.S. consumer, excluding credit card	**—**	—	—	—	—
Non-U.S. credit card	**—**	—	—	13	149
Total non-U.S. consumer charge-offs	**—**	—	—	13	149
Non-U.S. wholesale:					
Commercial and industrial	**51**	89	134	5	27
Real estate	**—**	—	1	—	4
Financial institutions	**—**	7	1	—	—
Governments & Agencies	**—**	—	—	—	—
Other	**1**	2	2	10	1
Total non-U.S. wholesale charge-offs	**52**	98	138	15	32
Total non-U.S. charge-offs	**52**	98	138	28	181
Total charge-offs	**6,349**	6,512	5,697	5,241	6,114
U.S. recoveries					
U.S. consumer, excluding credit card	**(842)**	(634)	(591)	(704)	(814)
U.S. credit card	**(493)**	(398)	(357)	(364)	(383)
Total U.S. consumer recoveries	**(1,335)**	(1,032)	(948)	(1,068)	(1,197)
U.S. wholesale:					
Commercial and industrial	**(45)**	(55)	(10)	(32)	(49)
Real estate	**(23)**	(6)	(15)	(20)	(27)
Financial institutions	**—**	—	(3)	(8)	(12)
Governments & Agencies	**—**	—	(1)	(8)	—
Other	**(44)**	(15)	(3)	(3)	(36)
Total U.S. wholesale recoveries	**(112)**	(76)	(32)	(71)	(124)
Total U.S. recoveries	**(1,447)**	(1,108)	(980)	(1,139)	(1,321)
Non-U.S. recoveries					
Non-U.S. consumer, excluding credit card	**—**	—	—	—	—
Non-U.S. credit card	**—**	—	—	(2)	(19)
Total non-U.S. consumer recoveries	**—**	—	—	(2)	(19)
Non-U.S. wholesale:					
Commercial and industrial	**(2)**	(4)	(18)	(10)	—
Real estate	**—**	(1)	—	—	—
Financial institutions	**—**	(1)	—	(2)	(14)

Governments & Agencies	**—**	—	—	—	—
Other	**(44)**	(11)	(7)	(2)	(1)
Total non-U.S. wholesale recoveries	**(46)**	(17)	(25)	(14)	(15)
Total non-U.S. recoveries	**(46)**	(17)	(25)	(16)	(34)
Total recoveries	**(1,493)**	(1,125)	(1,005)	(1,155)	(1,355)
Net charge-offs	**4,856**	5,387	4,692	4,086	4,759
Write-offs of PCI loans(a)	**187**	86	156	208	533
Provision for loan losses	**4,885**	5,300	5,080	3,663	3,224
Other	**(1)**	1	(11)	1	(11)
Balance at year-end	**$13,445**	$13,604	$13,776	$13,555	$14,185

(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 (e.g., upon liquidation). During 2014 the Firm recorded a $291 million adjustment to reduce the PCI allowance and the recorded investment in the Firm's PCI loan portfolio, primarily reflecting the cumulative effect of interest forgiveness modifications. This adjustment had no impact to the Firm's Consolidated statements of income.

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Summary of loan and lending-related commitments loss experience

Allowance for lending-related commitments

(Unaudited) Year ended December 31, (in millions)	**2018**	2017	2016	2015	2014
Balance at beginning of year	**$1,068**	$1,078	$786	$622	$705
Provision for lending-related commitments	**(14)**	(10)	281	164	(85)
Other	**1**	—	11	—	2
Balance at year-end	**$1,055**	$1,068	$1,078	$786	$622

Loan loss analysis

(Unaudited) As of or for the year ended December 31, (in millions, except ratios)	**2018**	2017	2016	2015	2014
Balances					
Loans – average	**$944,885**	$906,397	$866,378	$787,318	$739,175
Loans – year-end	**984,554**	930,697	894,765	837,299	757,336
Net charge-offs	**4,856**	5,387	4,692	4,086	4,759
Allowance for loan losses:					
U.S.	**$12,692**	$12,552	$12,738	$12,704	$13,472
Non-U.S.	**753**	1,052	1,038	851	713
Total allowance for loan losses	**$13,445**	$13,604	$13,776	$13,555	$14,185
Nonaccrual loans	**$4,831**	$5,943	$6,883	$6,429	$7,133
Ratios					
Net charge-offs to:					
Loans retained – average	**0.52 %**	0.60 %	0.54 %	0.52 %	0.65 %
Allowance for loan losses	**36.12**	39.60	34.06	30.14	33.55
Allowance for loan losses to:					
Loans retained – year-end[(a)]	**1.39**	1.47	1.55	1.63	1.90
Nonaccrual loans retained	**292**	229	205	215	202

(a) The allowance for loan losses as a percentage of retained loans declined from 2014 to 2018, due to improvement in credit quality of the consumer and wholesale credit portfolios. For a more detailed discussion of the 2016 through 2018 provision for credit losses, refer to Provision for credit losses on page 122.

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Deposits

The following table provides a summary of the average balances and average interest rates of JPMorgan Chase's various deposits for the years indicated.

(Unaudited) Year ended December 31, (in millions, except interest rates)	Average balances			Average interest rates		
	2018	2017	2016	**2018**	2017	2016
U.S. offices						
Noninterest-bearing	**$ 377,806**	$ 387,424	$ 386,528	**— %**	— %	— %
Interest-bearing						
Demand[(a)]	**177,403**	162,985	128,046	**1.09**	0.50	0.18
Savings[(b)]	**585,885**	559,654	515,982	**0.32**	0.15	0.09
Time	**53,017**	53,410	59,710	**1.44**	1.02	0.59
Total interest-bearing deposits	**816,305**	776,049	703,738	**0.56**	0.29	0.15
Total deposits in U.S. offices	**1,194,111**	1,163,473	1,090,266	**0.38**	0.19	0.09
Non-U.S. offices						
Noninterest-bearing	**18,050**	16,741	16,170	**—**	—	—
Interest-bearing						
Demand	**210,978**	213,733	198,919	**0.45**	0.18	0.10
Savings	**—**	—	—	**NM**	NM	NM
Time	**33,322**	23,439	22,613	**1.39**	1.08	0.56
Total interest-bearing deposits	**244,300**	237,172	221,532	**0.58**	0.27	0.15
Total deposits in non-U.S. offices	**262,350**	253,913	237,702	**0.54**	0.25	0.14
Total deposits	**$ 1,456,461**	$ 1,417,386	$ 1,327,968	**0.41 %**	0.20 %	0.10 %

(a) Includes Negotiable Order of Withdrawal ("NOW") accounts, and certain trust accounts.
(b) Includes Money Market Deposit Accounts ("MMDAs").

At December 31, 2018, other U.S. time deposits in denominations of $100,000 or more totaled $15.5 billion, substantially all of which mature in three months or less. In addition, the table below presents the maturities for U.S. time certificates of deposit in denominations of $100,000 or more.

(Unaudited) By remaining maturity at December 31, 2018 (in millions)	Three months or less	Over three months but within six months	Over six months but within 12 months	Over 12 months	Total
U.S. time certificates of deposit ($100,000 or more)	**$ 6,274**	**$ 3,265**	**$ 3,166**	**$ 6,740**	**$ 19,445**

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Short-term and other borrowed funds

The following table provides a summary of JPMorgan Chase's short-term and other borrowed funds for the years indicated.

(Unaudited) As of or for the year ended December 31, (in millions, except rates)	**2018**	2017	2016
Federal funds purchased and securities loaned or sold under repurchase agreements:			
Balance at year-end	**$ 182,320**	$ 158,916	$ 165,666
Average daily balance during the year	**189,282**	187,386	178,720
Maximum month-end balance	**201,340**	205,286	207,211
Weighted-average rate at December 31	**2.18 %**	1.03 %	0.50 %
Weighted-average rate during the year	**1.62**	0.86	0.61
Commercial paper:			
Balance at year-end	**$ 30,059**	$ 24,186	$ 11,738
Average daily balance during the year	**27,834**	19,920	15,001
Maximum month-end balance	**30,470**	24,934	19,083
Weighted-average rate at December 31	**2.71 %**	1.59 %	1.13 %
Weighted-average rate during the year	**2.27**	1.39	0.90
Other borrowed funds:(a)			
Balance at year-end	**$ 101,513**	$ 87,652	$ 89,154
Average daily balance during the year	**108,436**	96,331	93,252
Maximum month-end balance	**125,544**	107,157	102,310
Weighted-average rate at December 31	**2.23 %**	2.09 %	1.79 %
Weighted-average rate during the year	**2.06**	1.98	1.93
Short-term beneficial interests:(b)			
Commercial paper and other borrowed funds:			
Balance at year-end	**$ 6,527**	$ 4,310	$ 5,688
Average daily balance during the year	**4,756**	5,327	8,296
Maximum month-end balance	**6,527**	7,573	10,494
Weighted-average rate at December 31	**2.53 %**	1.50 %	0.83 %
Weighted-average rate during the year	**2.10**	1.07	0.67

(a) Includes interest-bearing securities sold but not yet purchased of $62.3 billion, $60.0 billion and $66.4 billion at December 31, 2018, 2017 and 2016, respectively.

(b) Included on the Consolidated balance sheets in beneficial interests issued by consolidated VIEs.

Federal funds purchased represent overnight funds. Securities loaned or sold under repurchase agreements generally mature between one and ninety days. Commercial paper generally is issued in amounts not less than $100,000, and with maturities of 270 days or less. Other borrowed funds consist of demand notes, term federal funds purchased, and various other borrowings that generally have maturities of one year or less.

Signatures

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on behalf of the undersigned, thereunto duly authorized.

JPMorgan Chase & Co.
(Registrant)
By: /s/ JAMES DIMON

(James Dimon
Chairman and Chief Executive Officer)
February 26, 2019

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacity and on the date indicated. JPMorgan Chase & Co. does not exercise the power of attorney to sign on behalf of any Director.

	Capacity	Date
/s/ JAMES DIMON (James Dimon)	Director, Chairman and Chief Executive Officer (Principal Executive Officer)	
/s/ LINDA B. BAMMANN (Linda B. Bammann)	Director	
/s/ JAMES A. BELL (James A. Bell)	Director	
/s/ STEPHEN B. BURKE (Stephen B. Burke)	Director	
/s/ TODD A. COMBS (Todd A. Combs)	Director	
/s/ JAMES S. CROWN (James S. Crown)	Director	February 26, 2019
/s/ TIMOTHY P. FLYNN (Timothy P. Flynn)	Director	
/s/ MELLODY HOBSON (Mellody Hobson)	Director	
/s/ LABAN P. JACKSON, JR. (Laban P. Jackson, Jr.)	Director	
/s/ MICHAEL A. NEAL (Michael A. Neal)	Director	
/s/ LEE R. RAYMOND (Lee R. Raymond)	Director	
/s/ WILLIAM C. WELDON	Director	

(William C. Weldon)

/s/ MARIANNE LAKE (Marianne Lake)	Executive Vice President and Chief Financial Officer (Principal Financial Officer)
/s/ NICOLE GILES (Nicole Giles)	Managing Director and Firmwide Controller (Principal Accounting Officer)

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