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

FORM 8-K
CURRENT REPORT

Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported) **June 16, 2017**

Citigroup Inc.

(Exact name of Registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

1-9924
(Commission File Number)

52-1568099
(I.R.S. Employer Identification No.)

388 Greenwich Street, New York, NY
(Address of principal executive offices)

10013
(Zip code)

(212) 559-1000
(Registrant's telephone number, including area code)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company

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

CITIGROUP INC.
Current Report on Form 8-K

Item 8.01 Other Events.

As previously disclosed by Citigroup Inc. (Citi), effective in the first quarter of 2017, the remaining businesses and portfolios of assets in Citi Holdings are now reported as part of *Corporate/Other* for all periods presented and Citi Holdings is no longer a separately reported business segment. For additional information on this and other previously disclosed reclassifications, see Note 3 to the Consolidated Financial Statements in Citi's Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2017 (First Quarter 2017 Form 10-Q) filed with the U.S. Securities and Exchange Commission (SEC) on May 1, 2017 and Citi's Current Report on Form 8-K furnished to the SEC on April 6, 2017. These reclassifications were reflected in Citi's First Quarter 2017 Form 10-Q.

In accordance with ASC 280, Segment Reporting, attached as Exhibit 99.02 to this Form 8-K are the historical audited consolidated financial statements for Citi's Annual Report on Form 10-K for the fiscal year ended December 31, 2016 (2016 Form 10-K), conformed to reflect these reclassifications. Citi's consolidated results remain unchanged for all periods presented as a result of these reclassifications. These reclassifications have also been reflected in Exhibits 99.01 and 101 to this Form 8-K. The information included in this Form 8-K should be read in conjunction with Citi's 2016 Form 10-K and First Quarter 2017 Form 10-Q. This Form 8-K does not reflect events occurring after Citi filed its 2016 Form 10-K and does not modify or update the disclosures therein in any way, other than to reflect the above-referenced reclassifications. For developments subsequent to the filing of the 2016 Form 10-K, refer to Citi's First Quarter 2017 Form 10-Q.

Exhibit 99.02 will serve as Citi's historical audited consolidated financial statements as of December 31, 2016 and 2015 and for the three years ended December 31, 2016 for existing and future filings made pursuant to the Securities Act of 1933, as amended, until Citi files its Annual Report on Form 10-K for the fiscal year ended December 31, 2017.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits.

Exhibit Number

- | | |
|-------|--|
| 99.01 | Segment and Business Income (loss) and Revenues of Citigroup Inc. for the three years ended December 31, 2016. |
| 99.02 | Historical Audited Consolidated Financial Statements of Citigroup Inc. as of December 31, 2016 and 2015 and for the three years ended December 31, 2016, reflecting the above-referenced reclassifications. Also included is the Report of Independent Registered Public Accounting Firm dated February 24, 2017, except as to Notes 3, 6, 14, 15, 16, 18, 24, 26 and 28 which are as of June 16, 2017. |
| 99.03 | Consent of KPMG LLP, Independent Registered Public Accounting Firm. |
| 101 | Historical Audited Consolidated Financial Statements of Citigroup Inc. as of December 31, 2016 and 2015 and for the three years ended December 31, 2016 reflecting the above-referenced reclassifications, formatted in XBRL: (i) the Consolidated Statement of Income, (ii) the Consolidated Statement of Comprehensive Income, (iii) the Consolidated Balance Sheet, (iv) the Consolidated Statement of Changes in Stockholders' Equity, (v) the Consolidated Statement of Cash Flows and (vi) the Notes to Consolidated Financial Statements. |

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Dated: June 16, 2017

CITIGROUP INC.

By: /s/ JEFFREY R. WALSH
Jeffrey R. Walsh
Controller and Chief Accounting Officer

Exhibit Index

Exhibit Number

- | | |
|-------|--|
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| 99.02 | Historical Audited Consolidated Financial Statements of Citigroup Inc. as of December 31, 2016 and 2015 and for the three years ended December 31, 2016, reflecting the above-referenced reclassifications. Also included is the Report of Independent Registered Public Accounting Firm dated February 24, 2017, except as to Notes 3, 6, 14, 15, 16, 18, 24, 26 and 28 which are as of June 16, 2017. |
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SEGMENT AND BUSINESS—INCOME (LOSS) AND REVENUES

CITIGROUP INCOME

<i>In millions of dollars</i>	2016	2015	2014	% Change 2016 vs. 2015	% Change 2015 vs. 2014
Income from continuing operations					
Global Consumer Banking					
<i>North America</i>	\$ 3,238	\$ 4,188	\$ 4,492	(23)%	(7)%
<i>Latin America</i>	633	826	954	(23)	(13)
<i>Asia⁽¹⁾</i>	1,083	1,200	\$ 1,221	(10)	(2)
Total	\$ 4,954	\$ 6,214	\$ 6,667	(20)%	(7)%
Institutional Clients Group					
<i>North America</i>	\$ 3,495	\$ 3,316	\$ 4,146	5 %	(20)%
<i>EMEA</i>	2,365	2,230	2,062	6	8
<i>Latin America</i>	1,454	1,351	1,453	8	(7)
<i>Asia</i>	2,211	2,213	2,028	—	9
Total	\$ 9,525	\$ 9,110	\$ 9,689	5 %	(6)%
Corporate/Other	554	2,062	(8,852)	(73)%	NM
Income from continuing operations	\$ 15,033	\$ 17,386	\$ 7,504	(14)%	NM
Discontinued operations	\$ (58)	\$ (54)	\$ (2)	(7)%	NM
Net income attributable to noncontrolling interests	63	90	192	(30)%	(53)%
Citigroup's net income	\$ 14,912	\$ 17,242	\$ 7,310	(14)%	NM

(1) *Asia GCB* includes the results of operations of *GCB* activities in certain *EMEA* countries for all periods presented.

NM Not meaningful

CITIGROUP REVENUES

<i>In millions of dollars</i>	2016	2015	2014	% Change 2016 vs. 2015	% Change 2015 vs. 2014
Global Consumer Banking					
<i>North America</i>	\$ 19,759	\$ 19,515	\$ 19,947	1 %	(2)%
<i>Latin America</i>	4,922	5,722	6,509	(14)	(12)
<i>Asia⁽¹⁾</i>	6,838	7,014	7,791	(3)	(10)
Total	\$ 31,519	\$ 32,251	\$ 34,247	(2)%	(6)%
Institutional Clients Group					
<i>North America</i>	\$ 12,513	\$ 12,698	\$ 13,043	(1)%	(3)%
<i>EMEA</i>	9,855	9,788	9,512	1	3
<i>Latin America</i>	3,977	3,944	4,226	1	(7)
<i>Asia</i>	6,882	6,902	6,581	—	5
Total	\$ 33,227	\$ 33,332	\$ 33,362	— %	— %
Corporate/Other	5,129	10,771	9,610	(52)%	12 %
Total Citigroup net revenues	\$ 69,875	\$ 76,354	\$ 77,219	(8)%	(1)%

(1) *Asia GCB* includes the results of operations of *GCB* activities in certain *EMEA* countries for all periods presented.

NM Not meaningful

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM— CONSOLIDATED FINANCIAL STATEMENTS



The Board of Directors and Stockholders
Citigroup Inc.:

We have audited the accompanying consolidated balance sheet of Citigroup Inc. and subsidiaries (the “Company” or “Citigroup”) as of December 31, 2016 and 2015, and the related consolidated statements of income, comprehensive income, changes in stockholders’ equity and cash flows for each of the years in the three-year period ended December 31, 2016. These consolidated financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Citigroup as of December 31, 2016 and 2015, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2016, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Citigroup’s internal control over financial reporting as of December 31, 2016, based on criteria established in *Internal Control-Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), and our report dated February 24, 2017 expressed an unqualified opinion on the effectiveness of the Company’s internal control over financial reporting.

/s/ KPMG LLP

New York, New York

February 24, 2017, except as to Notes 3, 6, 14, 15, 16, 18, 24, 26 and 28 which are as of June 16, 2017.

FINANCIAL STATEMENTS AND NOTES TABLE OF CONTENTS

CONSOLIDATED FINANCIAL STATEMENTS

Consolidated Statement of Income— For the Years Ended December 31, 2016, 2015 and 2014	3
Consolidated Statement of Comprehensive Income— For the Years Ended December 31, 2016, 2015 and 2014	5
Consolidated Balance Sheet—December 31, 2016 and 2015	6
Consolidated Statement of Changes in Stockholders' Equity —For the Years Ended December 31, 2016, 2015 and 2014	8
Consolidated Statement of Cash Flows— For the Years Ended December 31, 2016, 2015 and 2014	10

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1—Summary of Significant Accounting Policies	12	Note 16—Goodwill and Intangible Assets	85
Note 2—Discontinued Operations and Significant Disposals	24	Note 17—Debt	88
Note 3—Business Segments	26	Note 18—Regulatory Capital	90
Note 4—Interest Revenue and Expense	27	Note 19—Changes in Accumulated Other Comprehensive Income (Loss)	91
Note 5—Commissions and Fees	28	Note 20—Preferred Stock	94
Note 6—Principal Transactions	29	Note 21—Securitizations and Variable Interest Entities	96
Note 7—Incentive Plans	30	Note 22—Derivatives Activities	109
Note 8—Retirement Benefits	34	Note 23—Concentrations of Credit Risk	124
Note 9—Income Taxes	48	Note 24—Fair Value Measurement	125
Note 10—Earnings per Share	52	Note 25—Fair Value Elections	147
Note 11—Federal Funds, Securities Borrowed, Loaned and Subject to Repurchase Agreements	53	Note 26—Pledged Assets, Collateral, Guarantees and Commitments	151
Note 12—Brokerage Receivables and Brokerage Payables	57	Note 27—Contingencies	158
Note 13—Investments	58	Note 28—Condensed Consolidating Financial Statements	167
Note 14—Loans	70	Note 29—Subsequent Event	178
Note 15—Allowance for Credit Losses	82	Note 30—Selected Quarterly Financial Data (Unaudited)	179

CONSOLIDATED FINANCIAL STATEMENTS

CONSOLIDATED STATEMENT OF INCOME

Citigroup Inc. and Subsidiaries

<i>In millions of dollars, except per share amounts</i>	Years ended December 31,		
	2016	2015	2014
Revenues⁽¹⁾			
Interest revenue	\$ 57,615	\$ 58,551	\$ 61,683
Interest expense	12,511	11,921	13,690
Net interest revenue	\$ 45,104	\$ 46,630	\$ 47,993
Commissions and fees	\$ 10,521	\$ 11,848	\$ 13,032
Principal transactions	7,585	6,008	6,698
Administration and other fiduciary fees	3,364	3,648	4,013
Realized gains on sales of investments, net	948	682	570
Other-than-temporary impairment losses on investments			
Gross impairment losses	(620)	(265)	(432)
Less: Impairments recognized in AOCI	—	—	8
Net impairment losses recognized in earnings	\$ (620)	\$ (265)	\$ (424)
Insurance premiums	\$ 836	\$ 1,845	\$ 2,110
Other revenue	2,137	5,958	3,227
Total non-interest revenues	\$ 24,771	\$ 29,724	\$ 29,226
Total revenues, net of interest expense	\$ 69,875	\$ 76,354	\$ 77,219
Provisions for credit losses and for benefits and claims			
Provision for loan losses	\$ 6,749	\$ 7,108	\$ 6,828
Policyholder benefits and claims	204	731	801
Provision (release) for unfunded lending commitments	29	74	(162)
Total provisions for credit losses and for benefits and claims	\$ 6,982	\$ 7,913	\$ 7,467
Operating expenses⁽¹⁾			
Compensation and benefits	\$ 20,970	\$ 21,769	\$ 23,959
Premises and equipment	2,542	2,878	3,178
Technology/communication	6,685	6,581	6,436
Advertising and marketing	1,632	1,547	1,844
Other operating	9,587	10,840	19,634
Total operating expenses	\$ 41,416	\$ 43,615	\$ 55,051
Income from continuing operations before income taxes	\$ 21,477	\$ 24,826	\$ 14,701
Provision for income taxes	6,444	7,440	7,197
Income from continuing operations	\$ 15,033	\$ 17,386	\$ 7,504
Discontinued operations			
Income (loss) from discontinued operations	\$ (80)	\$ (83)	\$ 10
Provision (benefit) for income taxes	(22)	(29)	12
Loss from discontinued operations, net of taxes	\$ (58)	\$ (54)	\$ (2)
Net income before attribution of noncontrolling interests	\$ 14,975	\$ 17,332	\$ 7,502
Noncontrolling interests	63	90	192
Citigroup's net income	\$ 14,912	\$ 17,242	\$ 7,310
Basic earnings per share⁽²⁾			
Income from continuing operations	\$ 4.74	\$ 5.43	\$ 2.21
Loss from discontinued operations, net of taxes	(0.02)	(0.02)	—
Net income	\$ 4.72	\$ 5.41	\$ 2.21
Weighted average common shares outstanding	2,888.1	3,004.0	3,031.6

Diluted earnings per share⁽²⁾						
Income from continuing operations	\$	4.74	\$	5.42	\$	2.20
Income (loss) from discontinued operations, net of taxes		(0.02)		(0.02)		—
Net income	\$	4.72	\$	5.40	\$	2.20
Adjusted weighted average common shares outstanding		2,888.3		3,007.7		3,037.0

(1) Certain prior-period revenue and expense lines and totals were reclassified to conform to the current period's presentation. See Note 3 to the Consolidated Financial Statements.

(2) Due to rounding, earnings per share on continuing operations and discontinued operations may not sum to earnings per share on net income.

The Notes to the Consolidated Financial Statements are an integral part of these Consolidated Financial Statements.

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

Citigroup Inc. and Subsidiaries

<i>In millions of dollars</i>	Years ended December 31,		
	2016	2015	2014
Citigroup's net income	\$ 14,912	\$ 17,242	\$ 7,310
Add: Citigroup's other comprehensive income (loss)			
Net change in unrealized gains and losses on investment securities, net of taxes	\$ 108	\$ (964)	\$ 1,697
Net change in debt valuation adjustment (DVA), net of taxes ⁽¹⁾	(337)	—	—
Net change in cash flow hedges, net of taxes	57	292	336
Benefit plans liability adjustment, net of taxes ⁽²⁾	(48)	43	(1,170)
Net change in foreign currency translation adjustment, net of taxes and hedges	(2,802)	(5,499)	(4,946)
Citigroup's total other comprehensive income (loss)	\$ (3,022)	\$ (6,128)	\$ (4,083)
Citigroup's total comprehensive income	\$ 11,890	\$ 11,114	\$ 3,227
Add: Other comprehensive income (loss) attributable to noncontrolling interests	\$ (56)	\$ (83)	\$ (106)
Add: Net income attributable to noncontrolling interests	63	90	192
Total comprehensive income	\$ 11,897	\$ 11,121	\$ 3,313

(1) See Note 1 to the Consolidated Financial Statements.

(2) Reflects adjustments based on the actuarial valuations of Citi's pension and postretirement plans, including changes in the mortality assumptions at December 31, 2014, and amortization of amounts previously recognized in *Accumulated other comprehensive income (loss)*. See Note 8 to the Consolidated Financial Statements.

The Notes to the Consolidated Financial Statements are an integral part of these Consolidated Financial Statements.

CONSOLIDATED BALANCE SHEET
Citigroup Inc. and Subsidiaries

<i>In millions of dollars</i>	December 31,	
	2016	2015
Assets		
Cash and due from banks	\$ 23,043	\$ 20,900
Deposits with banks	137,451	112,197
Federal funds sold and securities borrowed or purchased under agreements to resell (including \$133,204 and \$137,964 as of December 31, 2016 and December 31, 2015, respectively, at fair value)	236,813	219,675
Brokerage receivables	28,887	27,683
Trading account assets (including \$80,986 and \$92,123 pledged to creditors at December 31, 2016 and December 31, 2015, respectively)	243,925	241,215
Investments:		
Available for sale (including \$8,239 and \$10,698 pledged to creditors as of December 31, 2016 and December 31, 2015, respectively)	299,424	299,136
Held to maturity (including \$843 and \$3,630 pledged to creditors as of December 31, 2016 and December 31, 2015, respectively)	45,667	36,215
Non-marketable equity securities (including \$1,774 and \$2,088 at fair value as of December 31, 2016 and December 31, 2015, respectively)	8,213	7,604
Total investments	\$ 353,304	\$ 342,955
Loans:		
Consumer (including \$29 and \$34 as of December 31, 2016 and December 31, 2015, respectively, at fair value)	325,063	325,454
Corporate (including \$3,457 and \$4,971 as of December 31, 2016 and December 31, 2015, respectively, at fair value)	299,306	292,163
Loans, net of unearned income	\$ 624,369	\$ 617,617
Allowance for loan losses	(12,060)	(12,626)
Total loans, net	\$ 612,309	\$ 604,991
Goodwill	21,659	22,349
Intangible assets (other than MSRs)	5,114	3,721
Mortgage servicing rights (MSRs)	1,564	1,781
Other assets (including \$15,729 and \$14,862 as of December 31, 2016 and December 31, 2015, respectively, at fair value)	128,008	133,743
Total assets	\$ 1,792,077	\$ 1,731,210

The following table presents certain assets of consolidated variable interest entities (VIEs), which are included in the Consolidated Balance Sheet above. The assets in the table below include those assets that can only be used to settle obligations of consolidated VIEs, presented on the following page, and are in excess of those obligations. Additionally, the assets in the table below include third-party assets of consolidated VIEs only and exclude intercompany balances that eliminate in consolidation.

<i>In millions of dollars</i>	December 31,	
	2016	2015
Assets of consolidated VIEs to be used to settle obligations of consolidated VIEs		
Cash and due from banks	\$ 142	\$ 153
Trading account assets	602	583
Investments	3,636	5,263
Loans, net of unearned income		
Consumer	53,401	58,772
Corporate	20,121	22,008
Loans, net of unearned income	\$ 73,522	\$ 80,780
Allowance for loan losses	(1,769)	(2,135)
Total loans, net	\$ 71,753	\$ 78,645
Other assets	158	150
Total assets of consolidated VIEs to be used to settle obligations of consolidated VIEs	\$ 76,291	\$ 84,794

Statement continues on the next page.

CONSOLIDATED BALANCE SHEET
(Continued)

Citigroup Inc. and Subsidiaries

<i>In millions of dollars, except shares and per share amounts</i>	December 31,	
	2016	2015
Liabilities		
Non-interest-bearing deposits in U.S. offices	\$ 136,698	\$ 139,249
Interest-bearing deposits in U.S. offices (including \$434 and \$923 as of December 31, 2016 and December 31, 2015, respectively, at fair value)	300,972	280,234
Non-interest-bearing deposits in offices outside the U.S.	77,616	71,577
Interest-bearing deposits in offices outside the U.S. (including \$778 and \$667 as of December 31, 2016 and December 31, 2015, respectively, at fair value)	414,120	416,827
Total deposits	\$ 929,406	\$ 907,887
Federal funds purchased and securities loaned or sold under agreements to repurchase (including \$33,663 and \$36,843 as of December 31, 2016 and December 31, 2015, respectively, at fair value)	141,821	146,496
Brokerage payables	57,152	53,722
Trading account liabilities	139,045	117,512
Short-term borrowings (including \$2,700 and \$1,207 as of December 31, 2016 and December 31, 2015, respectively, at fair value)	30,701	21,079
Long-term debt (including \$26,254 and \$25,293 as of December 31, 2016 and December 31, 2015, respectively, at fair value)	206,178	201,275
Other liabilities (including \$10,796 and \$10,365 as of December 31, 2016 and December 31, 2015, respectively, at fair value)	61,631	60,147
Total liabilities	\$ 1,565,934	\$ 1,508,118
Stockholders' equity		
Preferred stock (\$1.00 par value; authorized shares: 30 million), issued shares: 770,120 as of December 31, 2016 and 668,720 as of December 31, 2015, at aggregate liquidation value	\$ 19,253	\$ 16,718
Common stock (\$0.01 par value; authorized shares: 6 billion), issued shares: 3,099,482,042 as of December 31, 2016 and December 31, 2015	31	31
Additional paid-in capital	108,042	108,288
Retained earnings	146,477	133,841
Treasury stock, at cost: December 31, 2016—327,090,192 shares and December 31, 2015—146,203,311 shares	(16,302)	(7,677)
Accumulated other comprehensive income (loss)	(32,381)	(29,344)
Total Citigroup stockholders' equity	\$ 225,120	\$ 221,857
Noncontrolling interest	1,023	1,235
Total equity	\$ 226,143	\$ 223,092
Total liabilities and equity	\$ 1,792,077	\$ 1,731,210

The following table presents certain liabilities of consolidated VIEs, which are included in the Consolidated Balance Sheet above. The liabilities in the table below include third-party liabilities of consolidated VIEs only and exclude intercompany balances that eliminate in consolidation. The liabilities also exclude amounts where creditors or beneficial interest holders have recourse to the general credit of Citigroup.

<i>In millions of dollars</i>	December 31,	
	2016	2015
Liabilities of consolidated VIEs for which creditors or beneficial interest holders do not have recourse to the general credit of Citigroup		
Short-term borrowings	\$ 10,697	\$ 11,965
Long-term debt	23,919	31,273
Other liabilities	1,275	2,099
Total liabilities of consolidated VIEs for which creditors or beneficial interest holders do not have recourse to the general credit of Citigroup	\$ 35,891	\$ 45,337

The Notes to the Consolidated Financial Statements are an integral part of these Consolidated Financial Statements.

CONSOLIDATED STATEMENT OF CHANGES IN STOCKHOLDERS' EQUITY
Citigroup Inc. and Subsidiaries

	Years ended December 31,					
	Amounts			Shares		
	2016	2015	2014	2016	2015	2014
<i>In millions of dollars, except shares in thousands</i>						
Preferred stock at aggregate liquidation value						
Balance, beginning of year	\$ 16,718	\$ 10,468	\$ 6,738	669	419	270
Issuance of new preferred stock	2,535	6,250	3,730	101	250	149
Balance, end of period	\$ 19,253	\$ 16,718	\$ 10,468	770	669	419
Common stock and additional paid-in capital						
Balance, beginning of year	\$ 108,319	\$ 108,010	\$ 107,224	3,099,482	3,082,038	3,062,099
Employee benefit plans	(251)	357	798	—	17,438	19,928
Preferred stock issuance expense	(37)	(23)	(31)	—	—	—
Other	42	(25)	19	—	6	11
Balance, end of period	\$ 108,073	\$ 108,319	\$ 108,010	3,099,482	3,099,482	3,082,038
Retained earnings						
Balance, beginning of year	\$ 133,841	\$ 117,852	\$ 110,821			
Adjustment to opening balance, net of taxes ⁽¹⁾	15	—	—			
Adjusted balance, beginning of period	\$ 133,856	\$ 117,852	\$ 110,821			
Citigroup's net income	14,912	17,242	7,310			
Common dividends ⁽²⁾	(1,214)	(484)	(122)			
Preferred dividends	(1,077)	(769)	(511)			
Tax benefit	—	—	353			
Other	—	—	1			
Balance, end of period	\$ 146,477	\$ 133,841	\$ 117,852			
Treasury stock, at cost						
Balance, beginning of year	\$ (7,677)	\$ (2,929)	\$ (1,658)	(146,203)	(58,119)	(32,856)
Employee benefit plans ⁽³⁾	826	704	(39)	14,256	13,318	(483)
Treasury stock acquired ⁽⁴⁾	(9,451)	(5,452)	(1,232)	(195,143)	(101,402)	(24,780)
Balance, end of period	\$ (16,302)	\$ (7,677)	\$ (2,929)	(327,090)	(146,203)	(58,119)
Citigroup's accumulated other comprehensive income (loss)						
Balance, beginning of year	\$ (29,344)	\$ (23,216)	\$ (19,133)			
Adjustment to opening balance, net of taxes ⁽¹⁾	(15)	—	—			
Adjusted balance, beginning of period	\$ (29,359)	\$ (23,216)	\$ (19,133)			
Citigroup's total other comprehensive income (loss)	(3,022)	(6,128)	(4,083)			
Balance, end of period	\$ (32,381)	\$ (29,344)	\$ (23,216)			
Total Citigroup common stockholders' equity	\$ 205,867	\$ 205,139	\$ 199,717	2,772,392	2,953,279	3,023,919
Total Citigroup stockholders' equity	\$ 225,120	\$ 221,857	\$ 210,185			
Noncontrolling interests						
Balance, beginning of year	\$ 1,235	\$ 1,511	\$ 1,794			
Transactions between noncontrolling-interest shareholders and the related consolidated subsidiary	(11)	—	—			
Transactions between Citigroup and the noncontrolling-interest shareholders	(130)	(164)	(96)			
Net income attributable to noncontrolling-interest shareholders	63	90	192			
Dividends paid to noncontrolling-interest shareholders	(42)	(78)	(91)			
Other comprehensive income (loss) attributable to noncontrolling-interest shareholders	(56)	(83)	(106)			
Other	(36)	(41)	(182)			
Net change in noncontrolling interests	\$ (212)	\$ (276)	\$ (283)			
Balance, end of period	\$ 1,023	\$ 1,235	\$ 1,511			
Total equity	\$ 226,143	\$ 223,092	\$ 211,696			

- (1) Accounting reflects the early adoption of the provisions of ASU 2016-01 relating to Citi's debt valuation adjustments (DVA) for liabilities for which the fair value adoption was elected. See Note 1 to the Consolidated Financial Statements.
- (2) Common dividends declared were \$0.05 per share in the first and second quarters and \$0.16 per share in the third and fourth quarters of 2016; \$0.01 per share in the first quarter and \$0.05 in the second, third and fourth quarters of 2015; and \$0.01 per share in each quarter of 2014.
- (3) Includes treasury stock related to (i) certain activity on employee stock option program exercises, where the employee delivers existing shares to cover the option exercise, or (ii) under Citi's employee-restricted or deferred-stock programs, where shares are withheld to satisfy tax requirements.
- (4) For 2016, 2015 and 2014, primarily consists of open market purchases under Citi's Board of Directors-approved common stock repurchase program.

The Notes to the Consolidated Financial Statements are an integral part of these Consolidated Financial Statements.

CONSOLIDATED STATEMENT OF CASH FLOWS
Citigroup Inc. and Subsidiaries

<i>In millions of dollars</i>	Years ended December 31,		
	2016	2015	2014
Cash flows from operating activities of continuing operations			
Net income before attribution of noncontrolling interests	\$ 14,975	\$ 17,332	\$ 7,502
Net income attributable to noncontrolling interests	63	90	192
Citigroup's net income	\$ 14,912	\$ 17,242	\$ 7,310
Loss from discontinued operations, net of taxes	(58)	(54)	(2)
Income from continuing operations—excluding noncontrolling interests	\$ 14,970	\$ 17,296	\$ 7,312
Adjustments to reconcile net income to net cash provided by operating activities of continuing operations			
Gains on significant disposals ⁽¹⁾	(404)	(3,210)	(452)
Amortization of deferred policy acquisition costs and present value of future profits	33	191	210
Additions to deferred policy acquisition costs	(41)	(62)	(64)
Depreciation and amortization	3,720	3,506	3,589
Deferred tax provision	1,459	2,794	3,347
Provision for loan losses	6,749	7,108	6,828
Realized gains from sales of investments	(948)	(682)	(570)
Net impairment losses on investments, goodwill and intangible assets	621	318	426
Change in trading account assets	(2,710)	46,830	(10,858)
Change in trading account liabilities	21,533	(21,524)	30,274
Change in brokerage receivables, net of brokerage payables	2,226	2,278	(4,272)
Change in loans held-for-sale (HFS)	6,603	(7,207)	(1,144)
Change in other assets	(6,859)	(32)	(1,690)
Change in other liabilities	(28)	(1,135)	7,973
Other, net	7,008	(6,732)	5,434
Total adjustments	\$ 38,962	\$ 22,441	\$ 39,031
Net cash provided by operating activities of continuing operations	\$ 53,932	\$ 39,737	\$ 46,343
Cash flows from investing activities of continuing operations			
Change in deposits with banks	\$ (25,311)	\$ 15,488	\$ 40,916
Change in federal funds sold and securities borrowed or purchased under agreements to resell	(17,138)	22,895	14,467
Change in loans	(39,761)	1,353	1,170
Proceeds from sales and securitizations of loans	18,140	9,610	4,752
Purchases of investments	(211,402)	(242,362)	(258,992)
Proceeds from sales of investments ⁽²⁾	132,183	141,470	135,824
Proceeds from maturities of investments	65,525	82,047	94,117
Proceeds from significant disposals ⁽¹⁾	265	5,932	346
Payments due to transfers of net liabilities associated with significant disposals ⁽¹⁾⁽³⁾	—	(18,929)	(1,255)
Capital expenditures on premises and equipment and capitalized software	(2,756)	(3,198)	(3,386)
Proceeds from sales of premises and equipment, subsidiaries and affiliates, and repossessed assets	667	577	623
Net cash provided by (used in) investing activities of continuing operations	\$ (79,588)	\$ 14,883	\$ 28,582
Cash flows from financing activities of continuing operations			
Dividends paid	\$ (2,287)	\$ (1,253)	\$ (633)
Issuance of preferred stock	2,498	6,227	3,699
Treasury stock acquired	(9,290)	(5,452)	(1,232)
Stock tendered for payment of withholding taxes	(316)	(428)	(508)
Change in federal funds purchased and securities loaned or sold under agreements to repurchase	(4,675)	(26,942)	(30,074)
Issuance of long-term debt	63,806	44,619	66,836
Payments and redemptions of long-term debt	(55,460)	(52,843)	(58,923)

Change in deposits	24,394	8,555	(48,336)
Change in short-term borrowings	9,622	(37,256)	(1,099)
Net cash provided by (used in) financing activities of continuing operations	\$ 28,292	\$ (64,773)	\$ (70,270)
Effect of exchange rate changes on cash and cash equivalents	\$ (493)	\$ (1,055)	\$ (2,432)
Change in cash and due from banks	\$ 2,143	\$ (11,208)	\$ 2,223
Cash and due from banks at beginning of period	20,900	32,108	29,885
Cash and due from banks at end of period	\$ 23,043	\$ 20,900	\$ 32,108
Supplemental disclosure of cash flow information for continuing operations			
Cash paid during the year for income taxes	\$ 4,359	\$ 4,978	\$ 4,632
Cash paid during the year for interest	12,067	12,031	14,001
Non-cash investing activities			
Change in loans due to consolidation/deconsolidation of VIEs	\$ —	\$ —	\$ (374)
Decrease in net loans associated with significant disposals reclassified to HFS	—	(9,063)	—
Decrease in investments associated with significant disposals reclassified to HFS	—	(1,402)	—
Decrease in goodwill and intangible assets associated with significant disposals reclassified to HFS	—	(223)	—
Decrease in deposits associated with banks with significant disposals reclassified to HFS	—	(404)	—
Transfers to loans HFS from loans	13,900	28,600	15,100
Transfers to OREO and other repossessed assets	165	276	321
Non-cash financing activities			
Decrease in long-term debt associated with significant disposals reclassified to HFS	\$ —	\$ (4,673)	\$ —
Decrease in deposits associated with reclassification to HFS	—	—	(20,605)
Increase in short-term borrowings due to consolidation of VIEs	—	—	500
Decrease in long-term debt due to deconsolidation of VIEs	—	—	(864)

- (1) See Note 1 to the Consolidated Financial Statements for the adoption of ASU No. 2014-08 in the second quarter of 2014 and Note 2 for further information on significant disposals.
- (2) Proceeds for 2016 include approximately \$3.3 billion from the sale of Citi's investment in China Guangfa Bank.
- (3) The payments associated with significant disposals result primarily from the sale of deposit liabilities.

The Notes to the Consolidated Financial Statements are an integral part of these Consolidated Financial Statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Throughout these Notes, “Citigroup,” “Citi” and the “Company” refer to Citigroup Inc. and its consolidated subsidiaries.

Certain reclassifications have been made to the prior periods’ financial statements and Notes to conform to the current period’s presentation.

Principles of Consolidation

The Consolidated Financial Statements include the accounts of Citigroup and its subsidiaries prepared in accordance with U.S. Generally Accepted Accounting Principles (GAAP). The Company consolidates subsidiaries in which it holds, directly or indirectly, more than 50% of the voting rights or where it exercises control. Entities where the Company holds 20% to 50% of the voting rights and/or has the ability to exercise significant influence, other than investments of designated venture capital subsidiaries or investments accounted for at fair value under the fair value option, are accounted for under the equity method, and the pro rata share of their income (loss) is included in *Other revenue*. Income from investments in less-than-20%-owned companies is recognized when dividends are received. As discussed in more detail in Note 21 to the Consolidated Financial Statements, Citigroup also consolidates entities deemed to be variable interest entities when Citigroup is determined to be the primary beneficiary. Gains and losses on the disposition of branches, subsidiaries, affiliates, buildings and other investments are included in *Other revenue*.

Citibank

Citibank, N.A. (Citibank) is a commercial bank and wholly owned subsidiary of Citigroup. Citibank’s principal offerings include consumer finance, mortgage lending and retail banking (including commercial banking) products and services; investment banking, cash management and trade finance; and private banking products and services.

Variable Interest Entities

An entity is a variable interest entity (VIE) if it meets the criteria outlined in Accounting Standards Codification (ASC) Topic 810, *Consolidation*, which are (i) the entity has equity that is insufficient to permit the entity to finance its activities without additional subordinated financial support from other parties; or (ii) the entity has equity investors that cannot make significant decisions about the entity’s operations or that do not absorb their proportionate share of the entity’s expected losses or expected returns.

The Company consolidates a VIE when it has both the power to direct the activities that most significantly impact the VIE’s economic performance and a right to receive benefits or the obligation to absorb losses of the entity that could be potentially significant to the VIE (that is, Citi is the primary beneficiary). In addition to variable interests held in

consolidated VIEs, the Company has variable interests in other VIEs that are not consolidated because the Company is not the primary beneficiary.

However, these VIEs and all other unconsolidated VIEs are monitored by the Company to assess whether any events have occurred to cause its primary beneficiary status to change.

All other entities not deemed to be VIEs with which the Company has involvement are evaluated for consolidation under other subtopics of ASC 810. See Note 21 to the Consolidated Financial Statements for more detailed information.

Foreign Currency Translation

Assets and liabilities of Citi’s foreign operations are translated from their respective functional currencies into U.S. dollars using period-end spot foreign exchange rates. The effects of those translation adjustments are reported in *Accumulated other comprehensive income (loss)*, a component of stockholders’ equity, along with any related hedge and tax effects, until realized upon sale or substantial liquidation of the foreign operation. Revenues and expenses of Citi’s foreign operations are translated monthly from their respective functional currencies into U.S. dollars at amounts that approximate weighted average exchange rates.

For transactions that are denominated in a currency other than the functional currency, including transactions denominated in the local currencies of foreign operations with the U.S. dollar as their functional currency, the effects of changes in exchange rates are primarily included in *Principal transactions*, along with the related effects of any economic hedges. Instruments used to hedge foreign currency exposures include foreign currency forward, option and swap contracts and in certain instances, designated issues of non-U.S. dollar debt. Foreign operations in countries with highly inflationary economies designate the U.S. dollar as their functional currency, with the effects of changes in exchange rates primarily included in *Other revenue*.

Investment Securities

Investments include fixed income and equity securities. Fixed income instruments include bonds, notes and redeemable preferred stocks, as well as certain loan-backed and structured securities that are subject to prepayment risk. Equity securities include common and nonredeemable preferred stock.

Investment securities are classified and accounted for as follows:

- Fixed income securities classified as “held-to-maturity” are securities that the Company has both the ability and the intent to hold until maturity and are carried at amortized cost. Interest income on such securities is included in *Interest revenue*.
- Fixed income securities and marketable equity securities classified as “available-for-sale” are carried at fair value with changes in fair value reported in *Accumulated*

other comprehensive income (loss), a component of stockholders' equity, net of applicable income taxes and hedges. Realized gains and losses on sales are included in income primarily on a specific identification cost basis. Interest and dividend income on such securities is included in *Interest revenue*.

- Certain investments in non-marketable equity securities and certain investments that would otherwise have been accounted for using the equity method are carried at fair value, since the Company has elected to apply fair value accounting. Changes in fair value of such investments are recorded in earnings.
- Certain non-marketable equity securities are carried at cost.

For investments in fixed income securities classified as held-to-maturity or available-for-sale, the accrual of interest income is suspended for investments that are in default or for which it is likely that future interest payments will not be made as scheduled.

Investment securities are subject to evaluation for other-than-temporary impairment as described in Note 13 to the Consolidated Financial Statements.

The Company uses a number of valuation techniques for investments carried at fair value, which are described in Note 24 to the Consolidated Financial Statements. Realized gains and losses on sales of investments are included in earnings.

Trading Account Assets and Liabilities

Trading account assets include debt and marketable equity securities, derivatives in a receivable position, residual interests in securitizations and physical commodities inventory. In addition, as described in Note 25 to the Consolidated Financial Statements, certain assets that Citigroup has elected to carry at fair value under the fair value option, such as loans and purchased guarantees, are also included in *Trading account assets*.

Trading account liabilities include securities sold, not yet purchased (short positions) and derivatives in a net payable position, as well as certain liabilities that Citigroup has elected to carry at fair value (as described in Note 25 to the Consolidated Financial Statements).

Other than physical commodities inventory, all trading account assets and liabilities are carried at fair value. Revenues generated from trading assets and trading liabilities are generally reported in *Principal transactions* and include realized gains and losses as well as unrealized gains and losses resulting from changes in the fair value of such instruments. Interest income on trading assets is recorded in *Interest revenue* reduced by interest expense on trading liabilities.

Physical commodities inventory is carried at the lower of cost or market with related losses reported in *Principal transactions*. Realized gains and losses on sales of commodities inventory are included in *Principal transactions*. Investments in unallocated precious metals accounts (gold, silver, platinum and palladium) are accounted for as hybrid instruments containing a debt host

contract and an embedded non-financial derivative instrument indexed to the price of the relevant precious metal. The embedded derivative instrument is separated from the debt host contract and accounted for at fair value. The debt host contract is accounted for at fair value under the fair value option, as described in Note 26 to the Consolidated Financial Statements.

Derivatives used for trading purposes include interest rate, currency, equity, credit, and commodity swap agreements, options, caps and floors, warrants, and financial and commodity futures and forward contracts. Derivative asset and liability positions are presented net by counterparty on the Consolidated Balance Sheet when a valid master netting agreement exists and the other conditions set out in ASC 210-20, *Balance Sheet—Offsetting*, are met. See Note 22 to the Consolidated Financial Statements.

The Company uses a number of techniques to determine the fair value of trading assets and liabilities, which are described in Note 24 to the Consolidated Financial Statements.

Securities Borrowed and Securities Loaned

Securities borrowing and lending transactions do not constitute a sale of the underlying securities for accounting purposes and are treated as collateralized financing transactions. Such transactions are recorded at the amount of proceeds advanced or received plus accrued interest. As described in Note 25 to the Consolidated Financial Statements, the Company has elected to apply fair value accounting to a number of securities borrowing and lending transactions. Fees paid or received for all securities lending and borrowing transactions are recorded in *Interest expense* or *Interest revenue* at the contractually specified rate.

The Company monitors the fair value of securities borrowed or loaned on a daily basis and obtains or posts additional collateral in order to maintain contractual margin protection.

As described in Note 24 to the Consolidated Financial Statements, the Company uses a discounted cash flow technique to determine the fair value of securities lending and borrowing transactions.

Repurchase and Resale Agreements

Securities sold under agreements to repurchase (repos) and securities purchased under agreements to resell (reverse repos) do not constitute a sale (or purchase) of the underlying securities for accounting purposes and are treated as collateralized financing transactions. As described in Note 25 to the Consolidated Financial Statements, the Company has elected to apply fair value accounting to the majority of such transactions, with changes in fair value reported in earnings. Any transactions for which fair value accounting has not been elected are recorded at the amount of cash advanced or received plus accrued interest. Irrespective of whether the Company has elected fair value accounting, interest paid or received on all repo and reverse repo transactions is recorded in *Interest expense* or *Interest revenue* at the contractually specified rate.

Where the conditions of ASC 210-20-45-11, *Balance Sheet-Offsetting: Repurchase and Reverse Repurchase Agreements*, are met, repos and reverse repos are presented net on the Consolidated Balance Sheet.

The Company's policy is to take possession of securities purchased under reverse repurchase agreements. The Company monitors the fair value of securities subject to repurchase or resale on a daily basis and obtains or posts additional collateral in order to maintain contractual margin protection.

As described in Note 24 to the Consolidated Financial Statements, the Company uses a discounted cash flow technique to determine the fair value of repo and reverse repo transactions.

Loans

Loans are reported at their outstanding principal balances net of any unearned income and unamortized deferred fees and costs except that credit card receivable balances also include accrued interest and fees. Loan origination fees and certain direct origination costs are generally deferred and recognized as adjustments to income over the lives of the related loans.

As described in Note 25 to the Consolidated Financial Statements, Citi has elected fair value accounting for certain loans. Such loans are carried at fair value with changes in fair value reported in earnings. Interest income on such loans is recorded in *Interest revenue* at the contractually specified rate.

Loans that are held-for-investment are classified as *Loans, net of unearned income* on the Consolidated Balance Sheet, and the related cash flows are included within the cash flows from investing activities category in the Consolidated Statement of Cash Flows on the line *Change in loans*. However, when the initial intent for holding a loan has changed from held-for-investment to held-for-sale, the loan is reclassified to held-for-sale, but the related cash flows continue to be reported in cash flows from investing activities in the Consolidated Statement of Cash Flows on the line *Proceeds from sales and securitizations of loans*.

Consumer Loans

Consumer loans represent loans and leases managed primarily by the *Global Consumer Banking (GCB)* businesses and *Corporate/Other*.

Consumer Non-accrual and Re-aging Policies

As a general rule, interest accrual ceases for installment and real estate (both open- and closed-end) loans when payments are 90 days contractually past due. For credit cards and other unsecured revolving loans, however, Citi generally accrues interest until payments are 180 days past due. As a result of OCC guidance, home equity loans in regulated bank entities are classified as non-accrual if the related residential first mortgage is 90 days or more past due. Also as a result of OCC guidance, mortgage loans in regulated bank entities discharged through Chapter 7 bankruptcy, other than FHA-insured loans, are classified as non-accrual. Commercial market loans are placed on a cash (non-accrual) basis when

it is determined, based on actual experience and a forward-looking assessment of the collectability of the loan in full, that the payment of interest or principal is doubtful or when interest or principal is 90 days past due.

Loans that have been modified to grant a concession to a borrower in financial difficulty may not be accruing interest at the time of the modification. The policy for returning such modified loans to accrual status varies by product and/or region. In most cases, a minimum number of payments (ranging from one to six) is required, while in other cases the loan is never returned to accrual status. For regulated bank entities, such modified loans are returned to accrual status if a credit evaluation at the time of, or subsequent to, the modification indicates the borrower is able to meet the restructured terms, and the borrower is current and has demonstrated a reasonable period of sustained payment performance (minimum six months of consecutive payments).

For U.S. consumer loans, generally one of the conditions to qualify for modification is that a minimum number of payments (typically ranging from one to three) must be made. Upon modification, the loan is re-aged to current status. However, re-aging practices for certain open-ended consumer loans, such as credit cards, are governed by Federal Financial Institutions Examination Council (FFIEC) guidelines. For open-ended consumer loans subject to FFIEC guidelines, one of the conditions for the loan to be re-aged to current status is that at least three consecutive minimum monthly payments, or the equivalent amount, must be received. In addition, under FFIEC guidelines, the number of times that such a loan can be re-aged is subject to limitations (generally once in 12 months and twice in five years). Furthermore, Federal Housing Administration (FHA) and Department of Veterans Affairs (VA) loans may only be modified under those respective agencies' guidelines and payments are not always required in order to re-age a modified loan to current.

Consumer Charge-Off Policies

Citi's charge-off policies follow the general guidelines below:

- Unsecured installment loans are charged off at 120 days contractually past due.
- Unsecured revolving loans and credit card loans are charged off at 180 days contractually past due.
- Loans secured with non-real estate collateral are written down to the estimated value of the collateral, less costs to sell, at 120 days contractually past due.
- Real estate-secured loans are written down to the estimated value of the property, less costs to sell, at 180 days contractually past due.
- Real estate-secured loans are charged off no later than 180 days contractually past due if a decision has been made not to foreclose on the loans.
- Non-bank real estate-secured loans are charged off at the earlier of 180 days contractually past due, if there have been no payments within the last six months, or

360 days contractually past due, if a decision has been made not to foreclose on the loans.

- Non-bank loans secured by real estate are written down to the estimated value of the property, less costs to sell, at the earlier of the receipt of title, the initiation of foreclosure (a process that generally commences when payments are 120 days contractually past due), when the loan is 180 days contractually past due if there have been no payments within the past six months, or 360 days contractually past due.
- Non-bank unsecured personal loans are charged off at the earlier of 180 days contractually past due if there have been no payments within the last six months, or 360 days contractually past due.
- Unsecured loans in bankruptcy are charged off within 60 days of notification of filing by the bankruptcy court or in accordance with Citi's charge-off policy, whichever occurs earlier.
- Real estate-secured loans that were discharged through Chapter 7 bankruptcy, other than FHA-insured loans, are written down to the estimated value of the property, less costs to sell. Other real estate-secured loans in bankruptcy are written down to the estimated value of the property, less costs to sell, at the later of 60 days after notification or 60 days contractually past due.
- Non-bank loans secured by real estate that are discharged through Chapter 7 bankruptcy are written down to the estimated value of the property, less costs to sell, at 60 days contractually past due.
- Non-bank unsecured personal loans in bankruptcy are charged off when they are 30 days contractually past due.
- Commercial market loans are written down to the extent that principal is judged to be uncollectable.

Corporate Loans

Corporate loans represent loans and leases managed by *Institutional Clients Group (ICG)*. Corporate loans are identified as impaired and placed on a cash (non-accrual) basis when it is determined, based on actual experience and a forward-looking assessment of the collectability of the loan in full, that the payment of interest or principal is doubtful or when interest or principal is 90 days past due, except when the loan is well collateralized and in the process of collection. Any interest accrued on impaired corporate loans and leases is reversed at 90 days past due and charged against current earnings, and interest is thereafter included in earnings only to the extent actually received in cash. When there is doubt regarding the ultimate collectability of principal, all cash receipts are thereafter applied to reduce the recorded investment in the loan.

Impaired corporate loans and leases are written down to the extent that principal is deemed to be uncollectable. Impaired collateral-dependent loans and leases, where repayment is expected to be provided solely by the sale of the underlying collateral and there are no other available and reliable sources of repayment, are written down to the lower of cost or collateral value. Cash-basis loans are returned to accrual status when all contractual principal and interest

amounts are reasonably assured of repayment and there is a sustained period of repayment performance in accordance with the contractual terms.

Loans Held-for-Sale

Corporate and consumer loans that have been identified for sale are classified as loans held-for-sale and included in *Other assets*. The practice of Citi's U.S. prime mortgage business has been to sell substantially all of its conforming loans. As such, U.S. prime mortgage conforming loans are classified as held-for-sale and the fair value option is elected at origination, with changes in fair value recorded in *Other revenue*. With the exception of those loans for which the fair value option has been elected, held-for-sale loans are accounted for at the lower of cost or market value, with any write-downs or subsequent recoveries charged to *Other revenue*. The related cash flows are classified in the Consolidated Statement of Cash Flows in the cash flows from operating activities category on the line *Change in loans held-for-sale*.

Allowance for Loan Losses

Allowance for loan losses represents management's best estimate of probable losses inherent in the portfolio, including probable losses related to large individually evaluated impaired loans and troubled debt restructurings. Attribution of the allowance is made for analytical purposes only, and the entire allowance is available to absorb probable loan losses inherent in the overall portfolio. Additions to the allowance are made through the *Provision for loan losses*. Loan losses are deducted from the allowance and subsequent recoveries are added. Assets received in exchange for loan claims in a restructuring are initially recorded at fair value, with any gain or loss reflected as a recovery or charge-off to the provision.

Consumer Loans

For consumer loans, each portfolio of non-modified smaller-balance homogeneous loans is independently evaluated for impairment by product type (e.g., residential mortgage, credit card, etc.) in accordance with ASC 450, *Contingencies*. The allowance for loan losses attributed to these loans is established via a process that estimates the probable losses inherent in the specific portfolio. This process includes migration analysis, in which historical delinquency and credit loss experience is applied to the current aging of the portfolio, together with analyses that reflect current and anticipated economic conditions, including changes in housing prices and unemployment trends. Citi's allowance for loan losses under ASC 450 only considers contractual principal amounts due, except for credit card loans where estimated loss amounts related to accrued interest receivable are also included.

Management also considers overall portfolio indicators, including historical credit losses, delinquent, non-performing and classified loans, trends in volumes and terms of loans, an evaluation of overall credit quality, the credit process, including lending policies and procedures, and economic, geographical, product and other environmental factors.

Separate valuation allowances are determined for impaired smaller-balance homogeneous loans whose terms have been modified in a troubled debt restructuring (TDR). Long-term modification programs, and short-term (less than 12 months) modifications that provide concessions (such as interest rate reductions) to borrowers in financial difficulty, are reported as TDRs. In addition, loan modifications that involve a trial period are reported as TDRs at the start of the trial period. The allowance for loan losses for TDRs is determined in accordance with ASC 310-10-35, *Receivables—Subsequent Measurement* (formerly SFAS 114) considering all available evidence, including, as appropriate, the present value of the expected future cash flows discounted at the loan's original contractual effective rate, the secondary market value of the loan and the fair value of collateral less disposal costs. These expected cash flows incorporate modification program default rate assumptions. The original contractual effective rate for credit card loans is the pre-modification rate, which may include interest rate increases under the original contractual agreement with the borrower.

Valuation allowances for commercial market loans, which are classifiably managed consumer loans, are determined in the same manner as for corporate loans and are described in more detail in the following section. Generally, an asset-specific component is calculated under ASC 310-10-35 on an individual basis for larger-balance, non-homogeneous loans that are considered impaired and the allowance for the remainder of the classifiably managed consumer loan portfolio is calculated under ASC 450 using a statistical methodology that may be supplemented by management adjustment.

Corporate Loans

In the corporate portfolios, the *Allowance for loan losses* includes an asset-specific component and a statistically based component. The asset-specific component is calculated under ASC 310-10-35, on an individual basis for larger-balance, non-homogeneous loans, which are considered impaired. An asset-specific allowance is established when the discounted cash flows, collateral value (less disposal costs) or observable market price of the impaired loan are lower than its carrying value. This allowance considers the borrower's overall financial condition, resources, and payment record, the prospects for support from any financially responsible guarantors (discussed further below) and, if appropriate, the realizable value of any collateral. The asset-specific component of the allowance for smaller balance impaired loans is calculated on a pool basis considering historical loss experience.

The allowance for the remainder of the loan portfolio is determined under ASC 450 using a statistical methodology, supplemented by management judgment. The statistical analysis considers the portfolio's size, remaining tenor and credit quality as measured by internal risk ratings assigned to individual credit facilities, which reflect probability of default and loss given default. The statistical analysis considers historical default rates and historical loss severity in the event of default, including historical average levels

and historical variability. The result is an estimated range for inherent losses. The best estimate within the range is then determined by management's quantitative and qualitative assessment of current conditions, including general economic conditions, specific industry and geographic trends, and internal factors including portfolio concentrations, trends in internal credit quality indicators, and current and past underwriting standards.

For both the asset-specific and the statistically based components of the *Allowance for loan losses*, management may incorporate guarantor support. The financial wherewithal of the guarantor is evaluated, as applicable, based on net worth, cash flow statements and personal or company financial statements which are updated and reviewed at least annually. Citi seeks performance on guarantee arrangements in the normal course of business. Seeking performance entails obtaining satisfactory cooperation from the guarantor or borrower in the specific situation. This regular cooperation is indicative of pursuit and successful enforcement of the guarantee; the exposure is reduced without the expense and burden of pursuing a legal remedy. A guarantor's reputation and willingness to work with Citigroup is evaluated based on the historical experience with the guarantor and the knowledge of the marketplace. In the rare event that the guarantor is unwilling or unable to perform or facilitate borrower cooperation, Citi pursues a legal remedy; however, enforcing a guarantee via legal action against the guarantor is not the primary means of resolving a troubled loan situation and rarely occurs. If Citi does not pursue a legal remedy, it is because Citi does not believe that the guarantor has the financial wherewithal to perform regardless of legal action or because there are legal limitations on simultaneously pursuing guarantors and foreclosure. A guarantor's reputation does not impact Citi's decision or ability to seek performance under the guarantee.

In cases where a guarantee is a factor in the assessment of loan losses, it is included via adjustment to the loan's internal risk rating, which in turn is the basis for the adjustment to the statistically based component of the *Allowance for loan losses*. To date, it is only in rare circumstances that an impaired commercial loan or commercial real estate loan is carried at a value in excess of the appraised value due to a guarantee.

When Citi's monitoring of the loan indicates that the guarantor's wherewithal to pay is uncertain or has deteriorated, there is either no change in the risk rating, because the guarantor's credit support was never initially factored in, or the risk rating is adjusted to reflect that uncertainty or deterioration. Accordingly, a guarantor's ultimate failure to perform or a lack of legal enforcement of the guarantee does not materially impact the allowance for loan losses, as there is typically no further significant adjustment of the loan's risk rating at that time. Where Citi is not seeking performance under the guarantee contract, it provides for loan losses as if the loans were non-performing and not guaranteed.

Reserve Estimates and Policies

Management provides reserves for an estimate of probable losses inherent in the funded loan portfolio on the Consolidated Balance Sheet in the form of an allowance for loan losses. These reserves are established in accordance with Citigroup's credit reserve policies, as approved by the Audit Committee of the Citigroup Board of Directors. Citi's Chief Risk Officer and Chief Financial Officer review the adequacy of the credit loss reserves each quarter with representatives from the risk management and finance staffs for each applicable business area. Applicable business areas include those having classifiably managed portfolios, where internal credit-risk ratings are assigned (primarily *ICG* and *GCB*) or modified consumer loans, where concessions were granted due to the borrowers' financial difficulties.

The above-mentioned representatives for these business areas present recommended reserve balances for their funded and unfunded lending portfolios along with supporting quantitative and qualitative data discussed below:

Estimated probable losses for non-performing, non-homogeneous exposures within a business line's classifiably managed portfolio and impaired smaller-balance homogeneous loans whose terms have been modified due to the borrowers' financial difficulties, where it was determined that a concession was granted to the borrower.

Consideration may be given to the following, as appropriate, when determining this estimate: (i) the present value of expected future cash flows discounted at the loan's original effective rate; (ii) the borrower's overall financial condition, resources and payment record; and (iii) the prospects for support from financially responsible guarantors or the realizable value of any collateral. In the determination of the allowance for loan losses for TDRs, management considers a combination of historical re-default rates, the current economic environment and the nature of the modification program when forecasting expected cash flows. When impairment is measured based on the present value of expected future cash flows, the entire change in present value is recorded in the *Provision for loan losses*.

Statistically calculated losses inherent in the classifiably managed portfolio for performing and de minimis non-performing exposures. The calculation is based on (i) Citi's internal system of credit-risk ratings, which are analogous to the risk ratings of the major rating agencies; and (ii) historical default and loss data, including rating agency information regarding default rates from 1983 to 2015 and internal data dating to the early 1970s on severity of losses in the event of default. Adjustments may be made to this data. Such adjustments include (i) statistically calculated estimates to cover the historical fluctuation of the default rates over the credit cycle, the historical variability of loss severity among defaulted loans, and the degree to which there are large obligor concentrations in the global portfolio; and (ii) adjustments made for specific known items, such as current environmental factors and credit trends.

In addition, representatives from each of the risk management and finance staffs that cover business areas

with delinquency-managed portfolios containing smaller-balance homogeneous loans present their recommended reserve balances based on leading credit indicators, including loan delinquencies and changes in portfolio size as well as economic trends, including current and future housing prices, unemployment, length of time in foreclosure, costs to sell and GDP. This methodology is applied separately for each individual product within each geographic region in which these portfolios exist.

This evaluation process is subject to numerous estimates and judgments. The frequency of default, risk ratings, loss recovery rates, the size and diversity of individual large credits, and the ability of borrowers with foreign currency obligations to obtain the foreign currency necessary for orderly debt servicing, among other things, are all taken into account during this review. Changes in these estimates could have a direct impact on the credit costs in any period and could result in a change in the allowance.

Allowance for Unfunded Lending Commitments

A similar approach to the allowance for loan losses is used for calculating a reserve for the expected losses related to unfunded lending commitments and standby letters of credit. This reserve is classified on the balance sheet in *Other liabilities*. Changes to the allowance for unfunded lending commitments are recorded in the *Provision for unfunded lending commitments*.

Mortgage Servicing Rights

Mortgage servicing rights (MSRs) are recognized as intangible assets when purchased or when the Company sells or securitizes loans acquired through purchase or origination and retains the right to service the loans. Mortgage servicing rights are accounted for at fair value, with changes in value recorded in *Other revenue* in the Company's Consolidated Statement of Income.

For additional information on the Company's MSRs, see Notes 16, 21 and 29 to the Consolidated Financial Statements.

Goodwill

Goodwill represents the excess of acquisition cost over the fair value of net tangible and intangible assets acquired in a business combination. Goodwill is subject to annual impairment testing and between annual tests if an event occurs or circumstances change that would more-likely-than-not reduce the fair value of a reporting unit below its carrying amount.

Under ASC 350, *Intangibles—Goodwill and Other*, the Company has an option to assess qualitative factors to determine if it is necessary to perform the goodwill impairment test. If, after assessing the totality of events or circumstances, the Company determines that it is not more-likely-than-not that the fair value of a reporting unit is less than its carrying amount, no further testing is necessary. If, however, the Company determines that it is more-likely-than-not that the fair value of a reporting unit is less than its carrying amount, then the Company must perform the first step of the two-step goodwill impairment test.

The Company has an unconditional option to bypass the qualitative assessment for any reporting unit in any reporting period and proceed directly to the first step of the goodwill impairment test.

The first step requires a comparison of the fair value of the individual reporting unit to its carrying value, including goodwill. If the fair value of the reporting unit is in excess of the carrying value, the related goodwill is considered not impaired and no further analysis is necessary. If the carrying value of the reporting unit exceeds the fair value, this is an indication of potential impairment and a second step of testing is performed to measure the amount of impairment, if any, for that reporting unit.

If required, the second step involves calculating the implied fair value of goodwill for each of the affected reporting units. The implied fair value of goodwill is determined in the same manner as the amount of goodwill recognized in a business combination, which is the excess of the fair value of the reporting unit determined in step one over the fair value of the net assets and identifiable intangibles as if the reporting unit were being acquired. If the amount of the goodwill allocated to the reporting unit exceeds the implied fair value of the goodwill in the pro forma purchase price allocation, an impairment charge is recorded for the excess. A recognized impairment charge cannot exceed the amount of goodwill allocated to a reporting unit and cannot subsequently be reversed even if the fair value of the reporting unit recovers.

Furthermore, on any business dispositions, goodwill is allocated to the disposed business based on the ratio of the fair value of the disposed business to the fair value of the reporting unit.

Additional information on Citi's goodwill impairment testing can be found in Note 16 to the Consolidated Financial Statements.

Intangible Assets

Intangible assets, including core deposit intangibles, present value of future profits, purchased credit card relationships, credit card contract related intangibles, other customer relationships, and other intangible assets, but excluding MSRs, are amortized over their estimated useful lives. Intangible assets deemed to have indefinite useful lives, primarily certain asset management contracts and trade names, are not amortized and are subject to annual impairment tests. An impairment exists if the carrying value of the indefinite-lived intangible asset exceeds its fair value. For other intangible assets subject to amortization, an impairment is recognized if the carrying amount is not recoverable and exceeds the fair value of the intangible asset.

Other Assets and Other Liabilities

Other assets include, among other items, loans held-for-sale, deferred tax assets, equity method investments, interest and fees receivable, premises and equipment (including purchased and developed software), repossessed assets, and other receivables. *Other liabilities* include, among other items, accrued expenses and other payables, deferred tax

liabilities, and reserves for legal claims, taxes, unfunded lending commitments, repositioning reserves, and other matters.

Other Real Estate Owned and Repossessed Assets

Real estate or other assets received through foreclosure or repossession are generally reported in *Other assets*, net of a valuation allowance for selling costs and subsequent declines in fair value.

Securitizations

There are two key accounting determinations that must be made relating to securitizations. Citi first makes a determination as to whether the securitization entity must be consolidated. Second, it determines whether the transfer of financial assets to the entity is considered a sale under GAAP. If the securitization entity is a VIE, the Company consolidates the VIE if it is the primary beneficiary (as discussed in "Variable Interest Entities" above). For all other securitization entities determined not to be VIEs in which Citigroup participates, consolidation is based on which party has voting control of the entity, giving consideration to removal and liquidation rights in certain partnership structures. Only securitization entities controlled by Citigroup are consolidated.

Interests in the securitized and sold assets may be retained in the form of subordinated or senior interest-only strips, subordinated tranches, spread accounts and servicing rights. In credit card securitizations, the Company retains a seller's interest in the credit card receivables transferred to the trusts, which is not in securitized form. In the case of consolidated securitization entities, including the credit card trusts, these retained interests are not reported on Citi's Consolidated Balance Sheet. The securitized loans remain on the balance sheet. Substantially all of the consumer loans sold or securitized through non-consolidated trusts by Citigroup are U.S. prime residential mortgage loans. Retained interests in non-consolidated mortgage securitization trusts are classified as *Trading account assets*, except for MSRs, which are included in *Mortgage servicing rights* on Citigroup's Consolidated Balance Sheet.

Debt

Short-term borrowings and *Long-term debt* are accounted for at amortized cost, except where the Company has elected to report the debt instruments, including certain structured notes at fair value, or the debt is in a fair value hedging relationship.

Transfers of Financial Assets

For a transfer of financial assets to be considered a sale: (i) the assets must have been legally isolated from the Company, even in bankruptcy or other receivership; (ii) the purchaser must have the right to pledge or sell the assets transferred or, if the purchaser is an entity whose sole purpose is to engage in securitization and asset-backed financing activities through the issuance of beneficial interests and that entity is constrained from pledging the assets it receives, each beneficial interest holder must have

the right to sell or pledge their beneficial interests; and (iii) the Company may not have an option or obligation to reacquire the assets.

If these sale requirements are met, the assets are removed from the Company's Consolidated Balance Sheet. If the conditions for sale are not met, the transfer is considered to be a secured borrowing, the assets remain on the Consolidated Balance Sheet and the sale proceeds are recognized as the Company's liability. A legal opinion on a sale generally is obtained for complex transactions or where the Company has continuing involvement with assets transferred or with the securitization entity. For a transfer to be eligible for sale accounting, those opinions must state that the asset transfer would be considered a sale and that the assets transferred would not be consolidated with the Company's other assets in the event of the Company's insolvency.

For a transfer of a portion of a financial asset to be considered a sale, the portion transferred must meet the definition of a participating interest. A participating interest must represent a pro rata ownership in an entire financial asset; all cash flows must be divided proportionately, with the same priority of payment; no participating interest in the transferred asset may be subordinated to the interest of another participating interest holder; and no party may have the right to pledge or exchange the entire financial asset unless all participating interest holders agree. Otherwise, the transfer is accounted for as a secured borrowing.

See Note 21 to the Consolidated Financial Statements for further discussion.

Risk Management Activities—Derivatives Used for Hedging Purposes

The Company manages its exposures to market rate movements outside of its trading activities by modifying the asset and liability mix, either directly or through the use of derivative financial products, including interest-rate swaps, futures, forwards, and purchased options, as well as foreign-exchange contracts. These end-user derivatives are carried at fair value in *Other assets*, *Other liabilities*, *Trading account assets* and *Trading account liabilities*.

See Note 22 to the Consolidated Financial Statements for a further discussion of the Company's hedging and derivative activities.

Employee Benefits Expense

Employee benefits expense includes current service costs of pension and other postretirement benefit plans (which are accrued on a current basis), contributions and unrestricted awards under other employee plans, the amortization of restricted stock awards and costs of other employee benefits. For its most significant pension and postretirement benefit plans (Significant Plans), Citigroup measures and discloses plan obligations, plan assets and periodic plan expense quarterly, instead of annually. The effect of rereasuring the Significant Plan obligations and assets by updating plan actuarial assumptions on a quarterly basis is reflected in *Accumulated other comprehensive income (loss)* and periodic plan expense. All other plans (All Other Plans) are

rereasured annually. See Note 8 to the Consolidated Financial Statements.

Stock-Based Compensation

The Company recognizes compensation expense related to stock and option awards over the requisite service period, generally based on the instruments' grant-date fair value, reduced by expected forfeitures. Compensation cost related to awards granted to employees who meet certain age plus years-of-service requirements (retirement-eligible employees) is accrued in the year prior to the grant date, in the same manner as the accrual for cash incentive compensation. Certain stock awards with performance conditions or certain clawback provisions are subject to variable accounting, pursuant to which the associated compensation expense fluctuates with changes in Citigroup's stock price. See Note 7 to the Consolidated Financial Statements.

Income Taxes

The Company is subject to the income tax laws of the U.S. and its states and municipalities, and the foreign jurisdictions in which it operates. These tax laws are complex and subject to different interpretations by the taxpayer and the relevant governmental taxing authorities. In establishing a provision for income tax expense, the Company must make judgments and interpretations about the application of these inherently complex tax laws. The Company must also make estimates about when in the future certain items will affect taxable income in the various tax jurisdictions, both domestic and foreign.

Disputes over interpretations of the tax laws may be subject to review and adjudication by the court systems of the various tax jurisdictions or may be settled with the taxing authority upon examination or audit. The Company treats interest and penalties on income taxes as a component of *Income tax expense*.

Deferred taxes are recorded for the future consequences of events that have been recognized for financial statements or tax returns, based upon enacted tax laws and rates. Deferred tax assets are recognized subject to management's judgment that realization is more-likely-than-not. FASB Interpretation No. 48, "Accounting for Uncertainty in Income Taxes" (FIN 48) (now incorporated into ASC 740, *Income Taxes*), sets out a consistent framework to determine the appropriate level of tax reserves to maintain for uncertain tax positions. This interpretation uses a two-step approach wherein a tax benefit is recognized if a position is more-likely-than-not to be sustained. The amount of the benefit is then measured to be the highest tax benefit that is greater than 50% likely to be realized. ASC 740 also sets out disclosure requirements to enhance transparency of an entity's tax reserves.

See Note 9 to the Consolidated Financial Statements for a further description of the Company's tax provision and related income tax assets and liabilities.

Commissions, Underwriting and Principal Transactions

Commissions revenues are recognized in income when earned. Underwriting revenues are recognized in income typically at the closing of the transaction. Principal transactions revenues are recognized in income on a trade-date basis. See Note 5 to the Consolidated Financial Statements for a description of the Company's revenue recognition policies for commissions and fees, and Note 6 to the Consolidated Financial Statements for details of principal transactions revenue.

Earnings per Share

Earnings per share (EPS) is computed after deducting preferred stock dividends. The Company has granted restricted and deferred share awards with dividend rights that are considered to be participating securities, which are akin to a second class of common stock. Accordingly, a portion of Citigroup's earnings is allocated to those participating securities in the EPS calculation.

Basic earnings per share is computed by dividing income available to common stockholders after the allocation of dividends and undistributed earnings to the participating securities by the weighted average number of common shares outstanding for the period. Diluted earnings per share reflects the potential dilution that could occur if securities or other contracts to issue common stock were exercised. It is computed after giving consideration to the weighted average dilutive effect of the Company's stock options and warrants and convertible securities and after the allocation of earnings to the participating securities. Anti-dilutive options and warrants are disregarded in the EPS calculations.

Use of Estimates

Management must make estimates and assumptions that affect the Consolidated Financial Statements and the related Notes to the Consolidated Financial Statements. Such estimates are used in connection with certain fair value measurements. See Note 24 to the Consolidated Financial Statements for further discussions on estimates used in the determination of fair value. Moreover, estimates are significant in determining the amounts of other-than-temporary impairments, impairments of goodwill and other intangible assets, provisions for probable losses that may arise from credit-related exposures and probable and estimable losses related to litigation and regulatory proceedings, and tax reserves. While management makes its best judgment, actual amounts or results could differ from those estimates.

Cash Flows

Cash equivalents are defined as those amounts included in *Cash and due from banks*. Cash flows from risk management activities are classified in the same category as the related assets and liabilities.

Related Party Transactions

The Company has related party transactions with certain of its subsidiaries and affiliates. These transactions, which are

primarily short-term in nature, include cash accounts, collateralized financing transactions, margin accounts, derivative transactions, charges for operational support and the borrowing and lending of funds, and are entered into in the ordinary course of business.

ACCOUNTING CHANGES

Recognition and Measurement of Financial Assets and Financial Liabilities

In January 2016, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2016-01, *Financial Instruments—Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*, which addresses certain aspects of recognition, measurement, presentation and disclosure of financial instruments.

This ASU requires entities to present separately in *Accumulated other comprehensive income (loss)* (AOCI) the portion of the total change in the fair value of a liability resulting from a change in the instrument-specific credit risk when the entity has elected to measure the liability at fair value in accordance with the fair value option for financial instruments. It also requires equity investments (except those accounted for under the equity method of accounting or those that result in consolidation of the investee) to be measured at fair value with changes in fair value recognized in net income, thus eliminating eligibility for the current available-for-sale category. However, Federal Reserve Bank and Federal Home Loan Bank stock as well as certain exchange seats will continue to be presented at cost.

Citi early adopted only the provisions of this ASU related to presentation of the changes in fair value of liabilities for which the fair value option was elected, related to changes in Citigroup's own credit spreads in AOCI effective January 1, 2016. Accordingly, as of the first quarter 2016, these amounts are reflected as a component of AOCI, whereas, these amounts were previously recognized in Citigroup's revenues and net income. The impact of adopting this amendment resulted in a cumulative catch-up reclassification from retained earnings to AOCI of an accumulated after-tax loss of approximately \$15 million at January 1, 2016. Financial statements for periods prior to 2016 were not subject to restatement under the provisions of this ASU. For additional information, see Note 19, Note 24 and Note 25 to the Consolidated Financial Statements. The Company is evaluating the effect that the other provisions of ASU 2016-01, which are effective on January 1, 2018, will have on its Consolidated Financial Statements and related disclosures.

Accounting for Investments in Tax Credit Partnerships

In January 2014, the FASB issued ASU No. 2014-01, *Investments—Equity Method and Joint Ventures (Topic 323): Accounting for Investments in Qualified Affordable Housing Projects*. Any transition adjustment is reflected as an adjustment to retained earnings in the earliest period presented (retrospective application).

The ASU is applicable to Citi's portfolio of low income housing tax credit (LIHTC) partnership interests. The new standard widens the scope of investments eligible to elect to apply a new alternative method, the proportional amortization method, under which the cost of the investment is amortized to tax expense in proportion to the amount of tax credits and other tax benefits received. Citi qualifies to elect the proportional amortization method under the ASU for its entire LIHTC portfolio. These investments were previously accounted for under the equity method, which resulted in losses (due to amortization of the investment) being recognized in *Other revenue* and tax credits and benefits being recognized in the *Income tax expense* line. In contrast, the proportional amortization method combines the amortization of the investment and receipt of the tax credits/benefits into one line, *Income tax expense*.

Citi adopted ASU 2014-01 in the first quarter of 2015. The adoption of this ASU was applied retrospectively and cumulatively reduced *Retained earnings* by approximately \$349 million, *Other assets* by approximately \$178 million and deferred tax assets by approximately \$171 million.

Accounting for Repurchase-to-Maturity Transactions

In June 2014, the FASB issued ASU No. 2014-11, *Transfers and Servicing (Topic 860): Repurchase-to-Maturity Transactions, Repurchase Financings, and Disclosures*. The ASU changes the accounting for repurchase-to-maturity transactions and linked repurchase financings to secured borrowing accounting, which is consistent with the accounting for other repurchase agreements. The ASU also requires disclosures about transfers accounted for as sales in transactions that are economically similar to repurchase agreements (see Note 24 to the Consolidated Financial Statements) and about the types of collateral pledged in repurchase agreements and similar transactions accounted for as secured borrowings (see Note 11 to the Consolidated Financial Statements). The ASU's provisions became effective for Citi in the first quarter of 2015, with the exception of the collateral disclosures which became effective in the second quarter of 2015. The effect of adopting the ASU was required to be reflected as a cumulative effect adjustment to retained earnings as of the beginning of the period of adoption. Adoption of the ASU did not have a material effect on the Company's financial statements.

Disclosures for Investments in Certain Entities That Calculate Net Asset Value (NAV) per Share

In May 2015, the FASB issued ASU No. 2015-07, *Fair Value Measurement (Topic 820): Disclosures for Investments in Certain Entities That Calculate Net Asset Value per Share (or Its Equivalent)*, which is intended to reduce diversity in practice related to the categorization of investments measured at NAV within the fair value hierarchy. The ASU removes the current requirement to categorize investments for which fair value is measured using the NAV per share practical expedient within the fair value hierarchy. Citi elected to early adopt the ASU in the second quarter of 2015. The adoption of the ASU was applied retrospectively and

reduced Level 3 assets by \$1.0 billion and \$1.1 billion as of December 31, 2015 and December 31, 2014, respectively.

FUTURE APPLICATION OF ACCOUNTING STANDARDS

Accounting for Financial Instruments—Credit Losses

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments—Credit Losses* (Topic 326). The ASU introduces a new accounting model, the Current Expected Credit Losses model (CECL), which requires earlier recognition of credit losses, while also providing additional transparency about credit risk.

The FASB's CECL model utilizes a lifetime "expected credit loss" measurement objective for the recognition of credit losses for loans, held-to-maturity securities and other receivables at the time the financial asset is originated or acquired. The expected credit losses are adjusted each period for changes in expected lifetime credit losses. For available-for-sale securities where fair value is less than cost, credit-related impairment, if any, will be recognized in an allowance for credit losses and adjusted each period for changes in expected credit risk. This model replaces the multiple existing impairment models in current GAAP, which generally require that a loss be incurred before it is recognized.

The CECL model represents a significant departure from existing GAAP, and may result in material changes to the Company's accounting for financial instruments. The Company is evaluating the effect that ASU 2016-13 will have on its Consolidated Financial Statements and related disclosures. The impact of the ASU will depend upon the state of the economy and the nature of Citi's portfolios at the date of adoption. The ASU will be effective for Citi as of January 1, 2020. Early application is permitted for annual periods beginning January 1, 2019.

Revenue Recognition

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers*, which requires an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. The Company will adopt the guidance as of January 1, 2018 with a cumulative-effect adjustment to opening retained earnings. While the guidance will replace most existing revenue recognition guidance in GAAP, the ASU is not applicable to financial instruments and, therefore, will not impact a majority of the Company's revenue, including net interest income.

While in scope of the new guidance, the Company does not expect a material change in the timing or measurement of revenues related to deposit fees. Citi's credit cardholder fees and mortgage servicing fees have been concluded to be out of scope of the standard and therefore will not be impacted by the issuance of this guidance. The Company expects the presentation of expenses associated with underwriting activity to change from the current reporting where underwriting revenue is recorded net of the related expenses to a gross presentation where the expenses are

recorded in *Other operating expenses*. This change to a gross presentation will result in an equivalent increase in underwriting revenue recorded in *Commissions and fees* and associated underwriting expenses recorded in *Other operating expenses*; however, this change in presentation will not have an impact on *Income from continuing operations*. The Company continues to evaluate the effect that the guidance will have on other revenue streams within its scope, including the presentation of certain contract expenses, as well as changes in disclosures required by the new guidance.

Lease Accounting

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842)*, which is intended to increase transparency and comparability of accounting for lease transactions. The ASU will require lessees to recognize all leases on the balance sheet as lease assets and lease liabilities and will require both quantitative and qualitative disclosures regarding key information about leasing arrangements. Lessor accounting is largely unchanged. The guidance is effective beginning January 1, 2019 with an option to early adopt. The Company does not plan to early adopt the ASU. The Company is evaluating the effect that the standard will have on its Consolidated Financial Statements, regulatory capital and related disclosures.

Accounting for Stock-Based Compensation

In March 2016, the FASB issued ASU 2016-09, *Compensation—Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting* in order to simplify certain complex aspects of the accounting for income taxes and forfeitures related to employee stock-based compensation. The guidance is effective for Citi beginning on January 1, 2017. Under the new standard, excess tax benefits and deficiencies related to employee stock-based compensation will be recognized directly within income tax expense or benefit in Citi's Consolidated Statement of Income, rather than within additional paid-in capital. Additionally, as permitted under the new guidance, Citi will make an accounting policy election to account for forfeitures of awards as they occur, which represents a change from the current requirement to estimate forfeitures when recognizing compensation expense. The Company continues to evaluate the effect that ASU 2016-09 will have on its Consolidated Financial Statements.

Income Tax Impact of Intra-Entity Transfers of Assets

In October 2016, the FASB issued ASU No. 2016-16, *Income Taxes—Intra-Entity Transfers of Assets Other Than Inventory*, which will require an entity to recognize the income tax consequences of an intra-entity transfer of an asset, other than inventory, when the transfer occurs. The ASU is effective on January 1, 2018 with early adoption permitted. The Company continues to evaluate the impact of this standard, which is expected to increase DTAs, with an associated decrease in Prepaid Taxes.

Subsequent Measurement of Goodwill

In January 2017, the FASB issued ASU No. 2017-04, *Intangibles—Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*. The ASU simplifies the subsequent measurement of goodwill impairment by eliminating the requirement to calculate the implied fair value of goodwill (i.e., the current Step 2 of the goodwill impairment test) to measure a goodwill impairment charge. With the ASU, the impairment test is simply the comparison of the fair value of a reporting unit with its carrying amount (the current Step 1), with the impairment charge being the deficit in fair value but not exceeding the total amount of goodwill allocated to that reporting unit. The simplified one-step impairment test applies to all reporting units (including those with zero or negative carrying amounts).

The ASU is effective for Citi as of January 1, 2020. Early adoption is permitted for interim and annual goodwill impairment testing dates after January 1, 2017. The impact of the ASU will depend upon the performance of the reporting units and the market conditions impacting the fair value of each reporting unit going forward.

Clarifying the Definition of a Business

In January 2017, the FASB issued ASU No. 2017-01, *Business Combinations (Topic 805): Clarifying the Definition of a Business*. The definition of a business directly and indirectly affects many areas of accounting (e.g., acquisitions, disposals, goodwill and consolidation). The ASU narrows the definition of a business by introducing a quantitative screen as the first step, such that if substantially all of the fair value of the gross assets acquired is concentrated in a single identifiable asset or a group of similar identifiable assets, the set of transferred assets and activities is not a business. If the set is not scoped out from the quantitative screen, the entity then evaluates whether the set meets the requirement that a business include, at a minimum, an input and a substantive process that together significantly contribute to the ability to create outputs.

The ASU is effective for Citi as of January 1, 2018. The ASU will be applied prospectively, with early adoption permitted. The impact of the ASU will depend upon the acquisition and disposal activities of Citi. If fewer transactions qualify as a business, there could be less initial recognition of goodwill, but also less goodwill allocated to disposals.

Other Potential Amendments to Current Accounting Standards

The FASB has issued a proposed ASU that will provide targeted improvements to the accounting guidance for hedging activities. The exposure draft contains many proposals for improving how the economic results of risk management are reflected in financial reporting. Specifically, among other improvements, the ASU is expected to expand the list of benchmark interest rates and also increase the ability for entities to construct hedges of interest rate risk that hedge only certain cash flows of a hedged item. If issued in its current form, the ASU is also expected to modify existing guidance related to the timing and

income statement line recognition of ineffectiveness and components excluded from hedge relationships and add incremental disclosures regarding hedging activities.

The FASB has also issued a proposed ASU that will change the period of amortization of premiums on certain callable debt securities from the full contractual life of the security to the first call date of the security. The proposed change will not change the accretion of discounts. It is expected that the final standard will be issued during the second quarter of 2017, and will be eligible for early adoption with an effective date of January 1, 2017 through a cumulative effect adjustment to retained earnings. This accounting change will primarily affect Citi's portfolios of available-for-sale and held-to-maturity State and municipal debt securities.

The impact of these final ASUs on the Company's financial statements will be assessed when the respective final standards are issued.

2. DISCONTINUED OPERATIONS AND SIGNIFICANT DISPOSALS

Discontinued Operations

The following *Discontinued operations* are recorded within the *Corporate/Other* segment.

Sale of Brazil Credicard Business

Citi sold its non-Citibank-branded cards and consumer finance business in Brazil (Credicard) in 2013. Residual costs and resolution of certain contingencies from the disposal resulted in income from *Discontinued operations*, net of taxes, of \$0 million, \$6 million and \$52 million for 2016, 2015 and 2014, respectively.

Sale of Certain Citi Capital Advisors Business

Citi sold its liquid strategies business within Citi Capital Advisors (CCA) pursuant to two separate transactions in 2013 and reported them as *Discontinued operations*. Residual costs from the disposals resulted in income from *Discontinued operations*, net of taxes, of \$0 million and \$1 million and losses from *Discontinued operations*, net of taxes, of \$4 million for 2016, 2015 and 2014, respectively.

Sale of Egg Banking plc Credit Card Business

Citi sold the Egg Banking plc (Egg) credit card business in 2011 and reported it as *Discontinued operations*. Residual costs from the disposal resulted in losses from *Discontinued operations*, net of taxes, of \$48 million, \$61 million and \$30 million for 2016, 2015 and 2014, respectively.

Audit of Citi German Consumer Tax Group

Citi completed the sale of its German retail banking operations in 2008 and reported them as *Discontinued operations*. During 2014, residual costs from the disposal resulted in a tax expense of \$20 million.

Combined Results for Discontinued Operations

The following summarizes financial information for all *Discontinued operations* for which Citi continues to have minimal residual costs associated with the sales:

<i>In millions of dollars</i>	2016	2015	2014
Total revenues, net of interest expense⁽¹⁾	\$ —	\$ —	\$ 74
Income (loss) from discontinued operations	\$ (80)	\$ (83)	\$ 10
Provision (benefit) for income taxes	(22)	(29)	12
Loss from discontinued operations, net of taxes	\$ (58)	\$ (54)	\$ (2)

(1) Total revenues include gain or loss on sale, if applicable.

Cash flows for the *Discontinued operations* were not material for all periods presented.

Significant Disposals

The following sales completed during 2016, 2015 and 2014 were identified as significant disposals. The major classes of assets and liabilities derecognized from the Consolidated Balance Sheet, and the income (loss) before taxes related to each business until the disposal date, are presented below.

Novation of the Primerica 80% Coinsurance Agreement

Effective January 1, 2016, Citi completed a novation (an arrangement that extinguishes Citi's rights and obligations under a contract) of the Primerica 80% coinsurance agreement, which was recorded in *Corporate/Other*, to a third-party re-insurer. The novation resulted in revenues of \$404 million recorded in *Other revenue* (\$263 million after-tax) during the year. Furthermore, the novation resulted in derecognition of \$1.5 billion of available-for-sale securities and cash, \$0.95 billion of deferred acquisition costs and \$2.7 billion of insurance liabilities.

Income before taxes, excluding the revenue upon novation, was as follows:

<i>In millions of dollars</i>	2016	2015	2014
Income before taxes	\$ —	\$ 135	\$ 143

Sale of OneMain Financial Business

On November 15, 2015, Citi sold OneMain Financial (OneMain), which was part of *Corporate/Other*, including 1,100 retail branches, 5,500 employees, and approximately 1.3 million customer accounts. OneMain had approximately \$10.2 billion of assets, including \$7.8 billion of loans (net of allowance), and \$1.4 billion of available-for-sale securities. OneMain also had \$8.4 billion of liabilities, including \$6.2 billion of long-term debt and \$1.1 billion of short-term borrowings. The transaction generated a pretax gain on sale of \$2.6 billion, recorded in *Other revenue* (\$1.6 billion after-tax) in 2015. However, when combined with the loss on redemption of certain long-term debt supporting certain *Corporate/Other* assets during the fourth quarter of 2015, the resulting net after-tax gain was \$0.8 billion.

Income before taxes, excluding the pretax gain on sale and loss on redemption of debt, was as follows:

<i>In millions of dollars</i>	2016	2015	2014
Income before taxes	\$ —	\$ 663	\$ 890

Sale of Japan Cards Business

On December 14, 2015, Citi sold its Japan cards business, which was part of *Corporate/Other*, including \$1,350 million of consumer loans (net of allowance), approximately 720,000 customer accounts and 840 employees. The transaction generated a pretax gain on sale of \$180 million, recorded in *Other revenue* (\$155 million after-tax) in 2015. Loss before taxes, excluding the pretax gain on sale, was as follows:

<i>In millions of dollars</i>	2016	2015	2014
Loss before taxes	\$ —	\$ (5)	\$ —

Sale of Japan Retail Banking Business

On November 1, 2015, Citi sold its Japan retail banking business, which was part of *Corporate/Other*, including \$563 million of consumer loans (net of allowance), \$20 billion of deposits, approximately 725,000 customer accounts, 1,600 employees and 32 branches. The transaction generated a pretax gain on sale of \$446 million, recorded in *Other revenue* (\$276 million after-tax) in 2015. Loss before taxes, excluding the pretax gain on sale, was as follows:

<i>In millions of dollars</i>	2016	2015	2014
Loss before taxes	\$ —	\$ (57)	\$ (5)

Sale of Spain Consumer Operations

On September 22, 2014, Citi sold its consumer operations in Spain, which were part of *Corporate/Other*, including \$1.7 billion of consumer loans (net of allowance), \$3.4 billion of assets under management, \$2.2 billion of customer deposits, 45 branches, 48 ATMs and 938 employees, with the buyer assuming the related current pension commitments at closing. The transaction generated a pretax gain on sale of \$243 million, recorded in *Other revenue* (\$131 million after-tax) in 2014. Income before taxes, excluding the pretax gain on sale, was as follows:

<i>In millions of dollars</i>	2016	2015	2014
Income before taxes	\$ —	\$ —	\$ 130

Sale of Greece Consumer Operations

On September 30, 2014, Citi sold its consumer operations in Greece, which were part of *Corporate/Other*, including \$353 million of consumer loans (net of allowance), \$1.1 billion of assets under management, \$1.2 billion of customer deposits, 20 branches, 85 ATMs and 719 employees, with the buyer assuming certain limited pension obligations related to Diners' Club's employees at closing. The transaction generated a pretax gain on sale of \$209 million, recorded in *Other revenue* (\$91 million after-tax). Loss before taxes, excluding the pretax gain on sale in 2014, was as follows:

<i>In millions of dollars</i>	2016	2015	2014
Loss before taxes	\$ —	\$ —	(76)

3. BUSINESS SEGMENTS

Citigroup's activities are conducted through the following business segments: *Global Consumer Banking (GCB)* and *Institutional Clients Group (ICG)*. In addition, *Corporate/Other* includes activities not assigned to a specific business segment as well as certain North America and international loan portfolios, discontinued operations and other legacy assets.

The business segments are determined based on products and services provided or type of customers served, of which those identified as non-core are recorded in *Corporate/Other* and are reflective of how management currently evaluates financial information to make business decisions.

GCB includes a global, full-service consumer franchise delivering a wide array of banking, including commercial banking, credit card lending and investment services through a network of local branches, offices and electronic delivery systems and is composed of three *GCB* businesses: *North America*, *Latin America* and *Asia* (including consumer banking activities in certain *EMEA* countries).

ICG is composed of *Banking and Markets and securities services* and provides corporate, institutional, public sector and high-net-worth clients in 97 countries and jurisdictions with a broad range of banking and financial products and services.

Corporate/Other includes certain unallocated costs of global functions, other corporate expenses and net treasury

results, unallocated corporate expenses, offsets to certain line-item reclassifications and eliminations, the results of certain North America and international legacy loan portfolios, discontinued operations and unallocated taxes.

The accounting policies of these reportable segments are the same as those disclosed in Note 1 to the Consolidated Financial Statements.

The prior-period balances reflect reclassifications to conform the presentation for all periods to the current period's presentation. Financial data was reclassified to reflect:

- the reporting of the remaining businesses and portfolios of assets of Citi Holdings as part of *Corporate/Other* which, prior to the first quarter of 2017, was a separately reported business segment;
- the re-attribution of certain treasury-related costs between *Corporate/Other*, *GCB* and *ICG*;
- the re-attribution of regional revenues within *ICG*; and
- certain other immaterial reclassifications.

Citi's consolidated results remain unchanged for all periods presented as a result of the changes and reclassifications discussed above.

The following table presents certain information regarding the Company's continuing operations by segment:

	Revenues, net of interest expense ⁽¹⁾			Provision (benefits) for income taxes			Income (loss) from continuing operations ⁽²⁾			Identifiable assets		
	2016	2015	2014	2016	2015	2014	2016	2015	2014	2016	2015	
<i>In millions of dollars, except identifiable assets in billions</i>												
<i>Global Consumer Banking</i>	\$ 31,519	\$ 32,251	\$ 34,247	\$ 2,655	\$ 3,369	\$ 3,405	\$ 4,954	\$ 6,214	\$ 6,667	\$ 412	\$ 381	
<i>Institutional Clients Group</i>	33,227	33,332	33,362	4,260	4,173	4,126	9,525	9,110	9,689	1,277	1,218	
<i>Corporate/Other</i>	5,129	10,771	9,610	(471)	(102)	(334)	554	2,062	(8,852)	103	132	
Total	\$ 69,875	\$ 76,354	\$ 77,219	\$ 6,444	\$ 7,440	\$ 7,197	\$ 15,033	\$ 17,386	\$ 7,504	\$ 1,792	\$ 1,731	

(1) Includes total revenues, net of interest expense (excluding *Corporate/Other*), in *North America* of \$32.2 billion, \$32.2 billion and \$33.0 billion; in *EMEA* of \$9.9 billion, \$9.8 billion and \$9.5 billion; in *Latin America* of \$8.9 billion, \$9.7 billion and \$10.7 billion; and in *Asia* of \$13.7 billion, \$13.9 billion and \$14.4 billion in 2016, 2015 and 2014, respectively.

(2) Includes pretax provisions for credit losses and for benefits and claims in the *GCB* results of \$6.4 billion, \$5.5 billion and \$5.5 billion; in the *ICG* results of \$486 million, \$962 million and \$47 million; and in *Corporate/Other* results of \$0.1 billion, \$1.5 billion and \$1.9 billion in 2016, 2015 and 2014, respectively.

4. INTEREST REVENUE AND EXPENSE

Interest revenue and Interest expense consisted of the following:

<i>In millions of dollars</i>	2016	2015	2014
Interest revenue			
Loan interest, including fees	\$ 39,752	\$ 40,510	\$ 44,776
Deposits with banks	971	727	959
Federal funds sold and securities borrowed or purchased under agreements to resell	2,543	2,516	2,366
Investments, including dividends	7,582	7,017	7,195
Trading account assets ⁽¹⁾	5,738	5,942	5,880
Other interest ⁽²⁾	1,029	1,839	507
Total interest revenue	\$ 57,615	\$ 58,551	\$ 61,683
Interest expense			
Deposits ⁽³⁾	\$ 5,300	\$ 5,052	\$ 5,692
Federal funds purchased and securities loaned or sold under agreements to repurchase	1,912	1,612	1,895
Trading account liabilities ⁽¹⁾	410	217	168
Short-term borrowings	477	523	580
Long-term debt	4,412	4,517	5,355
Total interest expense	\$ 12,511	\$ 11,921	\$ 13,690
Net interest revenue	\$ 45,104	\$ 46,630	\$ 47,993
Provision for loan losses	6,749	7,108	6,828
Net interest revenue after provision for loan losses	\$ 38,355	\$ 39,522	\$ 41,165

(1) Interest expense on *Trading account liabilities* of ICG is reported as a reduction of interest revenue from *Trading account assets*.

(2) During 2015, interest earned related to assets of significant disposals (primarily OneMain Financial) were reclassified to *Other interest*.

(3) Includes deposit insurance fees and charges of \$1,145 million, \$1,118 million and \$1,038 million for 2016, 2015 and 2014, respectively.

5. COMMISSIONS AND FEES

The primary components of *Commissions and fees* revenue are investment banking fees, trading-related fees, fees related to trade and securities services in *ICG* and credit card and bank card fees.

Investment banking fees are substantially composed of underwriting and advisory revenues and are recognized when Citigroup's performance under the terms of a contractual arrangement is completed, which is typically at the closing of a transaction. Underwriting revenue is recorded in *Commissions and fees*, net of both reimbursable and non-reimbursable expenses, consistent with the AICPA Accounting Guide for Brokers and Dealers in Securities (codified in ASC 940-605-05-1). Expenses associated with advisory transactions are recorded in *Other operating expenses*, net of client reimbursements. Out-of-pocket expenses are deferred and recognized at the time the related revenue is recognized. In general, expenses incurred related to investment banking transactions that fail to close (are not consummated) are recorded gross in *Other operating expenses*.

Trading-related fees primarily include commissions and fees from the following: executing transactions for clients on exchanges and over-the-counter markets; sales of mutual funds, insurance and other annuity products; and assisting clients in clearing transactions, providing brokerage services and other such activities. Trading-related fees are recognized when earned in *Commissions and fees*. Gains or losses, if any, on these transactions are included in *Principal transactions* (see Note 6 to the Consolidated Financial Statements).

Credit card and bank card fees are primarily composed of interchange revenue and certain card fees, including annual fees, reduced by reward program costs and certain partner payments. Interchange revenue and fees are recognized when earned. Annual card fees are deferred and amortized on a straight-line basis over a 12-month period. Reward costs are recognized when points are earned by the customers.

The following table presents *Commissions and fees* revenue:

<i>In millions of dollars</i>	2016	2015	2014
Investment banking	\$ 2,847	\$ 3,423	\$ 3,687
Trading-related	2,219	2,345	2,503
Trade and securities services	1,564	1,735	1,871
Credit cards and bank cards	1,324	1,786	2,227
Other consumer ⁽¹⁾	659	685	885
Corporate finance ⁽²⁾	686	493	531
Checking-related	467	497	531
Loan servicing	325	404	380
Other	430	480	417
Total commissions and fees	\$ 10,521	\$ 11,848	\$ 13,032

(1) Primarily consists of fees for investment fund administration and management, third-party collections, commercial demand deposit accounts and certain credit card services.

(2) Consists primarily of fees earned from structuring and underwriting loan syndications.

6. PRINCIPAL TRANSACTIONS

Principal transactions revenue consists of realized and unrealized gains and losses from trading activities. Trading activities include revenues from fixed income, equities, credit and commodities products and foreign exchange transactions which are managed on a portfolio basis characterized by primary risk. Not included in the table below is the impact of net interest revenue related to trading activities, which is an integral part of trading activities' profitability. See Note 4 to the Consolidated Financial Statements for information about

net interest revenue related to trading activities. Principal transactions include CVA (credit valuation adjustments on derivatives), FVA (funding valuation adjustments) on over-the-counter derivatives and, prior to 2016, DVA (debt valuation adjustments on issued liabilities for which the fair value option has been elected). These adjustments are discussed further in Note 24 to the Consolidated Financial Statements.

The following table presents principal transactions revenue:

<i>In millions of dollars</i>	2016	2015	2014
<i>Global Consumer Banking</i> ⁽¹⁾	\$ 629	\$ 577	\$ 628
<i>Institutional Clients Group</i>	7,335	5,824	5,894
<i>Corporate/Other</i> ⁽¹⁾	(379)	(393)	176
Total Citigroup	\$ 7,585	\$ 6,008	\$ 6,698
Interest rate risks ⁽²⁾	\$ 4,115	\$ 3,798	\$ 3,783
Foreign exchange risks ⁽³⁾	1,726	1,532	1,855
Equity risks ⁽⁴⁾	189	331	99
Commodity and other risks ⁽⁵⁾	806	750	589
Credit products and risks ⁽⁶⁾	749	(403)	372
Total	\$ 7,585	\$ 6,008	\$ 6,698

(1) Primarily relates to foreign exchange risks.

(2) Includes revenues from government securities and corporate debt, municipal securities, mortgage securities and other debt instruments. Also includes spot and forward trading of currencies and exchange-traded and over-the-counter (OTC) currency options, options on fixed income securities, interest rate swaps, currency swaps, swap options, caps and floors, financial futures, OTC options and forward contracts on fixed income securities.

(3) Includes revenues from foreign exchange spot, forward, option and swap contracts, as well as foreign currency translation (FX translation) gains and losses.

(4) Includes revenues from common, preferred and convertible preferred stock, convertible corporate debt, equity-linked notes and exchange-traded and OTC equity options and warrants.

(5) Primarily includes revenues from crude oil, refined oil products, natural gas and other commodities trades.

(6) Includes revenues from structured credit products.

7. INCENTIVE PLANS

Discretionary Annual Incentive Awards

Citigroup grants immediate cash bonus payments and various forms of immediate and deferred awards as part of its discretionary annual incentive award program involving a large segment of Citigroup's employees worldwide. Most of the shares of common stock issued by Citigroup as part of its equity compensation programs are to settle the vesting of the stock components of these awards.

Discretionary annual incentive awards are generally awarded in the first quarter of the year based upon the previous year's performance. Awards valued at less than U.S. \$100,000 (or the local currency equivalent) are generally paid entirely in the form of an immediate cash bonus. Pursuant to Citigroup policy and/or regulatory requirements, certain employees and officers are subject to mandatory deferrals of incentive pay and generally receive 25% to 60% of their awards in a combination of restricted or deferred stock, deferred cash stock units, or deferred cash. Discretionary annual incentive awards to many employees in the EU are subject to deferral requirements regardless of the total award value, with 50% of the immediate incentive delivered in the form of a stock payment or stock unit award subject to a restriction on sale or transfer or hold back (generally, for six months).

Deferred annual incentive awards may be delivered in the form of one or more award types—a restricted or deferred stock award under Citi's Capital Accumulation Program (CAP), or a deferred cash stock unit award and/or a deferred cash award under Citi's Deferred Cash Award Plan. The applicable mix of awards may vary based on the employee's minimum deferral requirement and the country of employment.

Subject to certain exceptions (principally, for retirement-eligible employees), continuous employment within Citigroup is required to vest in CAP, deferred cash stock unit and deferred cash awards. Post employment vesting by retirement-eligible employees and participants who meet other conditions is generally conditioned upon their refraining from competition with Citigroup during the remaining vesting period, unless the employment relationship has been terminated by Citigroup under certain conditions.

Generally, the deferred awards vest in equal annual installments over three- or four-year periods. Vested CAP awards are delivered in shares of common stock. Deferred cash awards are payable in cash and earn a fixed notional rate of interest that is paid only if and when the underlying principal award amount vests. Deferred cash stock unit awards are payable in cash at the vesting value of the underlying stock. Generally, in the EU, vested CAP shares are subject to a restriction on sale or transfer after vesting, and vested deferred cash awards and deferred cash stock units are subject to hold back (generally, for six months in each case).

Unvested CAP, deferred cash stock units and deferred cash awards made in January 2011 or later are subject to one or more clawback provisions that apply in certain circumstances, including in the case of employee risk-limit violations or other misconduct, or where the awards were

based on earnings that were misstated. CAP awards made to certain employees in February 2013 and later, deferred cash stock units made to certain employees in February 2016 and later, and deferred cash awards made to certain employees in January 2012, are subject to a formulaic performance-based vesting condition pursuant to which amounts otherwise scheduled to vest will be reduced based on the amount of any pretax loss in the participant's business in the calendar year preceding the scheduled vesting date. For CAP awards made in February 2013 and later, and deferred cash stock units made in February 2016 and later, a minimum reduction of 20% applies for the first dollar of loss.

In addition, deferred cash awards made to certain employees in February 2013 and later are subject to a discretionary performance-based vesting condition under which an amount otherwise scheduled to vest may be reduced in the event of a "material adverse outcome" for which a participant has "significant responsibility." Deferred cash awards made to these employees in February 2014 and later are subject to an additional clawback provision pursuant to which unvested awards may be canceled if the employee engaged in misconduct or exercised materially imprudent judgment, or failed to supervise or escalate the behavior of other employees who did.

Certain CAP and other stock-based awards, including those to participants in the EU that are subject to certain discretionary clawback provisions, are subject to variable accounting, pursuant to which the associated value of the award fluctuates with changes in Citigroup's common stock price until the date that the award is settled, either in cash or shares. For these awards, the total amount that will be recognized as expense cannot be determined in full until the settlement date.

Sign-on and Long-Term Retention Awards

Stock awards and deferred cash awards may be made at various times during the year as sign-on awards to induce new hires to join Citi or to high-potential employees as long-term retention awards.

Vesting periods and other terms and conditions pertaining to these awards tend to vary by grant. Generally, recipients must remain employed through the vesting dates to vest in the awards, except in cases of death, disability or involuntary termination other than for "gross misconduct." These awards do not usually provide for post employment vesting by retirement-eligible participants.

Outstanding (Unvested) Stock Awards

A summary of the status of unvested stock awards granted as discretionary annual incentive or sign-on and long-term retention awards is presented below:

Unvested stock awards	Shares	Weighted-average grant date fair value per share
Unvested at January 1, 2016	41,860,291	\$ 45.73
Granted ⁽¹⁾	23,355,805	37.35
Canceled	(1,522,125)	43.76
Vested ⁽²⁾	(21,021,795)	41.63
Unvested at December 31, 2016	42,672,176	\$ 43.24

- (1) The weighted-average fair value of the shares granted during 2015 and 2014 was \$50.33 and \$49.65, respectively.
- (2) The weighted-average fair value of the shares vesting during 2016 was approximately \$40.08 per share.

Total unrecognized compensation cost related to unvested stock awards, excluding the impact of forfeiture estimates, was \$597 million at December 31, 2016. The cost is expected to be recognized over a weighted-average period of 1.6 years. However, the value of the portion of these awards that is subject to variable accounting will fluctuate with changes in Citigroup's common stock price.

Performance Share Units

Certain executive officers were awarded a target number of performance share units (PSUs) on February 19, 2013, for performance in 2012, and to a broader group of executives on February 18, 2014, February 18, 2015 and February 16, 2016 for performance in the year prior to the award date. For grants prior to 2016, PSUs will be earned only to the extent that Citigroup attains specified performance goals relating to Citigroup's return on assets and relative total shareholder return against peers over the three-year period beginning with the year of award. The actual dollar amounts ultimately earned could vary from zero, if performance goals are not met, to as much as 150% of target, if performance goals are meaningfully exceeded. The value of each PSU is equal to the value of one share of Citi common stock.

The PSUs granted on February 16, 2016 are earned over a three-year performance period based on Citigroup's relative total shareholder return as compared to peers. The actual dollar amounts ultimately earned could vary from zero, if performance goals are not met, to as much as 150% of target, if performance goals are meaningfully exceeded. If the total shareholder return is negative over the three-year performance period, executives may earn no more than 100% of the target PSUs, regardless of the extent to which Citi outperforms peer firms. The value of each PSU is equal to the value of one share of Citi common stock.

PSUs are subject to variable accounting, pursuant to which the associated value of the award will fluctuate with changes in Citigroup's stock price and the attainment of the specified performance goals for each award, until the award is settled solely in cash after the end of the performance period. The value of the award, subject to the performance goals, is estimated using a simulation model that incorporates multiple valuation assumptions, including the probability of achieving the specified performance goals of each award. The risk-free rate used in the model is based on the applicable U.S. Treasury yield curve. Other significant assumptions for the awards are as follows:

Valuation Assumptions	2016	2015	2014
Expected volatility	24.37%	27.13%	39.12%
Expected dividend yield	0.40%	0.08%	0.08%

A summary of the performance share unit activity for 2016 is presented below:

Performance Share Units	Units	Weighted-average grant date fair value per unit
Outstanding, beginning of period	1,357,257	\$ 45.45
Granted ⁽¹⁾	772,653	27.03
Canceled	(91,597)	42.26
Payments	(193,753)	42.26
Outstanding, end of period	1,844,560	\$ 38.22

- (1) The weighted-average grant date fair value per unit awarded in 2015 and 2014 was \$44.07 and \$48.34, respectively.

Stock Option Programs

Stock options have not been granted to Citi's employees as part of the annual incentive award programs since 2009.

All outstanding stock options are fully vested with the related expense recognized as a charge to income in prior periods. Generally, the stock options outstanding have a six-year term, with some stock options subject to various transfer restrictions. Cash received from employee stock option exercises under this program for the year ended December 31, 2016 was approximately \$53 million.

Information with respect to stock option activity under Citigroup's stock option programs is shown below:

	2016			2015			2014		
	Options	Weighted-average exercise price	Intrinsic value per share	Options	Weighted-average exercise price	Intrinsic value per share	Options	Weighted-average exercise price	Intrinsic value per share
Outstanding, beginning of period	6,656,588	\$ 67.92	\$ —	26,514,119	\$ 48.00	\$ 6.11	31,508,106	\$ 50.72	\$ 1.39
Canceled	(25,334)	40.80	—	(7,901)	40.80	—	(28,257)	40.80	—
Expired	(2,613,909)	48.80	—	(1,646,581)	40.85	—	(602,093)	242.43	—
Exercised	(2,489,949)	49.10	6.60	(18,203,048)	41.39	13.03	(4,363,637)	40.82	11.37
Outstanding, end of period	1,527,396	\$ 131.78	\$ —	6,656,588	\$ 67.92	\$ —	26,514,119	\$ 48.00	\$ 6.11
Exercisable, end of period	1,527,396			6,656,588			26,514,119		

The following table summarizes information about stock options outstanding under Citigroup's stock option programs at December 31, 2016:

Range of exercise prices	Options outstanding			Options exercisable	
	Number outstanding	Weighted-average contractual life remaining	Weighted-average exercise price	Number exercisable	Weighted-average exercise price
\$39.00—\$99.99	700,892	3.0 years	\$ 43.45	700,892	\$ 43.45
\$100.00—\$199.99	502,416	2.0 years	147.13	502,416	147.13
\$200.00—\$299.99	124,088	1.1 years	240.28	124,088	240.28
\$300.00—\$399.99	200,000	1.1 years	335.50	200,000	335.50
Total at December 31, 2016	1,527,396	2.2 years	\$ 131.78	1,527,396	\$ 131.78

Other Variable Incentive Compensation

Citigroup has various incentive plans globally that are used to motivate and reward performance primarily in the areas of sales, operational excellence and customer satisfaction. Participation in these plans is generally limited to employees who are not eligible for discretionary annual incentive awards.

Summary

Except for awards subject to variable accounting, the total expense recognized for stock awards represents the grant date fair value of such awards, which is generally recognized as a charge to income ratably over the vesting period, other than for awards to retirement-eligible employees and immediately vested awards. Whenever awards are made or are expected to be made to retirement-eligible employees, the charge to income is accelerated based on when the applicable conditions to retirement eligibility were or will be met. If the employee is retirement eligible on the grant date, or the award is vested at grant date, the entire expense is recognized in the year prior to grant.

Recipients of Citigroup stock awards generally do not have any stockholder rights until shares are delivered upon vesting or exercise, or after the expiration of applicable required holding periods. Recipients of restricted or deferred stock awards and deferred cash stock unit awards, however, may be entitled to receive dividends or dividend-equivalent payments during the vesting period. Recipients of restricted stock awards generally are entitled to vote the shares in their award during the vesting period. Once a stock award vests, the

shares are freely transferable, unless they are subject to a restriction on sale or transfer for a specified period.

All equity awards granted since April 19, 2005 have been made pursuant to stockholder-approved stock incentive plans that are administered by the Personnel and Compensation Committee of the Citigroup Board of Directors, which is composed entirely of independent non-employee directors.

At December 31, 2016, approximately 52.1 million shares of Citigroup common stock were authorized and available for grant under Citigroup's 2014 Stock Incentive Plan, the only plan from which equity awards are currently granted.

The 2014 Stock Incentive Plan and predecessor plans permit the use of treasury stock or newly issued shares in connection with awards granted under the plans. Newly issued shares were distributed to settle the vesting of the majority of annual deferred stock awards from 2012 to 2015. Treasury shares were used to settle vestings in 2016 and the first quarter of 2017, except where securities laws require newly issued shares. The use of treasury stock or newly issued shares to settle stock awards does not affect the compensation expense recorded in the Consolidated Statement of Income for equity awards.

Incentive Compensation Cost

The following table shows components of compensation expense, relating to certain of the above incentive compensation programs:

<i>In millions of dollars</i>	2016	2015	2014
Charges for estimated awards to retirement-eligible employees	\$ 555	\$ 541	\$ 525
Amortization of deferred cash awards, deferred cash stock units and performance stock units	336	325	311
Immediately vested stock award expense ⁽¹⁾	73	61	51
Amortization of restricted and deferred stock awards ⁽²⁾	509	461	668
Option expense	—	—	1
Other variable incentive compensation	710	773	803
Profit sharing plan	—	—	1
Total	\$ 2,183	\$ 2,161	\$ 2,360

- (1) Represents expense for immediately vested stock awards that generally were stock payments in lieu of cash compensation. The expense is generally accrued as cash incentive compensation in the year prior to grant.
- (2) All periods include amortization expense for all unvested awards to non-retirement-eligible employees. Amortization is recognized net of estimated forfeitures of awards.

Future Expenses Associated with Outstanding (Unvested) Awards

Citi expects to record compensation expense in future periods as a result of awards granted for performance in 2016 and prior years. Because the awards contain service or other conditions that will be satisfied in the future, the expense of these already-granted awards is recognized over those future periods. The portion of these awards that is subject to variable accounting will cause the expense amount to fluctuate with changes in Citigroup's common stock price. Citi's expected future expenses, excluding the impact of forfeitures, cancellations, clawbacks and repositioning-related accelerations that have not yet occurred, are summarized in the table below:

<i>In millions of dollars</i>	2017	2018	2019	2020 and beyond ⁽¹⁾	Total
Awards granted in 2016 and prior:					
Deferred stock awards	\$ 304	\$ 177	\$ 76	\$ 5	\$ 562
Deferred cash awards	182	96	36	3	317
Future expense related to awards already granted					
Future expense related to awards already granted	\$ 486	\$ 273	\$ 112	\$ 8	\$ 879
Future expense related to awards granted in 2017⁽²⁾					
Future expense related to awards granted in 2017 ⁽²⁾	242	181	145	101	669
Total	\$ 728	\$ 454	\$ 257	\$ 109	\$ 1,548

- (1) Principally 2020.
- (2) Refers to awards granted on or about February 16, 2017, as part of Citi's discretionary annual incentive awards for services performed in 2016.

8. RETIREMENT BENEFITS

Pension and Postretirement Plans

The Company has several non-contributory defined benefit pension plans covering certain U.S. employees and has various defined benefit pension and termination indemnity plans covering employees outside the U.S.

The U.S. qualified defined benefit plan was frozen effective January 1, 2008 for most employees. Accordingly, no additional compensation-based contributions have been credited to the cash balance portion of the plan for existing plan participants after 2007. However, certain employees covered under the prior final pay plan formula continue to accrue benefits. The Company also offers postretirement health care and life insurance benefits to certain eligible U.S. retired employees, as well as to certain eligible employees outside the U.S.

The Company also sponsors a number of non-contributory, nonqualified pension plans. These plans, which are unfunded, provide supplemental defined pension benefits to certain U.S.

employees. With the exception of certain employees covered under the prior final pay plan formula, the benefits under these plans were frozen in prior years.

The plan obligations, plan assets and periodic plan expense for the Company's most significant pension and postretirement benefit plans (Significant Plans) are measured and disclosed quarterly, instead of annually. The Significant Plans captured approximately 90% of the Company's global pension and postretirement plan obligations as of December 31, 2016. All other plans (All Other Plans) are measured annually with a December 31 measurement date.

Net (Benefit) Expense

The following table summarizes the components of net (benefit) expense recognized in the Consolidated Statement of Income for the Company's pension and postretirement plans, for Significant Plans and All Other Plans:

In millions of dollars	Pension plans						Postretirement benefit plans					
	U.S. plans			Non-U.S. plans			U.S. plans			Non-U.S. plans		
	2016	2015	2014	2016	2015	2014	2016	2015	2014	2016	2015	2014
Qualified plans												
Benefits earned during the year	\$ 3	\$ 4	\$ 6	\$ 154	\$ 168	\$ 178	\$ —	\$ —	\$ —	\$ 10	\$ 12	\$ 15
Interest cost on benefit obligation	520	553	541	282	317	376	25	33	33	94	108	120
Expected return on plan assets	(886)	(893)	(878)	(287)	(323)	(384)	(9)	(3)	(1)	(86)	(105)	(121)
Amortization of unrecognized												
Prior service (benefit) cost	—	(3)	(3)	(1)	2	1	—	—	—	(10)	(11)	(12)
Net actuarial loss	160	139	105	69	73	77	(1)	—	—	30	43	39
Curtailment loss (gain) ⁽¹⁾	13	14	—	(2)	—	14	—	—	—	—	(1)	—
Settlement loss (gain) ⁽¹⁾	—	—	—	6	44	53	—	—	—	—	—	—
Special termination benefits ⁽¹⁾	—	—	—	—	—	9	—	—	—	—	—	—
Net qualified plans (benefit) expense	\$ (190)	\$ (186)	\$ (229)	\$ 221	\$ 281	\$ 324	\$ 15	\$ 30	\$ 32	\$ 38	\$ 46	\$ 41
Nonqualified plans expense	\$ 40	\$ 43	\$ 45	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Total net (benefit) expense	\$ (150)	\$ (143)	\$ (184)	\$ 221	\$ 281	\$ 324	\$ 15	\$ 30	\$ 32	\$ 38	\$ 46	\$ 41

(1) Losses and gains due to curtailment, settlement and special termination benefits relate to repositioning and divestiture actions.

The estimated net actuarial loss and prior service (benefit) cost that will be amortized from *Accumulated other comprehensive income (loss)* into net expense in 2017 are approximately \$233 million and \$(2) million, respectively, for defined benefit pension plans.

For postretirement plans, the estimated 2017 net actuarial loss and prior service (benefit) cost amortizations are approximately \$28 million and \$(9) million, respectively.

Contributions

The Company's funding practice for U.S. and non-U.S. pension and postretirement plans is generally to fund to minimum funding requirements in accordance with applicable local laws and regulations. The Company may increase its contributions above the minimum required contribution, if appropriate. In addition, management has the ability to change its funding practices. For the U.S. pension plans, there were no required minimum cash contributions for 2016 or 2015.

The following table summarizes the actual Company contributions for the years ended December 31, 2016 and 2015, as well as estimated expected Company contributions for 2017. Expected contributions are subject to change, since contribution decisions are affected by various factors, such as market performance, tax considerations, and regulatory requirements.

<i>In millions of dollars</i>	Pension plans ⁽¹⁾						Postretirement benefit plans ⁽¹⁾					
	U.S. plans ⁽²⁾			Non-U.S. plans			U.S. plans			Non-U.S. plans		
	2017	2016	2015	2017	2016	2015	2017	2016	2015	2017	2016	2015
Contributions made by the Company	\$ —	\$ 500	\$ —	\$ 90	\$ 82	\$ 92	\$ —	\$ —	\$ 174	\$ 4	\$ 4	\$ 4
Benefits paid directly by the Company	71	56	52	44	44	42	—	6	61	5	5	5

(1) Amounts reported for 2017 are expected amounts.

(2) The U.S. pension plans include benefits paid directly by the Company for the nonqualified pension plans.

Funded Status and Accumulated Other Comprehensive Income

The following tables summarize the funded status and amounts recognized in the Consolidated Balance Sheet for the Company's pension and postretirement plans:

<i>In millions of dollars</i>	Pension plans				Postretirement benefit plans			
	U.S. plans		Non-U.S. plans		U.S. plans		Non-U.S. plans	
	2016	2015	2016	2015	2016	2015	2016	2015
Change in projected benefit obligation								
Qualified plans								
Projected benefit obligation at beginning of year	\$ 13,231	\$ 14,060	\$ 6,534	\$ 7,252	\$ 817	\$ 917	\$ 1,291	\$ 1,527
Benefits earned during the year	3	4	154	168	—	—	10	12
Interest cost on benefit obligation	520	553	282	317	25	33	94	108
Plan amendments	—	—	(28)	6	—	—	—	—
Actuarial loss (gain)	351	(649)	589	(28)	(105)	(55)	3	(88)
Benefits paid, net of participants' contributions	(722)	(751)	(323)	(294)	(64)	(90)	(59)	(57)
Expected government subsidy	—	—	—	—	13	12	—	—
Divestitures	—	—	(22)	(147)	—	—	—	—
Settlement (gain) loss ⁽¹⁾	—	—	(38)	(61)	—	—	—	—
Curtailed (gain) loss ⁽¹⁾	13	14	(15)	(8)	—	—	(4)	—
Foreign exchange impact and other	(125)	—	(611)	(671)	—	—	(194)	(211)
Qualified plans	\$ 13,271	\$ 13,231	\$ 6,522	\$ 6,534	\$ 686	\$ 817	\$ 1,141	\$ 1,291
Nonqualified plans	729	712	—	—	—	—	—	—
Projected benefit obligation at year end	\$ 14,000	\$ 13,943	\$ 6,522	\$ 6,534	\$ 686	\$ 817	\$ 1,141	\$ 1,291

(1) Curtailment and settlement (gains) losses relate to repositioning and divestiture activities.

<i>In millions of dollars</i>	Pension plans				Postretirement benefit plans			
	U.S. plans		Non-U.S. plans		U.S. plans		Non-U.S. plans	
	2016	2015	2016	2015	2016	2015	2016	2015
Change in plan assets								
Qualified plans								
Plan assets at fair value at beginning of year	\$ 12,137	\$ 13,071	\$ 6,104	\$ 7,057	\$ 166	\$ 10	\$ 1,133	\$ 1,384
Actual return on plan assets	572	(183)	967	56	8	(1)	122	(5)
Company contributions	500	—	126	134	6	235	9	9
Plan participants' contributions	—	—	5	5	49	49	—	—
Divestitures	—	—	(5)	(131)	—	—	—	—
Settlements	—	—	(38)	(61)	—	—	—	—
Benefits paid, net of government subsidy	(722)	(751)	(329)	(299)	(100)	(127)	(59)	(57)
Foreign exchange impact and other	(124)	—	(681)	(657)	—	—	(190)	(198)
Qualified plans	\$ 12,363	\$ 12,137	\$ 6,149	\$ 6,104	\$ 129	\$ 166	\$ 1,015	\$ 1,133
Nonqualified plans	—	—	—	—	—	—	—	—
Plan assets at fair value at year end	\$ 12,363	\$ 12,137	\$ 6,149	\$ 6,104	\$ 129	\$ 166	\$ 1,015	\$ 1,133
Funded status of the plans								
Qualified plans⁽¹⁾	\$ (908)	\$ (1,094)	\$ (373)	\$ (430)	\$ (557)	\$ (651)	\$ (126)	\$ (158)
Nonqualified plans⁽²⁾	(729)	(712)	—	—	—	—	—	—
Funded status of the plans at year end	\$ (1,637)	\$ (1,806)	\$ (373)	\$ (430)	\$ (557)	\$ (651)	\$ (126)	\$ (158)
Net amount recognized								
Qualified plans								
Benefit asset	\$ —	\$ —	\$ 711	\$ 726	\$ —	\$ —	\$ 166	\$ 115
Benefit liability	(908)	(1,094)	(1,084)	(1,156)	(557)	(651)	(292)	(273)
Qualified plans	\$ (908)	\$ (1,094)	\$ (373)	\$ (430)	\$ (557)	\$ (651)	\$ (126)	\$ (158)
Nonqualified plans	(729)	(712)	—	—	—	—	—	—
Net amount recognized on the balance sheet	\$ (1,637)	\$ (1,806)	\$ (373)	\$ (430)	\$ (557)	\$ (651)	\$ (126)	\$ (158)
Amounts recognized in Accumulated other comprehensive income (loss)								
Qualified plans								
Net transition obligation	\$ —	\$ —	\$ (1)	\$ (1)	\$ —	\$ —	\$ —	\$ —
Prior service benefit	—	—	29	5	—	—	98	125
Net actuarial gain (loss)	(6,612)	(6,107)	(1,302)	(1,613)	106	3	(399)	(547)
Qualified plans	\$ (6,612)	\$ (6,107)	\$ (1,274)	\$ (1,609)	\$ 106	\$ 3	\$ (301)	\$ (422)
Nonqualified plans	(296)	(266)	—	—	—	—	—	—
Net amount recognized in equity (pretax)	\$ (6,908)	\$ (6,373)	\$ (1,274)	\$ (1,609)	\$ 106	\$ 3	\$ (301)	\$ (422)
Accumulated benefit obligation								
Qualified plans	\$ 13,268	\$ 13,226	\$ 6,090	\$ 6,049	\$ 686	\$ 817	\$ 1,141	\$ 1,291
Nonqualified plans	726	706	—	—	—	—	—	—
Accumulated benefit obligation at year end	\$ 13,994	\$ 13,932	\$ 6,090	\$ 6,049	\$ 686	\$ 817	\$ 1,141	\$ 1,291

(1) The U.S. qualified pension plan is fully funded under specified Employee Retirement Income Security Act (ERISA) funding rules as of January 1, 2017 and no minimum required funding is expected for 2017.

(2) The nonqualified plans of the Company are unfunded.

The following table shows the change in *Accumulated other comprehensive income (loss)* related to the Company's pension, postretirement and post employment plans:

<i>In millions of dollars</i>	2016	2015	2014
Beginning of year balance, net of tax⁽¹⁾⁽²⁾	\$ (5,116)	\$ (5,159)	\$ (3,989)
Actuarial assumptions changes and plan experience	(854)	898	(3,404)
Net asset gain (loss) due to difference between actual and expected returns	400	(1,457)	833
Net amortizations	232	236	202
Prior service (cost) credit	28	(6)	13
Curtailement/settlement gain ⁽³⁾	17	57	67
Foreign exchange impact and other	99	291	459
Change in deferred taxes, net	30	24	660
Change, net of tax	\$ (48)	\$ 43	\$ (1,170)
End of year balance, net of tax⁽¹⁾⁽²⁾	\$ (5,164)	\$ (5,116)	\$ (5,159)

(1) See Note 19 to the Consolidated Financial Statements for further discussion of net *Accumulated other comprehensive income (loss)* balance.

(2) Includes net-of-tax amounts for certain profit sharing plans outside the U.S.

(3) Curtailement and settlement gains relate to repositioning and divestiture activities.

At December 31, 2016 and 2015, the aggregate projected benefit obligation (PBO), the aggregate accumulated benefit obligation (ABO), and the aggregate fair value of plan assets are presented for all defined benefit pension plans with a PBO in excess of plan assets and for all defined benefit pension plans with an ABO in excess of plan assets as follows:

<i>In millions of dollars</i>	PBO exceeds fair value of plan assets				ABO exceeds fair value of plan assets			
	U.S. plans ⁽¹⁾		Non-U.S. plans		U.S. plans ⁽¹⁾		Non-U.S. plans	
	2016	2015	2016	2015	2016	2015	2016	2015
Projected benefit obligation	\$ 14,000	\$ 13,943	\$ 2,484	\$ 3,918	\$ 14,000	\$ 13,943	\$ 2,282	\$ 2,369
Accumulated benefit obligation	13,994	13,932	2,168	3,488	13,994	13,932	2,012	2,047
Fair value of plan assets	12,363	12,137	1,399	2,762	12,363	12,137	1,224	1,243

(1) At December 31, 2016 and 2015, for both the U.S. qualified plan and nonqualified plans, the aggregate PBO and the aggregate ABO exceeded plan assets.

Plan Assumptions

The Company utilizes a number of assumptions to determine plan obligations and expenses. Changes in one or a combination of these assumptions will have an impact on the Company's pension and postretirement PBO, funded status and (benefit) expense. Changes in the plans' funded status resulting from changes in the PBO and fair value of plan assets will have a corresponding impact on *Accumulated other comprehensive income (loss)*.

The actuarial assumptions at the respective years ended December 31 in the table below are used to measure the year-end PBO and the net periodic (benefit) expense for the subsequent year (period). Since Citi's Significant Plans are measured on a quarterly basis, the year-end rates for those plans are used to calculate the net periodic (benefit) expense for the subsequent year's first quarter. As a result of the quarterly measurement process, the net periodic (benefit) expense for the Significant Plans is calculated at each respective quarter end based on the preceding quarter-end rates (as shown below for the U.S. and non-U.S. pension and postretirement plans). The actuarial assumptions for All Other Plans are measured annually.

Certain assumptions used in determining pension and postretirement benefit obligations and net benefit expense for the Company's plans are shown in the following table:

<i>At year end</i>	2016	2015
Discount rate		
U.S. plans		
Qualified pension	4.10%	4.40%
Nonqualified pension	4.00	4.35
Postretirement	3.90	4.20
Non-U.S. pension plans		
Range	0.25 to 72.50	0.25 to 42.00
Weighted average	4.40	4.76
Non-U.S. postretirement plans		
Range	1.75 to 11.05	2.00 to 13.20
Weighted average	8.27	7.90
Future compensation increase rate⁽¹⁾		
Non-U.S. pension plans		
Range	1.25 to 70.00	1.00 to 40.00
Weighted average	3.21	3.24
Expected return on assets		
U.S. plans	6.80	7.00
Non-U.S. pension plans		
Range	1.00 to 11.50	1.60 to 11.50
Weighted average	4.55	4.95
Non-U.S. postretirement plans		
Range	8.00 to 10.30	8.00 to 10.70
Weighted average	8.02	8.01

(1) Not material for U.S. plans

<i>During the year</i>	2016	2015	2014
Discount rate			
U.S. plans			
Qualified pension	4.40%/3.95%/ 3.65%/3.55%	4.00%/3.85%/ 4.45%/4.35%	4.75%/4.55%/ 4.25%/4.25%
Nonqualified pension	4.35/3.90/ 3.55/3.45	3.90/3.70/ 4.30/4.25	4.75
Postretirement	4.20/3.75/ 3.40/3.30	3.80/3.65/ 4.20/4.10	4.35/4.15/ 3.95/4.00
Non-U.S. pension plans ⁽¹⁾			
Range	0.25 to 42.00	1.00 to 32.50	1.60 to 29.25
Weighted average	4.76	4.74	5.60
Non-U.S. postretirement plans ⁽¹⁾			
Range	2.00 to 13.20	2.25 to 12.00	3.50 to 11.90
Weighted average	7.90	7.50	8.65
Future compensation increase rate⁽²⁾			
Non-U.S. pension plans ⁽¹⁾			
Range	1.00 to 40.00	0.75 to 30.00	1.00 to 26.00
Weighted average	3.24	3.27	3.40
Expected return on assets			
U.S. plans	7.00	7.00	7.00
Non-U.S. pension plans ⁽¹⁾			
Range	1.60 to 11.50	1.30 to 11.50	1.20 to 11.50
Weighted average	4.95	5.08	5.68
Non-U.S. postretirement plans ⁽¹⁾			
Range	8.00 to 10.70	8.50 to 10.40	8.50 to 8.90
Weighted average	8.01	8.51	8.50

(1) Reflects rates utilized to determine the first quarter expense for Significant non-U.S. pension and postretirement plans.

(2) Not material for U.S. plans

Discount Rate

The discount rates for the U.S. pension and postretirement plans were selected by reference to a Citigroup-specific analysis using each plan's specific cash flows and compared with high-quality corporate bond indices for reasonableness. The discount rates for the non-U.S. pension and postretirement plans are selected by reference to high-quality corporate bond rates in countries that have developed corporate bond markets. However, where developed corporate bond markets do not exist, the discount rates are selected by reference to local government bond rates with a premium added to reflect the additional risk for corporate bonds in certain countries. Effective December 31, 2016, the established rounding convention was to the nearest 5 basis points for the top five non-U.S. countries, 10 basis points for Japan, and 25 basis points for all other countries.

Expected Rate of Return

The Company determines its assumptions for the expected rate of return on plan assets for its U.S. pension and postretirement plans using a "building block" approach, which focuses on ranges of anticipated rates of return for each asset class. A weighted average range of nominal rates is then determined based on target allocations to each asset class. Market performance over a number of earlier years is evaluated covering a wide range of economic conditions to determine whether there are sound reasons for projecting any past trends.

The Company considers the expected rate of return to be a long-term assessment of return expectations and does not anticipate changing this assumption unless there are significant changes in investment strategy or economic conditions. This contrasts with the selection of the discount rate and certain other assumptions, which are reconsidered annually (or quarterly for the Significant Plans) in accordance with GAAP.

The expected rate of return for the U.S. pension and postretirement plans was 6.80% at December 31, 2016, and was 7.00% at December 31, 2015 and 2014. The expected return on assets reflects the expected annual appreciation of the plan assets and reduces the Company's annual pension expense. The expected return on assets is deducted from the sum of service cost, interest cost and other components of pension expense to arrive at the net pension (benefit) expense. Net pension (benefit) expense for the U.S. pension plans for 2016, 2015 and 2014 reflects deductions of \$886 million, \$893 million and \$878 million of expected returns, respectively.

The following table shows the expected rates of return used in determining the Company's pension expense compared to the actual rate of return on plan assets during 2016, 2015 and 2014 for the U.S. pension and postretirement plans:

	2016	2015	2014
Expected rate of return	7.00%	7.00%	7.00%
Actual rate of return ⁽¹⁾	4.90	(1.70)	7.80

(1) Actual rates of return are presented net of fees.

For the non-U.S. pension plans, pension expense for 2016 was reduced by the expected return of \$287 million, compared with the actual return of \$967 million. Pension expense for 2015 and 2014 was reduced by expected returns of \$323 million and \$384 million, respectively.

Mortality Tables

At December 31, 2016, the Company maintained the Retirement Plan 2014 (RP-2014) mortality table and adopted the Mortality Projection 2016 (MP-2016) projection table for the U.S. plans.

U.S. plans	2016 ⁽²⁾	2015 ⁽³⁾
Mortality⁽¹⁾		
Pension	RP-2014/MP-2016	RP-2014/MP-2015
Postretirement	RP-2014/MP-2016	RP-2014/MP-2015

- (1) The RP-2014 table is the white-collar RP-2014 table, with a 4% increase in rates to reflect the lower life expectancy of Citi plan participants.
- (2) The MP-2016 projection scale is projected from 2011, with convergence to 0.75% ultimate rate of annual improvement by 2032.
- (3) The MP-2015 projection scale is projected from 2011, with convergence to 0.5% ultimate rate of annual improvement by 2029.

Sensitivities of Certain Key Assumptions

The following tables summarize the effect on pension expense of a one-percentage-point change in the discount rate:

<i>In millions of dollars</i>	One-percentage-point increase		
	2016	2015	2014
U.S. plans	\$ 31	\$ 26	\$ 28
Non-U.S. plans	(33)	(32)	(39)

<i>In millions of dollars</i>	One-percentage-point decrease		
	2016	2015	2014
U.S. plans	\$ (47)	\$ (44)	\$ (45)
Non-U.S. plans	37	44	56

Since the U.S. qualified pension plan was frozen, most of the prospective service cost has been eliminated and the gain/loss amortization period was changed to the life expectancy for inactive participants. As a result, pension expense for the U.S. qualified pension plan is driven more by interest costs than service costs, and an increase in the discount rate would increase pension expense, while a decrease in the discount rate would decrease pension expense.

The following tables summarize the effect on pension expense of a one-percentage-point change in the expected rates of return:

<i>In millions of dollars</i>	One-percentage-point increase		
	2016	2015	2014
U.S. plans	\$ (127)	\$ (128)	\$ (129)
Non-U.S. plans	(61)	(63)	(67)

<i>In millions of dollars</i>	One-percentage-point decrease		
	2016	2015	2014
U.S. plans	\$ 127	\$ 128	\$ 129
Non-U.S. plans	61	63	67

Health Care Cost Trend Rate

Assumed health care cost trend rates were as follows:

	2016	2015
Health care cost increase rate for U.S. plans		
Following year	6.50%	7.00%
Ultimate rate to which cost increase is assumed to decline	5.00	5.00
Year in which the ultimate rate is reached ⁽¹⁾	2023	2020

(1) Weighted average for plans with different following year and ultimate rates.

	2016	2015
Health care cost increase rate for Non-U.S. plans (weighted average)		
Following year	6.86%	6.87%
Ultimate rate to which cost increase is assumed to decline	6.85	6.36
Range of years in which the ultimate rate is reached	2017–2029	2016–2029

A one-percentage-point change in assumed health care cost trend rates would have the following effects:

<i>In millions of dollars</i>	One-percentage-point increase		One-percentage-point decrease	
	2016	2015	2016	2015
U.S. plans				
Effect on benefits earned and interest cost for postretirement plans	\$ 1	\$ 2	\$ (1)	\$ (2)
Effect on accumulated postretirement benefit obligation for postretirement plans	30	45	(26)	(38)

<i>In millions of dollars</i>	One-percentage-point increase		One-percentage-point decrease	
	2016	2015	2016	2015
Non-U.S. plans				
Effect on benefits earned and interest cost for postretirement plans	\$ 12	\$ 15	\$ (10)	\$ (12)
Effect on accumulated postretirement benefit obligation for postretirement plans	144	156	(118)	(128)

Plan Assets

Citigroup's pension and postretirement plans' asset allocations for the U.S. plans and the target allocations by asset category based on asset fair values, are as follows:

Asset category ⁽¹⁾	Target asset allocation	U.S. pension assets at December 31,		U.S. postretirement assets at December 31,	
	2017	2016	2015	2016	2015
Equity securities ⁽²⁾	0–30%	18%	19%	18%	19%
Debt securities	20–72	47	46	47	46
Real estate	0–10	5	4	5	4
Private equity	0–12	4	6	4	6
Other investments	12–29	26	25	26	25
Total		100%	100%	100%	100%

- (1) Asset allocations for the U.S. plans are set by investment strategy, not by investment product. For example, private equities with an underlying investment in real estate are classified in the real estate asset category, not private equity.
- (2) Equity securities in the U.S. pension and postretirement plans do not include any Citigroup common stock at the end of 2016 and 2015.

Third-party investment managers and advisers provide their services to Citigroup's U.S. pension and postretirement plans. Assets are rebalanced as the Company's Pension Plan Investment Committee deems appropriate. Citigroup's investment strategy, with respect to its assets, is to maintain a globally diversified investment portfolio across several asset classes that, when combined with Citigroup's contributions to

the plans, will maintain the plans' ability to meet all required benefit obligations.

Citigroup's pension and postretirement plans' weighted-average asset allocations for the non-U.S. plans and the actual ranges, and the weighted-average target allocations by asset category based on asset fair values, are as follows:

Asset category ⁽¹⁾	Non-U.S. pension plans				
	Target asset allocation	Actual range at December 31,		Weighted-average at December 31,	
	2017	2016	2015	2016	2015
Equity securities	0–63%	0–69%	0–68%	14%	16%
Debt securities	0–100	0–100	0–100	79	77
Real estate	0–18	0–18	0–18	1	1
Other investments	0–100	0–100	0–100	6	6
Total				100%	100%

- (1) Similar to the U.S. plans, asset allocations for certain non-U.S. plans are set by investment strategy, not by investment product.

Asset category ⁽¹⁾	Non-U.S. postretirement plans				
	Target asset allocation	Actual range at December 31,		Weighted-average at December 31,	
	2017	2016	2015	2016	2015
Equity securities	0–39%	0–38%	0–41%	38%	41%
Debt securities	57–100	57–100	56–100	58	56
Other investments	0–3	0–4	0–3	4	3
Total				100%	100%

- (1) Similar to the U.S. plans, asset allocations for certain non-U.S. plans are set by investment strategy, not by investment product.

Fair Value Disclosure

For information on fair value measurements, including descriptions of Levels 1, 2 and 3 of the fair value hierarchy and the valuation methodology utilized by the Company, see Note 1 and Note 25 to the Consolidated Financial Statements. ASU 2015-07 removed the requirement to categorize within the fair value hierarchy investments for which fair value is measured using the NAV per share practical expedient.

Certain investments may transfer between the fair value hierarchy classifications during the year due to changes in valuation methodology and pricing sources. There were no significant transfers of investments between Level 1 and Level 2 during 2016 and 2015.

Plan assets by detailed asset categories and the fair value hierarchy are as follows:

<i>In millions of dollars</i>	U.S. pension and postretirement benefit plans ⁽¹⁾			
	Fair value measurement at December 31, 2016			
Asset categories	Level 1	Level 2	Level 3	Total
U.S. equities	\$ 639	\$ —	\$ —	\$ 639
Non-U.S. equities	773	—	—	773
Mutual funds	216	—	—	216
Commingled funds	—	866	—	866
Debt securities	1,297	2,845	—	4,142
Annuity contracts	—	—	3	3
Derivatives	8	543	—	551
Other investments	—	—	2	2
Total investments	\$ 2,933	\$ 4,254	\$ 5	\$ 7,192
Cash and short-term investments	\$ 19	\$ 1,239	\$ —	\$ 1,258
Other investment liabilities	(9)	(553)	—	(562)
Net investments at fair value	\$ 2,943	\$ 4,940	\$ 5	\$ 7,888
Other investment receivables redeemed at NAV				\$ 100
Securities valued at NAV				4,504
Total net assets				\$ 12,492

(1) The investments of the U.S. pension and postretirement plans are commingled in one trust. At December 31, 2016, the allocable interests of the U.S. pension and postretirement plans were 99.0% and 1.0%, respectively.

<i>In millions of dollars</i>	U.S. pension and postretirement benefit plans ⁽¹⁾			
	Fair value measurement at December 31, 2015			
Asset categories	Level 1	Level 2	Level 3	Total
U.S. equities	\$ 694	\$ —	\$ —	\$ 694
Non-U.S. equities	816	—	—	816
Mutual funds	223	—	—	223
Commingled funds	—	915	—	915
Debt securities	1,172	2,761	—	3,933
Annuity contracts	—	—	27	27
Derivatives	6	521	—	527
Other investments	—	—	147	147
Total investments	\$ 2,911	\$ 4,197	\$ 174	\$ 7,282
Cash and short-term investments	\$ 138	\$ 1,064	\$ —	\$ 1,202
Other investment liabilities	(10)	(515)	—	(525)
Net investments at fair value	\$ 3,039	\$ 4,746	\$ 174	\$ 7,959
Other investment receivables redeemed at NAV				\$ 18
Securities valued at NAV				4,326
Total net assets				\$ 12,303

(1) The investments of the U.S. pension and postretirement plans are commingled in one trust. At December 31, 2015, the allocable interests of the U.S. pension and postretirement plans were 98.6% and 1.4%, respectively.

Non-U.S. pension and postretirement benefit plans

Fair value measurement at December 31, 2016

In millions of dollars

Asset categories	Level 1	Level 2	Level 3	Total
U.S. equities	\$ 4	\$ 11	\$ —	\$ 15
Non-U.S. equities	87	174	1	262
Mutual funds	2,345	406	—	2,751
Commingled funds	22	—	—	22
Debt securities	3,406	1,206	7	4,619
Real estate	—	3	1	4
Annuity contracts	—	1	36	37
Derivatives	—	43	—	43
Other investments	1	—	159	160
Total investments	\$ 5,865	\$ 1,844	\$ 204	\$ 7,913
Cash and short-term investments	\$ 116	\$ 2	\$ —	\$ 118
Other investment liabilities	(1)	(960)	—	(961)
Net investments at fair value	\$ 5,980	\$ 886	\$ 204	\$ 7,070
Securities valued at NAV				\$ 92
Total net assets				\$ 7,162

Non-U.S. pension and postretirement benefit plans

Fair value measurement at December 31, 2015

In millions of dollars

Asset categories	Level 1	Level 2	Level 3	Total
U.S. equities	\$ 5	\$ 11	\$ —	\$ 16
Non-U.S. equities	74	222	47	343
Mutual funds	2,935	—	—	2,935
Commingled funds	26	—	—	26
Debt securities	2,995	1,215	5	4,215
Real estate	—	3	1	4
Annuity contracts	—	1	41	42
Other investments	1	—	163	164
Total investments	\$ 6,036	\$ 1,452	\$ 257	\$ 7,745
Cash and short-term investments	\$ 73	\$ 2	\$ —	\$ 75
Other investment liabilities	—	(690)	—	(690)
Net investments at fair value	\$ 6,109	\$ 764	\$ 257	\$ 7,130
Securities valued at NAV				\$ 107
Total net assets				\$ 7,237

Level 3 Rollforward

The reconciliations of the beginning and ending balances during the year for Level 3 assets are as follows:

In millions of dollars

U.S. pension and postretirement benefit plans						
Asset categories	Beginning Level 3 fair value at Dec. 31, 2015	Realized gains (losses)	Unrealized gains (losses)	Purchases, sales, and issuances	Transfers in and/or out of Level 3	Ending Level 3 fair value at Dec. 31, 2016
Annuity contracts	\$ 27	\$ —	\$ (3)	\$ (21)	\$ —	\$ 3
Other investments	147	8	(10)	(143)	—	2
U.S. equities	—	(2)	2	—	—	—
Total investments	\$ 174	\$ 6	\$ (11)	\$ (164)	\$ —	\$ 5

In millions of dollars

U.S. pension and postretirement benefit plans						
Asset categories	Beginning Level 3 fair value at Dec. 31, 2014 ⁽¹⁾	Realized gains (losses)	Unrealized gains (losses)	Purchases, sales, and issuances	Transfers in and/or out of Level 3	Ending Level 3 fair value at Dec. 31, 2015
Annuity contracts	\$ 59	\$ —	\$ (4)	\$ (28)	\$ —	\$ 27
Other investments	161	(1)	(9)	(4)	—	147
Total investments	\$ 220	\$ (1)	\$ (13)	\$ (32)	\$ —	\$ 174

(1) Beginning balance was adjusted to exclude \$2,496 million of investments valued at NAV.

In millions of dollars

Non-U.S. pension and postretirement benefit plans					
Asset categories	Beginning Level 3 fair value at Dec. 31, 2015	Unrealized gains (losses)	Purchases, sales, and issuances	Transfers in and/or out of Level 3	Ending Level 3 fair value at Dec. 31, 2016
Non-U.S. equities	\$ 47	\$ (3)	\$ (2)	\$ (41)	\$ 1
Debt securities	5	—	2	—	7
Real estate	1	—	—	—	1
Annuity contracts	41	(4)	(1)	—	36
Other investments	163	4	(8)	—	159
Total investments	\$ 257	\$ (3)	\$ (9)	\$ (41)	\$ 204

In millions of dollars

Non-U.S. pension and postretirement benefit plans					
Asset categories	Beginning Level 3 fair value at Dec. 31, 2014 ⁽¹⁾	Unrealized gains (losses)	Purchases, sales, and issuances	Transfers in and/or out of Level 3	Ending Level 3 fair value at Dec. 31, 2015
Non-U.S. equities	\$ 48	\$ (1)	\$ —	\$ —	\$ 47
Debt securities	6	(1)	—	—	5
Real estate	—	—	—	1	1
Annuity contracts	32	2	4	3	41
Other investments	165	(2)	2	(2)	163
Total investments	\$ 251	\$ (2)	\$ 6	\$ 2	\$ 257

(1) Beginning balance was adjusted to exclude \$5 million of investments valued at NAV.

Investment Strategy

The Company's global pension and postretirement funds' investment strategy is to invest in a prudent manner for the exclusive purpose of providing benefits to participants. The investment strategies are targeted to produce a total return that, when combined with the Company's contributions to the funds, will maintain the funds' ability to meet all required benefit obligations. Risk is controlled through diversification of asset types and investments in domestic and international equities, fixed-income securities and cash and short-term investments. The target asset allocation in most locations outside the U.S. is primarily in equity and debt securities. These allocations may vary by geographic region and country depending on the nature of applicable obligations and various other regional considerations. The wide variation in the actual range of plan asset allocations for the funded non-U.S. plans is a result of differing local statutory requirements and economic conditions. For example, in certain countries local law requires that all pension plan assets must be invested in fixed-income investments, government funds, or local-country securities.

Significant Concentrations of Risk in Plan Assets

The assets of the Company's pension plans are diversified to limit the impact of any individual investment. The U.S. qualified pension plan is diversified across multiple asset classes, with publicly traded fixed income, hedge funds, publicly traded equity, and private equity representing the most significant asset allocations. Investments in these four asset classes are further diversified across funds, managers, strategies, vintages, sectors and geographies, depending on the specific characteristics of each asset class. The pension assets for the Company's non-U.S. Significant Plans are primarily invested in publicly traded fixed income and publicly traded equity securities.

Oversight and Risk Management Practices

The framework for the Company's pension oversight process includes monitoring of retirement plans by plan fiduciaries and/or management at the global, regional or country level, as appropriate. Independent Risk Management contributes to the risk oversight and monitoring for the Company's U.S. qualified pension plan and non-U.S. Significant Pension Plans. Although the specific components of the oversight process are tailored to the requirements of each region, country and plan, the following elements are common to the Company's monitoring and risk management process:

- periodic asset/liability management studies and strategic asset allocation reviews;
- periodic monitoring of funding levels and funding ratios;
- periodic monitoring of compliance with asset allocation guidelines;
- periodic monitoring of asset class and/or investment manager performance against benchmarks; and
- periodic risk capital analysis and stress testing.

Estimated Future Benefit Payments

The Company expects to pay the following estimated benefit payments in future years:

<i>In millions of dollars</i>	Pension plans		Postretirement benefit plans	
	U.S. plans	Non-U.S. plans	U.S. plans	Non-U.S. plans
2017	\$ 893	\$ 357	\$ 62	\$ 57
2018	798	337	60	61
2019	810	359	58	66
2020	838	388	56	71
2021	857	404	55	76
2022–2026	4,455	2,352	247	475

Prescription Drugs

In December 2003, the Medicare Prescription Drug Improvement and Modernization Act of 2003 (Act of 2003) was enacted. The Act of 2003 established a prescription drug benefit under Medicare known as “Medicare Part D,” and a federal subsidy to sponsors of U.S. retiree health care benefit plans that provide a benefit that is at least actuarially equivalent to Medicare Part D. The benefits provided to certain participants are at least actuarially equivalent to Medicare Part D and, accordingly, the Company is entitled to a subsidy.

The subsidy reduced the accumulated postretirement benefit obligation (APBO) by approximately \$5 million as of December 31, 2016 and 2015 and the postretirement expense by approximately \$0.2 million for 2016 and 2015.

The following table shows the estimated future benefit payments from the Medicare Part D subsidy of the U.S. postretirement plan.

<i>In millions of dollars</i>	Expected U.S. postretirement benefit payments		
	Before Medicare Part D subsidy	Medicare Part D subsidy	After Medicare Part D subsidy
2017	\$ 62	\$ —	\$ 62
2018	60	—	60
2019	58	—	58
2020	56	—	56
2021	55	—	55
2022–2026	248	1	247

Certain provisions of the Patient Protection and Affordable Care Act of 2010 improved the Medicare Part D option known as the Employer Group Waiver Plan (EGWP) with respect to the Medicare Part D subsidy. The EGWP provides prescription drug benefits that are more cost effective for Medicare-eligible participants and large employers. Effective April 1, 2013, the Company began sponsoring and implementing an EGWP for eligible retirees. The Company subsidy received under the EGWP for 2016 and 2015 was \$12.9 million and \$11.6 million, respectively.

The other provisions of the Act of 2010 are not expected to have a significant impact on Citigroup’s pension and postretirement plans.

Post Employment Plans

The Company sponsors U.S. post employment plans that provide income continuation and health and welfare benefits to certain eligible U.S. employees on long-term disability.

As of December 31, 2016 and 2015, the plans’ funded status recognized in the Company’s Consolidated Balance Sheet was \$(157) million and \$(183) million, respectively. The amounts recognized in *Accumulated other comprehensive income (loss)* as of December 31, 2016 and 2015 were \$34 million and \$45 million, respectively. Effective January 1, 2014, the Company made changes to its post employment plans that limit the period for which future disabled employees are eligible for continued Company-subsidized medical benefits.

The following table summarizes the components of net expense recognized in the Consolidated Statement of Income for the Company’s U.S. post employment plans.

<i>In millions of dollars</i>	Net expense		
	2016	2015	2014
Service related expense			
Interest cost on benefit obligation	\$ 3	\$ 4	\$ 5
Amortization of unrecognized			
Prior service (benefit) cost	(31)	(31)	(31)
Net actuarial loss	5	12	14
Total service related benefit	\$ (23)	\$ (15)	\$ (12)
Non-service related expense	\$ 21	\$ 3	\$ 37
Total net (benefit) expense	\$ (2)	\$ (12)	\$ 25

The following table summarizes certain assumptions used in determining the post employment benefit obligations and net benefit expense for the Company's U.S. post employment plans.

	2016	2015
Discount rate	3.40%	3.70%
Health care cost increase rate		
Following year	6.50%	7.00%
Ultimate rate to which cost increase is assumed to decline	5.00	5.00
Year in which the ultimate rate is reached	2023	2020

Defined Contribution Plans

The Company sponsors defined contribution plans in the U.S. and in certain non-U.S. locations, all of which are administered in accordance with local laws. The most significant defined contribution plan is the Citi Retirement Savings Plan (formerly known as the Citigroup 401(k) Plan) sponsored by the Company in the U.S.

Under the Citi Retirement Savings Plan, eligible U.S. employees received matching contributions of up to 6% of their eligible compensation for 2016 and 2015, subject to statutory limits. Additionally, for eligible employees whose eligible compensation is \$100,000 or less, a fixed contribution of up to 2% of eligible compensation is provided. All Company contributions are invested according to participants' individual elections. The following table summarizes the Company contributions for the defined contribution plans:

	U.S. plans		
<i>In millions of dollars</i>	2016	2015	2014
Company contributions	\$ 371	\$ 380	\$ 383

	Non U.S. plans		
<i>In millions of dollars</i>	2016	2015	2014
Company contributions	\$ 268	\$ 282	\$ 302

9. INCOME TAXES

Details of the Company's income tax provision are presented below:

Income Tax Provision

<i>In millions of dollars</i>	2016	2015	2014
Current			
Federal	\$ 1,016	\$ 861	\$ 181
Foreign	3,585	3,397	3,281
State	384	388	388
Total current income taxes	\$ 4,985	\$ 4,646	\$ 3,850
Deferred			
Federal	\$ 1,280	\$ 3,019	\$ 2,510
Foreign	53	(4)	361
State	126	(221)	476
Total deferred income taxes	\$ 1,459	\$ 2,794	\$ 3,347
Provision for income tax on continuing operations before non-controlling interests⁽¹⁾	\$ 6,444	\$ 7,440	\$ 7,197
Provision (benefit) for income taxes on discontinued operations	(22)	(29)	12
Income tax expense (benefit) reported in stockholders' equity related to:			
FX translation	(402)	(906)	65
Investment securities	59	(498)	1,007
Employee stock plans	13	(35)	(87)
Cash flow hedges	27	176	207
Benefit plans	(30)	(24)	(660)
FVO DVA	(201)	—	—
Retained earnings ⁽²⁾	—	—	(353)
Income taxes before non-controlling interests	\$ 5,888	\$ 6,124	\$ 7,388

(1) Includes the effect of securities transactions and other-than-temporary-impairment losses resulting in a provision (benefit) of \$332 million and \$(217) million in 2016, \$239 million and \$(93) million in 2015 and \$200 million and \$(148) million in 2014, respectively.

(2) See "Consolidated Statement of Changes in Stockholders' Equity" above.

Tax Rate

The reconciliation of the federal statutory income tax rate to the Company's effective income tax rate applicable to income from continuing operations (before non-controlling interests and the cumulative effect of accounting changes) for each of the periods indicated is as follows:

	2016	2015	2014
Federal statutory rate	35.0%	35.0%	35.0%
State income taxes, net of federal benefit	1.8	1.7	3.4
Foreign income tax rate differential	(3.6)	(4.6)	(0.3)
Audit settlements ⁽¹⁾	(0.6)	(1.7)	(2.4)
Effect of tax law changes ⁽²⁾	—	0.4	1.2
Nondeductible legal and related expenses	—	0.3	18.3
Basis difference in affiliates	(0.1)	—	(2.5)
Tax advantaged investments	(2.4)	(1.8)	(3.6)
Other, net	(0.1)	0.7	(0.1)
Effective income tax rate	30.0%	30.0%	49.0%

(1) For 2016, primarily relates to the conclusion of an IRS audit for 2012–2013. For 2015, primarily relates to the conclusion of a New York City tax audit for 2009–2011. For 2014, relates to the conclusion of the audit of various issues in the Company's 2009–2011 U.S. federal tax audit and the conclusion of a New York State tax audit for 2006–2008.

(2) For 2015, includes the results of tax reforms enacted in New York City and several states, which resulted in a DTA charge of approximately \$101 million. For 2014, includes the results of tax reforms enacted in New York State and South Dakota, which resulted in a DTA charge of approximately \$210 million.

As set forth in the table above, Citi's effective tax rate for 2016 was 30.0%, the same as the effective tax rate in 2015.

Deferred Income Taxes

Deferred income taxes at December 31 related to the following:

<i>In millions of dollars</i>	2016	2015
Deferred tax assets		
Credit loss deduction	\$ 5,146	\$ 6,058
Deferred compensation and employee benefits	3,798	4,110
Repositioning and settlement reserves	1,033	1,429
Unremitted foreign earnings	9,311	8,403
Investment and loan basis differences	4,829	3,248
Cash flow hedges	327	359
Tax credit and net operating loss carry-forwards	20,793	23,053
Fixed assets and leases	1,739	1,356
Other deferred tax assets	2,714	3,176
Gross deferred tax assets	\$49,690	\$51,192
Valuation allowance	—	—
Deferred tax assets after valuation allowance	\$49,690	\$51,192
Deferred tax liabilities		
Deferred policy acquisition costs and value of insurance in force	\$ (5)	\$ (327)
Intangibles	(1,711)	(1,146)
Debt issuances	(641)	(850)
Other deferred tax liabilities	(665)	(1,020)
Gross deferred tax liabilities	\$ (3,022)	\$ (3,343)
Net deferred tax assets	\$46,668	\$47,849

In millions of dollars

	2016		2015		2014	
	Pretax	Net of tax	Pretax	Net of tax	Pretax	Net of tax
Total interest and penalties in the Consolidated Balance Sheet at January 1	\$ 233	\$ 146	\$ 269	\$ 169	\$ 277	\$ 173
Total interest and penalties in the Consolidated Statement of Income	105	68	(29)	(18)	(1)	(1)
Total interest and penalties in the Consolidated Balance Sheet at December 31 ⁽¹⁾	260	164	233	146	269	169

(1) Includes \$3 million, \$3 million, and \$2 million for foreign penalties in 2016, 2015 and 2014, respectively. Also includes \$3 million for state penalties in 2016, 2015 and 2014.

As of December 31, 2016, Citi is under audit by the Internal Revenue Service and other major taxing jurisdictions around the world. It is thus reasonably possible that significant changes in the gross balance of unrecognized tax benefits may occur within the next 12 months, although Citi does not expect such audits to result in amounts that would cause a significant change to its effective tax rate, other than as discussed below.

Citi has concluded certain state and local tax audits. The gross uncertain tax positions at December 31, 2016 relating to such audits are \$78 million. The tax benefit to continuing operations is expected to be \$51 million in the first quarter of 2017.

Unrecognized Tax Benefits

The following is a rollforward of the Company's unrecognized tax benefits.

<i>In millions of dollars</i>	2016	2015	2014
Total unrecognized tax benefits at January 1	\$ 1,235	\$ 1,060	\$ 1,574
Net amount of increases for current year's tax positions	34	32	135
Gross amount of increases for prior years' tax positions	273	311	175
Gross amount of decreases for prior years' tax positions	(225)	(61)	(772)
Amounts of decreases relating to settlements	(174)	(45)	(28)
Reductions due to lapse of statutes of limitation	(21)	(22)	(30)
Foreign exchange, acquisitions and dispositions	(30)	(40)	6
Total unrecognized tax benefits at December 31	\$ 1,092	\$ 1,235	\$ 1,060

The total amounts of unrecognized tax benefits at December 31, 2016, 2015 and 2014 that, if recognized, would affect Citi's tax expense, are \$0.8 billion, \$0.9 billion and \$0.8 billion, respectively. The remaining uncertain tax positions have offsetting amounts in other jurisdictions or are temporary differences.

Interest and penalties (not included in "unrecognized tax benefits" above) are a component of the *Provision for income taxes*.

The following are the major tax jurisdictions in which the Company and its affiliates operate and the earliest tax year subject to examination:

Jurisdiction	Tax year
United States	2014
Mexico	2009
New York State and City	2006
United Kingdom	2014
India	2013
Singapore	2011
Hong Kong	2010
Ireland	2012

Foreign Earnings

Foreign pretax earnings approximated \$11.6 billion in 2016, \$11.3 billion in 2015 and \$10.1 billion in 2014. As a U.S. corporation, Citigroup and its U.S. subsidiaries are currently subject to U.S. taxation on all foreign pretax earnings of a foreign branch. Pretax earnings of a foreign subsidiary or affiliate are subject to U.S. taxation when effectively repatriated. The Company provides income taxes on the undistributed earnings of non-U.S. subsidiaries except to the extent that such earnings are indefinitely reinvested outside the United States.

At December 31, 2016, \$47.0 billion of accumulated undistributed earnings of non-U.S. subsidiaries was indefinitely invested. At the existing U.S. federal income tax rate, additional taxes (net of U.S. foreign tax credits) of \$13.1 billion would have to be provided if such earnings were remitted currently. The current year's effect on the income tax expense from continuing operations is included in the "Foreign income tax rate differential" line in the reconciliation of the federal statutory rate to the Company's effective income tax rate in the table above.

Income taxes are not provided for the Company's "savings bank base year bad debt reserves" that arose before 1988, because under current U.S. tax rules, such taxes will become payable only to the extent such amounts are distributed in excess of limits prescribed by federal law. At December 31, 2016, the amount of the base year reserves totaled approximately \$358 million (subject to a tax of \$125 million).

Deferred Tax Assets

As of December 31, 2016 and 2015, Citi had no valuation allowance on its DTAs. The following table summarizes Citi's DTAs.

In billions of dollars

Jurisdiction/component	DTAs balance December 31, 2016	DTAs balance December 31, 2015
U.S. federal⁽¹⁾		
Net operating losses (NOLs) ⁽²⁾	\$ 3.5	\$ 3.4
Foreign tax credits (FTCs) ⁽³⁾	14.2	15.9
General business credits (GBCs)	0.9	1.3
Future tax deductions and credits	21.9	20.7
Total U.S. federal	\$ 40.5	\$ 41.3
State and local		
New York NOLs	\$ 2.2	\$ 2.4
Other state NOLs	0.2	0.3
Future tax deductions	1.7	1.2
Total state and local	\$ 4.1	\$ 3.9
Foreign		
APB 23 subsidiary NOLs	\$ 0.1	\$ 0.2
Non-APB 23 subsidiary NOLs	0.4	0.4
Future tax deductions	1.6	2.0
Total foreign	\$ 2.1	\$ 2.6
Total	\$ 46.7	\$ 47.8

- (1) Included in the net U.S. federal DTAs of \$40.5 billion as of December 31, 2016 were deferred tax liabilities of \$2 billion that will reverse in the relevant carry-forward period and may be used to support the DTAs.
- (2) 2016 consists of non-consolidated tax return NOL carry-forwards that are eventually expected to be utilized in Citigroup's consolidated tax return. 2015 includes \$0.5 billion of non-consolidated NOL carry-forwards that were used in 2016 separately from Citigroup's consolidated tax return, and \$2.9 billion of non-consolidated tax return NOL carry-forwards that are eventually expected to be utilized in Citigroup's consolidated tax return.
- (3) Includes \$1.9 billion and \$1.7 billion for 2016 and 2015, respectively, of non-consolidated tax return FTC carry-forwards that are eventually expected to be utilized in Citigroup's consolidated tax return.

The following table summarizes the amounts of tax carry-forwards and their expiration dates:

In billions of dollars

Year of expiration	December 31, 2016	December 31, 2015
U.S. tax return foreign tax credit carry-forwards		
2018	\$ 2.7	\$ 4.8
2019	1.3	1.2
2020	3.1	3.1
2021	1.9	1.7
2022	3.3	3.4
2023 ⁽¹⁾	0.5	0.4
2025 ⁽¹⁾	1.4	1.3
Total U.S. tax return foreign tax credit carry-forwards	\$ 14.2	\$ 15.9
U.S. tax return general business credit carry-forwards		
2031	\$ —	\$ 0.2
2032	—	0.4
2033	0.3	0.3
2034	0.2	0.2
2035	0.2	0.2
2036	0.2	—
Total U.S. tax return general business credit carry-forwards	\$ 0.9	\$ 1.3
U.S. subsidiary separate federal NOL carry-forwards		
2027	\$ 0.2	\$ 0.2
2028	0.1	0.1
2030	0.3	0.3
2031	—	1.5
2033	1.7	1.7
2034	2.3	2.3
2035	3.2	3.6
2036	2.2	—
Total U.S. subsidiary separate federal NOL carry-forwards⁽²⁾	\$ 10.0	\$ 9.7
New York State NOL carry-forwards⁽²⁾		
2034	\$ 13.0	\$ 14.6
New York City NOL carry-forwards⁽²⁾		
2034	\$ 12.2	\$ 13.3
APB 23 subsidiary NOL carry-forwards		
Various	\$ 0.1	\$ 0.2

- (1) The \$1.9 billion in FTC carry-forwards that expire in 2023 and 2025 are in a non-consolidated tax return entity but are eventually expected to be utilized in Citigroup's consolidated tax return.
- (2) Pretax.

While Citi's net total DTAs decreased year-over-year, the time remaining for utilization has shortened, given the passage of time, particularly with respect to the foreign tax credit (FTC) component of the DTAs. Although realization is not assured, Citi believes that the realization of the recognized net DTAs of \$46.7 billion at December 31, 2016 is more-likely-than-not based upon expectations as to future taxable income in the jurisdictions in which the DTAs arise and available tax planning strategies (as defined in ASC 740, *Income Taxes*) that would be implemented, if necessary, to prevent a carry-forward from expiring.

Citi has concluded that it has the necessary positive evidence to support the full realization of its DTAs. Specifically, Citi forecasts sufficient U.S. taxable income in the carry-forward periods, exclusive of ASC 740 tax planning strategies. Citi's forecasted taxable income, which will continue to be subject to overall market and global economic conditions, incorporates geographic business forecasts and taxable income adjustments to those forecasts (e.g., U.S. tax-exempt income, loan loss reserves deductible for U.S. tax reporting in subsequent years), and actions intended to optimize its U.S. taxable earnings. In general, Citi would need to generate approximately \$57 billion of U.S. taxable income during the FTC carry-forward periods to prevent this most time-sensitive component of Citi's FTCs from expiring.

In addition to its forecasted U.S. taxable income, Citi has sufficient tax planning strategies available to it under ASC 740 that would be implemented, if necessary, to prevent a carry-forward from expiring. These strategies include repatriating low-taxed foreign source earnings for which an assertion that the earnings have been indefinitely reinvested has not been made, accelerating U.S. taxable income into, or deferring U.S. tax deductions out of, the latter years of the carry-forward period (e.g., selling appreciated assets, electing straight-line depreciation), accelerating deductible temporary differences outside the U.S., and selling certain assets that produce tax-exempt income, while purchasing assets that produce fully taxable income. In addition, the sale or restructuring of certain businesses can produce significant U.S. taxable income within the relevant carry-forward periods.

Based upon the foregoing discussion, Citi believes the U.S. federal and New York state and city NOL carry-forward period of 20 years provides enough time to fully utilize the DTAs pertaining to the existing NOL carry-forwards and any NOL that would be created by the reversal of the future net deductions that have not yet been taken on a tax return.

With respect to the FTCs component of the DTAs, the carry-forward period is 10 years. Utilization of FTCs in any year is restricted to 35% of foreign source taxable income in that year. However, overall domestic losses that Citi has incurred of approximately \$49 billion as of December 31, 2016 are allowed to be reclassified as foreign source income to the extent of 50% of domestic source income produced in subsequent years. Such resulting foreign source income would cover the FTCs being carried forward. As noted in the table above, Citi's FTC carry-forwards were \$14.2 billion as of December 31, 2016, compared to \$15.9 billion as of December 31, 2015. This decrease represented \$1.7 billion of

the \$1.2 billion decrease in Citi's overall DTAs during 2016, partially offset by an increase in AOCI related DTAs. Citi believes that it will generate sufficient U.S. taxable income within the 10-year carry-forward period to be able to fully utilize the FTCs, in addition to any FTCs produced in the tax return for such period, which must be used prior to any carry-forward utilization.

10. EARNINGS PER SHARE

The following table reconciles the income and share data used in the basic and diluted earnings per share (EPS) computations:

<i>In millions, except per-share amounts</i>	2016	2015	2014
Income from continuing operations before attribution of noncontrolling interests	\$ 15,033	\$ 17,386	\$ 7,504
Less: Noncontrolling interests from continuing operations	63	90	192
Net income from continuing operations (for EPS purposes)	\$ 14,970	\$ 17,296	\$ 7,312
Income (loss) from discontinued operations, net of taxes	(58)	(54)	(2)
Citigroup's net income	\$ 14,912	\$ 17,242	\$ 7,310
Less: Preferred dividends ⁽¹⁾	1,077	769	511
Net income available to common shareholders	\$ 13,835	\$ 16,473	\$ 6,799
Less: Dividends and undistributed earnings allocated to employee restricted and deferred shares with nonforfeitable rights to dividends, applicable to basic EPS	195	224	111
Net income allocated to common shareholders for basic EPS	\$ 13,640	\$ 16,249	\$ 6,688
Add: Interest expense, net of tax, and dividends on convertible securities and adjustment of undistributed earnings allocated to employee restricted and deferred shares with nonforfeitable rights to dividends, applicable to diluted EPS	—	—	1
Net income allocated to common shareholders for diluted EPS	\$ 13,640	\$ 16,249	\$ 6,689
Weighted-average common shares outstanding applicable to basic EPS	2,888.1	3,004.0	3,031.6
Effect of dilutive securities ⁽²⁾			
Options ⁽³⁾	0.1	3.6	5.1
Other employee plans	0.1	0.1	0.3
Adjusted weighted-average common shares outstanding applicable to diluted EPS⁽⁴⁾	2,888.3	3,007.7	3,037.0
Basic earnings per share⁽⁵⁾			
Income from continuing operations	\$ 4.74	\$ 5.43	\$ 2.21
Discontinued operations	(0.02)	(0.02)	—
Net income	\$ 4.72	\$ 5.41	\$ 2.21
Diluted earnings per share⁽⁵⁾			
Income from continuing operations	\$ 4.74	\$ 5.42	\$ 2.20
Discontinued operations	(0.02)	(0.02)	—
Net income	\$ 4.72	\$ 5.40	\$ 2.20

(1) See Note 20 to the Consolidated Financial Statements for the potential future impact of preferred stock dividends.

(2) Warrants issued to the U.S. Treasury as part of the Troubled Asset Relief Program (TARP) and the loss-sharing agreement (all of which were subsequently sold to the public in January 2011), with exercise prices of \$178.50 and \$105.83 per share for approximately 21.0 million and 25.5 million shares of Citigroup common stock, respectively. Both warrants were not included in the computation of earnings per share in 2016, 2015 and 2014 because they were anti-dilutive.

(3) During 2016, 2015 and 2014, weighted-average options to purchase 4.2 million, 0.9 million and 2.8 million shares of common stock, respectively, were outstanding but not included in the computation of earnings per share because the weighted-average exercise prices of \$98.01, \$199.16 and \$153.91 per share, respectively, were anti-dilutive.

(4) Due to rounding, common shares outstanding applicable to basic EPS and the effect of dilutive securities may not sum to common shares outstanding applicable to diluted EPS.

(5) Due to rounding, earnings per share on continuing operations and discontinued operations may not sum to earnings per share on net income.

11. FEDERAL FUNDS, SECURITIES BORROWED, LOANED AND SUBJECT TO REPURCHASE AGREEMENTS

Federal funds sold and securities borrowed or purchased under agreements to resell, at their respective carrying values, consisted of the following:

<i>In millions of dollars</i>	2016	2015
Federal funds sold	\$ —	\$ 25
Securities purchased under agreements to resell	131,473	119,777
Deposits paid for securities borrowed	105,340	99,873
Total⁽¹⁾	\$ 236,813	\$ 219,675

Federal funds purchased and securities loaned or sold under agreements to repurchase, at their respective carrying values, consisted of the following:

<i>In millions of dollars</i>	2016	2015
Federal funds purchased	\$ 178	\$ 189
Securities sold under agreements to repurchase	125,685	131,650
Deposits received for securities loaned	15,958	14,657
Total⁽¹⁾	\$ 141,821	\$ 146,496

- (1) The above tables do not include securities-for-securities lending transactions of \$9.3 billion and \$8.8 billion at December 31, 2016 and December 31, 2015, respectively, where the Company acts as lender and receives securities that can be sold or pledged as collateral. In these transactions, the Company recognizes the securities received at fair value within *Other assets* and the obligation to return those securities as a liability within *Brokerage payables*.

The resale and repurchase agreements represent collateralized financing transactions. Citi executes these transactions primarily through its broker-dealer subsidiaries to facilitate customer matched-book activity and to efficiently fund a portion of Citi's trading inventory. Transactions executed by Citi's bank subsidiaries primarily facilitate customer financing activity.

To maintain reliable funding under a wide range of market conditions, including under periods of stress, Citi manages these activities by taking into consideration the quality of the underlying collateral, and stipulating financing tenor. Citi manages the risks in its collateralized financing transactions by conducting daily stress tests to account for changes in capacity, tenors, haircut, collateral profile and client actions. Additionally, Citi maintains counterparty diversification by establishing concentration triggers and assessing counterparty reliability and stability under stress.

It is Citi's policy to take possession of the underlying collateral, monitor its market value relative to the amounts due under the agreements and, when necessary, require prompt transfer of additional collateral in order to maintain contractual margin protection. For resale and repurchase

agreements, when necessary, Citi posts additional collateral in order to maintain contractual margin protection.

Collateral typically consists of government and government-agency securities, corporate and municipal bonds, equities, and mortgage-backed and other asset-backed securities.

The resale and repurchase agreements are generally documented under industry standard agreements that allow the prompt close-out of all transactions (including the liquidation of securities held) and the offsetting of obligations to return cash or securities by the non-defaulting party, following a payment default or other type of default under the relevant master agreement. Events of default generally include (i) failure to deliver cash or securities as required under the transaction, (ii) failure to provide or return cash or securities as used for margining purposes, (iii) breach of representation, (iv) cross-default to another transaction entered into among the parties, or, in some cases, their affiliates, and (v) a repudiation of obligations under the agreement. The counterparty that receives the securities in these transactions is generally unrestricted in its use of the securities, with the exception of transactions executed on a tri-party basis, where the collateral is maintained by a custodian and operational limitations may restrict its use of the securities.

A substantial portion of the resale and repurchase agreements is recorded at fair value, as described in Notes 24 and 25 to the Consolidated Financial Statements. The remaining portion is carried at the amount of cash initially advanced or received, plus accrued interest, as specified in the respective agreements.

The securities borrowing and lending agreements also represent collateralized financing transactions similar to the resale and repurchase agreements. Collateral typically consists of government and government-agency securities and corporate debt and equity securities.

Similar to the resale and repurchase agreements, securities borrowing and lending agreements are generally documented under industry standard agreements that allow the prompt close-out of all transactions (including the liquidation of securities held) and the offsetting of obligations to return cash or securities by the non-defaulting party, following a payment default or other default by the other party under the relevant master agreement. Events of default and rights to use securities under the securities borrowing and lending agreements are similar to the resale and repurchase agreements referenced above.

A substantial portion of securities borrowing and lending agreements is recorded at the amount of cash advanced or received. The remaining portion is recorded at fair value as Citi elected the fair value option for certain securities borrowed and loaned portfolios, as described in Note 25 to the Consolidated Financial Statements. With respect to securities loaned, Citi receives cash collateral in an amount generally in excess of the market value of the securities loaned. Citi monitors the market value of securities borrowed and securities loaned on a daily basis and obtains or posts additional collateral in order to maintain contractual margin protection.

The enforceability of offsetting rights incorporated in the master netting agreements for resale and repurchase agreements and securities borrowing and lending agreements is evidenced to the extent that a supportive legal opinion has been obtained from counsel of recognized standing that provides the requisite level of certainty regarding the enforceability of these agreements. Also, the exercise of rights by the non-defaulting party to terminate and closeout transactions on a net basis under these agreements will not be stayed or avoided under applicable law upon an event of default including bankruptcy, insolvency or similar proceeding.

A legal opinion may not have been sought or obtained for certain jurisdictions where local law is silent or sufficiently ambiguous to determine the enforceability of offsetting rights or where adverse case law or conflicting regulation may cast doubt on the enforceability of such rights. In some

jurisdictions and for some counterparty types, the insolvency law for a particular counterparty type may be nonexistent or unclear as overlapping regimes may exist. For example, this may be the case for certain sovereigns, municipalities, central banks and U.S. pension plans.

The following tables present the gross and net resale and repurchase agreements and securities borrowing and lending agreements and the related offsetting amount permitted under ASC 210-20-45. The tables also include amounts related to financial instruments that are not permitted to be offset under ASC 210-20-45 but would be eligible for offsetting to the extent that an event of default occurred and a legal opinion supporting enforceability of the offsetting rights has been obtained. Remaining exposures continue to be secured by financial collateral, but Citi may not have sought or been able to obtain a legal opinion evidencing enforceability of the offsetting right.

As of December 31, 2016

<i>In millions of dollars</i>	Gross amounts of recognized assets	Gross amounts offset on the Consolidated Balance Sheet ⁽¹⁾	Net amounts of assets included on the Consolidated Balance Sheet ⁽²⁾	Amounts not offset on the Consolidated Balance Sheet but eligible for offsetting upon counterparty default ⁽³⁾	Net amounts ⁽⁴⁾
Securities purchased under agreements to resell	\$ 176,284	\$ 44,811	\$ 131,473	\$ 102,874	\$ 28,599
Deposits paid for securities borrowed	105,340	—	105,340	16,200	89,140
Total	\$ 281,624	\$ 44,811	\$ 236,813	\$ 119,074	\$ 117,739

<i>In millions of dollars</i>	Gross amounts of recognized liabilities	Gross amounts offset on the Consolidated Balance Sheet ⁽¹⁾	Net amounts of liabilities included on the Consolidated Balance Sheet ⁽²⁾	Amounts not offset on the Consolidated Balance Sheet but eligible for offsetting upon counterparty default ⁽³⁾	Net amounts ⁽⁴⁾
Securities sold under agreements to repurchase	\$ 170,496	\$ 44,811	\$ 125,685	\$ 63,517	\$ 62,168
Deposits received for securities loaned	15,958	—	15,958	3,529	12,429
Total	\$ 186,454	\$ 44,811	\$ 141,643	\$ 67,046	\$ 74,597

As of December 31, 2015

<i>In millions of dollars</i>	Gross amounts of recognized assets	Gross amounts offset on the Consolidated Balance Sheet ⁽¹⁾	Net amounts of assets included on the Consolidated Balance Sheet ⁽²⁾	Amounts not offset on the Consolidated Balance Sheet but eligible for offsetting upon counterparty default ⁽³⁾	Net amounts ⁽⁴⁾
Securities purchased under agreements to resell	\$ 176,167	\$ 56,390	\$ 119,777	\$ 92,039	\$ 27,738
Deposits paid for securities borrowed	99,873	—	99,873	16,619	83,254
Total	\$ 276,040	\$ 56,390	\$ 219,650	\$ 108,658	\$ 110,992

<i>In millions of dollars</i>	Gross amounts of recognized liabilities	Gross amounts offset on the Consolidated Balance Sheet ⁽¹⁾	Net amounts of liabilities included on the Consolidated Balance Sheet ⁽²⁾	Amounts not offset on the Consolidated Balance Sheet but eligible for offsetting upon counterparty default ⁽³⁾	Net amounts ⁽⁴⁾
Securities sold under agreements to repurchase	\$ 188,040	\$ 56,390	\$ 131,650	\$ 60,641	\$ 71,009
Deposits received for securities loaned	14,657	—	14,657	3,226	11,431
Total	\$ 202,697	\$ 56,390	\$ 146,307	\$ 63,867	\$ 82,440

- (1) Includes financial instruments subject to enforceable master netting agreements that are permitted to be offset under ASC 210-20-45.
(2) The total of this column for each period excludes Federal funds sold/purchased. See tables above.
(3) Includes financial instruments subject to enforceable master netting agreements that are not permitted to be offset under ASC 210-20-45 but would be eligible for offsetting to the extent that an event of default has occurred and a legal opinion supporting enforceability of the offsetting right has been obtained.
(4) Remaining exposures continue to be secured by financial collateral, but Citi may not have sought or been able to obtain a legal opinion evidencing enforceability of the offsetting right.

The following tables present the gross amount of liabilities associated with repurchase agreements and securities lending agreements, by remaining contractual maturity:

As of December 31, 2016

<i>In millions of dollars</i>	Open and overnight	Up to 30 days	31–90 days	Greater than 90 days	Total
Securities sold under agreements to repurchase	\$ 79,740	\$ 50,399	\$ 19,396	\$ 20,961	\$ 170,496
Deposits received for securities loaned	10,813	2,169	2,044	932	15,958
Total	\$ 90,553	\$ 52,568	\$ 21,440	\$ 21,893	\$ 186,454

As of December 31, 2015

<i>In millions of dollars</i>	Open and overnight	Up to 30 days	31–90 days	Greater than 90 days	Total
Securities sold under agreements to repurchase	\$ 89,732	\$ 54,336	\$ 21,541	\$ 22,431	\$ 188,040
Deposits received for securities loaned	9,096	1,823	2,324	1,414	14,657
Total	\$ 98,828	\$ 56,159	\$ 23,865	\$ 23,845	\$ 202,697

The following tables present the gross amount of liabilities associated with repurchase agreements and securities lending agreements, by class of underlying collateral:

As of December 31, 2016

<i>In millions of dollars</i>	Repurchase agreements	Securities lending agreements	Total
U.S. Treasury and federal agency securities	\$ 66,263	\$ —	\$ 66,263
State and municipal securities	334	—	334
Foreign government securities	52,988	1,390	54,378
Corporate bonds	17,164	630	17,794
Equity securities	12,206	13,913	26,119
Mortgage-backed securities	11,421	—	11,421
Asset-backed securities	5,428	—	5,428
Other	4,692	25	4,717
Total	\$ 170,496	\$ 15,958	\$ 186,454

As of December 31, 2015

<i>In millions of dollars</i>	Repurchase agreements	Securities lending agreements	Total
U.S. Treasury and federal agency securities	\$ 67,005	\$ —	\$ 67,005
State and municipal securities	403	—	403
Foreign government securities	66,633	789	67,422
Corporate bonds	15,355	1,085	16,440
Equity securities	10,297	12,484	22,781
Mortgage-backed securities	19,913	—	19,913
Asset-backed securities	4,572	—	4,572
Other	3,862	299	4,161
Total	\$ 188,040	\$ 14,657	\$ 202,697

12. BROKERAGE RECEIVABLES AND BROKERAGE PAYABLES

Citi has receivables and payables for financial instruments sold to and purchased from brokers, dealers and customers, which arise in the ordinary course of business. Citi is exposed to risk of loss from the inability of brokers, dealers or customers to pay for purchases or to deliver the financial instruments sold, in which case Citi would have to sell or purchase the financial instruments at prevailing market prices. Credit risk is reduced to the extent that an exchange or clearing organization acts as a counterparty to the transaction and replaces the broker, dealer or customer in question.

Citi seeks to protect itself from the risks associated with customer activities by requiring customers to maintain margin collateral in compliance with regulatory and internal guidelines. Margin levels are monitored daily, and customers deposit additional collateral as required. Where customers cannot meet collateral requirements, Citi may liquidate sufficient underlying financial instruments to bring the customer into compliance with the required margin level.

Exposure to credit risk is impacted by market volatility, which may impair the ability of clients to satisfy their obligations to Citi. Credit limits are established and closely monitored for customers and for brokers and dealers engaged in forwards, futures and other transactions deemed to be credit sensitive.

Brokerage receivables and Brokerage payables consisted of the following:

<i>In millions of dollars</i>	December 31,	
	2016	2015
Receivables from customers	\$ 10,374	\$ 10,435
Receivables from brokers, dealers, and clearing organizations	18,513	17,248
Total brokerage receivables⁽¹⁾	\$ 28,887	\$ 27,683
Payables to customers	\$ 37,237	\$ 35,653
Payables to brokers, dealers, and clearing organizations	19,915	18,069
Total brokerage payables⁽¹⁾	\$ 57,152	\$ 53,722

- (1) Includes brokerage receivables and payables recorded by Citi broker-dealer entities that are accounted for in accordance with the AICPA Accounting Guide for Brokers and Dealers in Securities as codified in ASC 940-320.

13. INVESTMENTS

Overview

The following table presents Citi's investments by category:

<i>In millions of dollars</i>	December 31,	
	2016	2015
Securities available-for-sale (AFS)	\$ 299,424	\$ 299,136
Debt securities held-to-maturity (HTM) ⁽¹⁾	45,667	36,215
Non-marketable equity securities carried at fair value ⁽²⁾	1,774	2,088
Non-marketable equity securities carried at cost ⁽³⁾	6,439	5,516
Total investments	\$ 353,304	\$ 342,955

(1) Carried at adjusted amortized cost basis, net of any credit-related impairment.

(2) Unrealized gains and losses for non-marketable equity securities carried at fair value are recognized in earnings.

(3) Primarily consists of shares issued by the Federal Reserve Bank, Federal Home Loan Banks, foreign central banks and various clearing houses of which Citigroup is a member.

The following table presents interest and dividend income on investments:

<i>In millions of dollars</i>	2016	2015	2014
Taxable interest	\$ 6,924	\$ 6,414	\$ 6,311
Interest exempt from U.S. federal income tax	483	215	439
Dividend income	175	388	445
Total interest and dividend income	\$ 7,582	\$ 7,017	\$ 7,195

The following table presents realized gains and losses on the sale of investments, which excludes losses from other-than-temporary impairment (OTTI):

<i>In millions of dollars</i>	2016	2015	2014
Gross realized investment gains	\$ 1,460	\$ 1,124	\$ 1,020
Gross realized investment losses	(512)	(442)	(450)
Net realized gains on sale of investments	\$ 948	\$ 682	\$ 570

The Company has sold certain debt securities that were classified as HTM. These sales were in response to significant deterioration in the creditworthiness of the issuers or securities or because the Company has collected a substantial portion (at least 85%) of the principal outstanding at acquisition of the security. In addition, certain other securities were reclassified to AFS investments in response to

significant credit deterioration. Because the Company generally intends to sell these reclassified securities, Citi recorded OTTI on the securities. The following table sets forth, for the periods indicated, the carrying value of HTM securities sold and reclassified to AFS, as well as the related gain (loss) or the OTTI losses recorded on these securities.

<i>In millions of dollars</i>	2016	2015	2014
Carrying value of HTM securities sold	\$ 49	\$ 392	\$ 8
Net realized gain (loss) on sale of HTM securities	14	10	—
Carrying value of securities reclassified to AFS	150	243	889
OTTI losses on securities reclassified to AFS	(6)	(15)	(25)

Securities Available-for-Sale

The amortized cost and fair value of AFS securities were as follows:

<i>In millions of dollars</i>	2016				2015			
	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair value	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair value
Debt securities AFS								
Mortgage-backed securities ⁽¹⁾								
U.S. government-sponsored agency guaranteed	\$ 38,663	\$ 248	\$ 506	\$ 38,405	\$ 39,584	\$ 367	\$ 237	\$ 39,714
Prime	2	—	—	2	2	—	—	2
Alt-A	43	7	—	50	50	5	—	55
Non-U.S. residential	3,852	13	7	3,858	5,909	31	11	5,929
Commercial	357	2	1	358	573	2	4	571
Total mortgage-backed securities	\$ 42,917	\$ 270	\$ 514	\$ 42,673	\$ 46,118	\$ 405	\$ 252	\$ 46,271
U.S. Treasury and federal agency securities								
U.S. Treasury	\$ 113,606	\$ 629	\$ 452	\$ 113,783	\$ 113,096	\$ 254	\$ 515	\$ 112,835
Agency obligations	9,952	21	85	9,888	10,095	22	37	10,080
Total U.S. Treasury and federal agency securities	\$ 123,558	\$ 650	\$ 537	\$ 123,671	\$ 123,191	\$ 276	\$ 552	\$ 122,915
State and municipal	\$ 10,797	\$ 80	\$ 757	\$ 10,120	\$ 12,099	\$ 132	\$ 772	\$ 11,459
Foreign government	98,112	590	554	98,148	88,751	402	479	88,674
Corporate	17,195	105	176	17,124	19,492	129	291	19,330
Asset-backed securities ⁽¹⁾	6,810	6	22	6,794	9,261	5	92	9,174
Other debt securities	503	—	—	503	688	—	—	688
Total debt securities AFS	\$ 299,892	\$ 1,701	\$ 2,560	\$ 299,033	\$ 299,600	\$ 1,349	\$ 2,438	\$ 298,511
Marketable equity securities AFS	\$ 377	\$ 20	\$ 6	\$ 391	\$ 602	\$ 26	\$ 3	\$ 625
Total securities AFS	\$ 300,269	\$ 1,721	\$ 2,566	\$ 299,424	\$ 300,202	\$ 1,375	\$ 2,441	\$ 299,136

- (1) The Company invests in mortgage-backed and asset-backed securities. These securitizations are generally considered VIEs. The Company's maximum exposure to loss from these VIEs is equal to the carrying amount of the securities, which is reflected in the table above. For mortgage-backed and asset-backed securitizations in which the Company has other involvement, see Note 21 to the Consolidated Financial Statements.

At December 31, 2016, the amortized cost of approximately 4,319 investments in equity and fixed income securities exceeded their fair value by \$2,566 million. Of the \$2,566 million, the gross unrealized losses on equity securities were \$6 million. Of the remainder, \$1,392 million represented unrealized losses on fixed income investments that have been in a gross-unrealized-loss position for less than a year and, of these, 98% were rated investment grade; and \$1,168 million represented unrealized losses on fixed income investments that have been in a gross-unrealized-loss position for a year or more and, of these, 76% were rated investment grade. Of the \$1,168 million mentioned above, \$702 million represent state and municipal securities.

At December 31, 2016, the AFS mortgage-backed securities portfolio fair value balance of \$42,673 million consisted of \$38,405 million of government-sponsored agency securities, and \$4,268 million of privately sponsored securities, substantially all of which were backed by non-U.S. residential mortgages.

As discussed in more detail below, Citi conducts periodic reviews of all securities with unrealized losses to evaluate whether the impairment is other-than-temporary. For debt securities which Citi plans to sell or more-likely-than-not will be required to sell, the entire impairment is recognized in the Consolidated Statement of Income. For those securities that the Company does not intend to sell and is not likely to be required to sell, only the credit-related impairment is recognized in earnings and any non-credit-related impairment is recorded in AOCI.

The following table shows the fair value of AFS securities that have been in an unrealized loss position:

	Less than 12 months		12 months or longer		Total	
	Fair value	Gross unrealized losses	Fair value	Gross unrealized losses	Fair value	Gross unrealized losses
<i>In millions of dollars</i>						
December 31, 2016						
Securities AFS						
Mortgage-backed securities						
U.S. government-sponsored agency guaranteed	\$ 23,534	\$ 436	\$ 2,236	\$ 70	\$ 25,770	\$ 506
Prime	1	—	—	—	1	—
Non-U.S. residential	486	—	1,276	7	1,762	7
Commercial	75	1	58	—	133	1
Total mortgage-backed securities	\$ 24,096	\$ 437	\$ 3,570	\$ 77	\$ 27,666	\$ 514
U.S. Treasury and federal agency securities						
U.S. Treasury	\$ 44,342	\$ 445	\$ 1,335	\$ 7	\$ 45,677	\$ 452
Agency obligations	6,552	83	250	2	6,802	85
Total U.S. Treasury and federal agency securities	\$ 50,894	\$ 528	\$ 1,585	\$ 9	\$ 52,479	\$ 537
State and municipal	\$ 1,616	\$ 55	\$ 3,116	\$ 702	\$ 4,732	\$ 757
Foreign government	38,226	243	8,973	311	47,199	554
Corporate	7,011	129	1,877	47	8,888	176
Asset-backed securities	411	—	3,213	22	3,624	22
Other debt securities	5	—	—	—	5	—
Marketable equity securities AFS	19	2	24	4	43	6
Total securities AFS	\$ 122,278	\$ 1,394	\$ 22,358	\$ 1,172	\$ 144,636	\$ 2,566
December 31, 2015						
Securities AFS						
Mortgage-backed securities						
U.S. government-sponsored agency guaranteed	\$ 17,816	\$ 141	\$ 2,618	\$ 96	\$ 20,434	\$ 237
Prime	—	—	1	—	1	—
Non-U.S. residential	2,217	7	825	4	3,042	11
Commercial	291	3	55	1	346	4
Total mortgage-backed securities	\$ 20,324	\$ 151	\$ 3,499	\$ 101	\$ 23,823	\$ 252
U.S. Treasury and federal agency securities						
U.S. Treasury	\$ 59,384	\$ 505	\$ 1,204	\$ 10	\$ 60,588	\$ 515
Agency obligations	6,716	30	196	7	6,912	37
Total U.S. Treasury and federal agency securities	\$ 66,100	\$ 535	\$ 1,400	\$ 17	\$ 67,500	\$ 552
State and municipal	\$ 635	\$ 26	\$ 4,450	\$ 746	\$ 5,085	\$ 772
Foreign government	34,053	371	4,021	108	38,074	479
Corporate	7,024	190	1,919	101	8,943	291
Asset-backed securities	5,311	58	2,247	34	7,558	92
Other debt securities	27	—	—	—	27	—
Marketable equity securities AFS	132	3	1	—	133	3
Total securities AFS	\$ 133,606	\$ 1,334	\$ 17,537	\$ 1,107	\$ 151,143	\$ 2,441

The following table presents the amortized cost and fair value of AFS debt securities by contractual maturity dates:

<i>In millions of dollars</i>	December 31,			
	2016		2015	
	Amortized cost	Fair value	Amortized cost	Fair value
Mortgage-backed securities⁽¹⁾				
Due within 1 year	\$ 132	\$ 132	\$ 114	\$ 114
After 1 but within 5 years	736	738	1,408	1,411
After 5 but within 10 years	2,279	2,265	1,750	1,751
After 10 years ⁽²⁾	39,770	39,538	42,846	42,995
Total	\$ 42,917	\$ 42,673	\$ 46,118	\$ 46,271
U.S. Treasury and federal agency securities				
Due within 1 year	\$ 4,945	\$ 4,945	\$ 3,016	\$ 3,014
After 1 but within 5 years	101,369	101,323	107,034	106,878
After 5 but within 10 years	17,153	17,314	12,786	12,684
After 10 years ⁽²⁾	91	89	355	339
Total	\$ 123,558	\$ 123,671	\$ 123,191	\$ 122,915
State and municipal				
Due within 1 year	\$ 2,093	\$ 2,092	\$ 3,289	\$ 3,287
After 1 but within 5 years	2,668	2,662	1,781	1,781
After 5 but within 10 years	335	334	502	516
After 10 years ⁽²⁾	5,701	5,032	6,527	5,875
Total	\$ 10,797	\$ 10,120	\$ 12,099	\$ 11,459
Foreign government				
Due within 1 year	\$ 32,540	\$ 32,547	\$ 25,898	\$ 25,905
After 1 but within 5 years	51,008	50,881	43,514	43,464
After 5 but within 10 years	12,388	12,440	17,013	16,968
After 10 years ⁽²⁾	2,176	2,280	2,326	2,337
Total	\$ 98,112	\$ 98,148	\$ 88,751	\$ 88,674
All other⁽³⁾				
Due within 1 year	\$ 2,629	\$ 2,628	\$ 2,354	\$ 2,355
After 1 but within 5 years	12,339	12,334	14,035	14,054
After 5 but within 10 years	6,566	6,528	9,789	9,593
After 10 years ⁽²⁾	2,974	2,931	3,263	3,190
Total	\$ 24,508	\$ 24,421	\$ 29,441	\$ 29,192
Total debt securities AFS	\$ 299,892	\$ 299,033	\$ 299,600	\$ 298,511

(1) Includes mortgage-backed securities of U.S. government-sponsored agencies.

(2) Investments with no stated maturities are included as contractual maturities of greater than 10 years. Actual maturities may differ due to call or prepayment rights.

(3) Includes corporate, asset-backed and other debt securities.

Debt Securities Held-to-Maturity

The carrying value and fair value of debt securities HTM were as follows:

<i>In millions of dollars</i>	Amortized cost basis ⁽¹⁾	Net unrealized gains (losses) recognized in AOCI	Carrying value ⁽²⁾	Gross unrealized gains	Gross unrealized (losses)	Fair value
December 31, 2016						
Debt securities held-to-maturity						
Mortgage-backed securities⁽³⁾						
U.S. government agency guaranteed	\$ 22,462	\$ 33	\$ 22,495	\$ 47	\$ (186)	\$ 22,356
Prime	31	(7)	24	10	(1)	33
Alt-A	314	(27)	287	69	(1)	355
Subprime	—	—	—	—	—	—
Non-U.S. residential	1,871	(47)	1,824	49	—	1,873
Commercial	14	—	14	—	—	14
Total mortgage-backed securities	\$ 24,692	\$ (48)	\$ 24,644	\$ 175	\$ (188)	\$ 24,631
State and municipal	\$ 9,025	\$ (442)	\$ 8,583	\$ 129	\$ (238)	\$ 8,474
Foreign government	1,339	—	1,339	—	(26)	1,313
Asset-backed securities ⁽³⁾	11,107	(6)	11,101	41	(5)	11,137
Total debt securities held-to-maturity⁽⁴⁾	\$ 46,163	\$ (496)	\$ 45,667	\$ 345	\$ (457)	\$ 45,555
December 31, 2015						
Debt securities held-to-maturity						
Mortgage-backed securities⁽³⁾						
U.S. government agency guaranteed	\$ 17,648	\$ 138	\$ 17,786	\$ 71	\$ (100)	\$ 17,757
Prime	121	(78)	43	3	(1)	45
Alt-A	433	(1)	432	259	(162)	529
Subprime	2	—	2	13	—	15
Non-U.S. residential	1,330	(60)	1,270	37	—	1,307
Commercial	—	—	—	—	—	—
Total mortgage-backed securities	\$ 19,534	\$ (1)	\$ 19,533	\$ 383	\$ (263)	\$ 19,653
State and municipal	\$ 8,581	\$ (438)	\$ 8,143	\$ 245	\$ (87)	\$ 8,301
Foreign government	4,068	—	4,068	28	(3)	4,093
Asset-backed securities ⁽³⁾	4,485	(14)	4,471	34	(41)	4,464
Total debt securities held-to-maturity⁽⁴⁾	\$ 36,668	\$ (453)	\$ 36,215	\$ 690	\$ (394)	\$ 36,511

- (1) For securities transferred to HTM from *Trading account assets*, amortized cost basis is defined as the fair value of the securities at the date of transfer plus any accretion income and less any impairments recognized in earnings subsequent to transfer. For securities transferred to HTM from AFS, amortized cost is defined as the original purchase cost, adjusted for the cumulative accretion or amortization of any purchase discount or premium, plus or minus any cumulative fair value hedge adjustments, net of accretion or amortization, and less any other-than-temporary impairment recognized in earnings.
- (2) HTM securities are carried on the Consolidated Balance Sheet at amortized cost basis, plus or minus any unamortized unrealized gains and losses and fair value hedge adjustments recognized in AOCI prior to reclassifying the securities from AFS to HTM. Changes in the values of these securities are not reported in the financial statements, except for the amortization of any difference between the carrying value at the transfer date and par value of the securities, and the recognition of any non-credit fair value adjustments in AOCI in connection with the recognition of any credit impairment in earnings related to securities the Company continues to intend to hold until maturity.
- (3) The Company invests in mortgage-backed and asset-backed securities. These securitizations are generally considered VIEs. The Company's maximum exposure to loss from these VIEs is equal to the carrying amount of the securities, which is reflected in the table above. For mortgage-backed and asset-backed securitizations in which the Company has other involvement, see Note 21 to the Consolidated Financial Statements.

- (4) During the fourth quarter of 2016, securities with a total fair value of approximately \$5.8 billion were transferred from AFS to HTM, comprised of \$5 billion of U.S. government agency mortgage-backed securities and \$830 million of municipal securities. During the second quarter of 2015, securities with a total fair value of approximately \$7.1 billion were transferred from AFS to HTM, consisting of \$7.0 billion of U.S. government agency mortgage-backed securities and \$0.1 billion of obligations of U.S. states and municipalities. The transfer reflects the Company's intent to hold these securities to maturity or to issuer call, in part, in order to reduce the impact of price volatility on AOCI and certain capital measures under Basel III. While these securities were transferred to HTM at fair value as of the transfer date, no subsequent changes in value may be recorded, other than in connection with the recognition of any subsequent other-than-temporary impairment and the amortization of differences between the carrying values at the transfer date and the par values of each security as an adjustment of yield over the remaining contractual life of each security. Any net unrealized holding losses within AOCI related to the respective securities at the date of transfer, inclusive of any cumulative fair value hedge adjustments, will be amortized over the remaining contractual life of each security as an adjustment of yield in a manner consistent with the amortization of any premium or discount.

The Company has the positive intent and ability to hold these securities to maturity or, where applicable, the exercise of any issuer call options, absent any unforeseen significant changes in circumstances, including deterioration in credit or changes in regulatory capital requirements.

The net unrealized losses classified in AOCI primarily relate to debt securities previously classified as AFS that have been transferred to HTM, and include any cumulative fair

value hedge adjustments. The net unrealized loss amount also includes any non-credit-related changes in fair value of HTM securities that have suffered credit impairment recorded in earnings. The AOCI balance related to HTM securities is amortized over the remaining contractual life of the related securities as an adjustment of yield in a manner consistent with the accretion of any difference between the carrying value at the transfer date and par value of the same debt securities.

The table below shows the fair value of debt securities HTM that have been in an unrecognized loss position:

	Less than 12 months		12 months or longer		Total	
	Fair value	Gross unrecognized losses	Fair value	Gross unrecognized losses	Fair value	Gross unrecognized losses
<i>In millions of dollars</i>						
December 31, 2016						
Debt securities held-to-maturity						
Mortgage-backed securities	\$ 17	\$ —	\$ 17,176	\$ 188	\$ 17,193	\$ 188
State and municipal	2,200	58	1,210	180	3,410	238
Foreign government	1,313	26	—	—	1,313	26
Asset-backed securities	2	—	2,503	5	2,505	5
Total debt securities held-to-maturity	\$ 3,532	\$ 84	\$ 20,889	\$ 373	\$ 24,421	\$ 457
December 31, 2015						
Debt securities held-to-maturity						
Mortgage-backed securities	\$ 935	\$ 1	\$ 10,301	\$ 262	\$ 11,236	\$ 263
State and municipal	881	20	1,826	67	2,707	87
Foreign government	180	3	—	—	180	3
Asset-backed securities	132	13	3,232	28	3,364	41
Total debt securities held-to-maturity	\$ 2,128	\$ 37	\$ 15,359	\$ 357	\$ 17,487	\$ 394

Note: Excluded from the gross unrecognized losses presented in the above table are \$(496) million and \$(453) million of net unrealized losses recorded in AOCI as of December 31, 2016 and December 31, 2015, respectively, primarily related to the difference between the amortized cost and carrying value of HTM securities that were reclassified from AFS. Substantially all of these net unrecognized losses relate to securities that have been in a loss position for 12 months or longer at December 31, 2016 and December 31, 2015.

The following table presents the carrying value and fair value of HTM debt securities by contractual maturity dates:

<i>In millions of dollars</i>	December 31,			
	2016		2015	
	Carrying value	Fair value	Carrying value	Fair value
Mortgage-backed securities				
Due within 1 year	\$ —	\$ —	\$ —	\$ —
After 1 but within 5 years	760	766	172	172
After 5 but within 10 years	54	55	660	663
After 10 years ⁽¹⁾	23,830	23,810	18,701	18,818
Total	\$ 24,644	\$ 24,631	\$ 19,533	\$ 19,653
State and municipal				
Due within 1 year	\$ 406	\$ 406	\$ 309	\$ 305
After 1 but within 5 years	112	110	336	335
After 5 but within 10 years	363	367	262	270
After 10 years ⁽¹⁾	7,702	7,591	7,236	7,391
Total	\$ 8,583	\$ 8,474	\$ 8,143	\$ 8,301
Foreign government				
Due within 1 year	\$ 824	\$ 818	\$ —	\$ —
After 1 but within 5 years	515	495	4,068	4,093
After 5 but within 10 years	—	—	—	—
After 10 years ⁽¹⁾	—	—	—	—
Total	\$ 1,339	\$ 1,313	\$ 4,068	\$ 4,093
All other⁽²⁾				
Due within 1 year	\$ —	\$ —	\$ —	\$ —
After 1 but within 5 years	—	—	—	—
After 5 but within 10 years	513	514	—	—
After 10 years ⁽¹⁾	10,588	10,623	4,471	4,464
Total	\$ 11,101	\$ 11,137	\$ 4,471	\$ 4,464
Total debt securities held-to-maturity	\$ 45,667	\$ 45,555	\$ 36,215	\$ 36,511

(1) Investments with no stated maturities are included as contractual maturities of greater than 10 years. Actual maturities may differ due to call or prepayment rights.

(2) Includes corporate and asset-backed securities.

Evaluating Investments for Other-Than-Temporary Impairment

Overview

The Company conducts periodic reviews of all securities with unrealized losses to evaluate whether the impairment is other-than-temporary.

An unrealized loss exists when the current fair value of an individual security is less than its amortized cost basis. Unrealized losses that are determined to be temporary in nature are recorded, net of tax, in AOCI for AFS securities. Losses related to HTM securities generally are not recorded, as these investments are carried at adjusted amortized cost basis. However, for HTM securities with credit-related losses, the credit loss is recognized in earnings as OTTI and any difference between the cost basis adjusted for the OTTI and fair value is recognized in AOCI and amortized as an adjustment of yield over the remaining contractual life of the security. For securities transferred to HTM from *Trading account assets*, amortized cost is defined as the fair value of the securities at the date of transfer, plus any accretion income and less any impairment recognized in earnings subsequent to transfer. For securities transferred to HTM from AFS, amortized cost is defined as the original purchase cost, adjusted for the cumulative accretion or amortization of any purchase discount or premium, plus or minus any cumulative fair value hedge adjustments, net of accretion or amortization, and less any impairment recognized in earnings.

Regardless of the classification of the securities as AFS or HTM, the Company assesses each position with an unrealized loss for OTTI. Factors considered in determining whether a loss is temporary include:

- the length of time and the extent to which fair value has been below cost;
- the severity of the impairment;
- the cause of the impairment and the financial condition and near-term prospects of the issuer;
- activity in the market of the issuer that may indicate adverse credit conditions; and
- the Company's ability and intent to hold the investment for a period of time sufficient to allow for recovery of amortized cost basis.

The Company's review for impairment generally entails:

- identification and evaluation of impaired investments;
- analysis of individual investments that have fair values less than amortized cost, including consideration of the length of time the investment has been in an unrealized loss position and the expected recovery period;
- consideration of evidential matter, including an evaluation of factors or triggers that could cause individual investments to qualify as having other-than-temporary impairment and those that would not support other-than-temporary impairment; and
- documentation of the results of these analyses, as required under business policies.

Debt Securities

The entire difference between amortized cost basis and fair value is recognized in earnings as OTTI for impaired debt securities that the Company has an intent to sell or for which the Company believes it will more-likely-than-not be required to sell prior to recovery of the amortized cost basis. However, for those securities that the Company does not intend to sell and is not likely to be required to sell, only the credit-related impairment is recognized in earnings and any non-credit-related impairment is recorded in AOCI.

For debt securities, credit impairment exists where management does not expect to receive contractual principal and interest cash flows sufficient to recover the entire amortized cost basis of a security.

Equity Securities

For equity securities, management considers the various factors described above, including its intent and ability to hold the equity security for a period of time sufficient for recovery to cost or whether it is more-likely-than-not that the Company will be required to sell the security prior to recovery of its cost basis. Where management lacks that intent or ability, the security's decline in fair value is deemed to be other-than-temporary and is recorded in earnings. AFS equity securities deemed to be other-than-temporarily impaired are written down to fair value, with the full difference between fair value and cost recognized in earnings.

Management assesses equity method investments that have fair values that are less than their respective carrying values for OTTI. Fair value is measured as price multiplied by quantity if the investee has publicly listed securities. If the investee is not publicly listed, other methods are used (see Note 24 to the Consolidated Financial Statements).

For impaired equity method investments that Citi plans to sell prior to recovery of value or would likely be required to sell, with no expectation that the fair value will recover prior to the expected sale date, the full impairment is recognized in earnings as OTTI regardless of severity and duration. The measurement of the OTTI does not include partial projected recoveries subsequent to the balance sheet date.

For impaired equity method investments that management does not plan to sell and is not likely to be required to sell prior to recovery of value, the evaluation of whether an impairment is other-than-temporary is based on (i) whether and when an equity method investment will recover in value and (ii) whether the investor has the intent and ability to hold that investment for a period of time sufficient to recover the value. The determination of whether the impairment is considered other-than-temporary considers the following indicators, regardless of the time and extent of impairment:

- the cause of the impairment and the financial condition and near-term prospects of the issuer, including any specific events that may influence the operations of the issuer;
- the intent and ability to hold the investment for a period of time sufficient to allow for any anticipated recovery in market value; and

- the length of time and extent to which fair value has been less than the carrying value.

The sections below describe the Company's process for identifying credit-related impairments for security types that have the most significant unrealized losses as of December 31, 2016.

Mortgage-Backed Securities

For U.S. mortgage-backed securities (and in particular for Alt-A and other mortgage-backed securities that have significant unrealized losses as a percentage of amortized cost), credit impairment is assessed using a cash flow model that estimates the principal and interest cash flows on the underlying mortgages using the security-specific collateral and transaction structure. The model distributes the estimated cash flows to the various tranches of securities, considering the transaction structure and any subordination and credit enhancements that exist in that structure. The cash flow model incorporates actual cash flows on the mortgage-backed securities through the current period and then estimates the remaining cash flows using a number of assumptions, including default rates, prepayment rates, recovery rates (on foreclosed properties) and loss severity rates (on non-agency mortgage-backed securities).

Management develops specific assumptions using market data, internal estimates and estimates published by rating agencies and other third-party sources. Default rates are projected by considering current underlying mortgage loan performance, generally assuming the default of (i) 10% of current loans, (ii) 25% of 30–59 day delinquent loans, (iii) 70% of 60–90 day delinquent loans and (iv) 100% of 91+ day delinquent loans. These estimates are extrapolated along a default timing curve to estimate the total lifetime pool default

rate. Other assumptions contemplate the actual collateral attributes, including geographic concentrations, rating actions and current market prices.

Cash flow projections are developed using different stress test scenarios. Management evaluates the results of those stress tests (including the severity of any cash shortfall indicated and the likelihood of the stress scenarios actually occurring based on the underlying pool's characteristics and performance) to assess whether management expects to recover the amortized cost basis of the security. If cash flow projections indicate that the Company does not expect to recover its amortized cost basis, the Company recognizes the estimated credit loss in earnings.

State and Municipal Securities

The process for identifying credit impairments in Citigroup's AFS and HTM state and municipal bonds is primarily based on a credit analysis that incorporates third-party credit ratings. Citigroup monitors the bond issuers and any insurers providing default protection in the form of financial guarantee insurance. The average external credit rating, ignoring any insurance, is Aa3/AA-. In the event of an external rating downgrade or other indicator of credit impairment (i.e., based on instrument-specific estimates of cash flows or probability of issuer default), the subject bond is specifically reviewed for adverse changes in the amount or timing of expected contractual principal and interest payments.

For state and municipal bonds with unrealized losses that Citigroup plans to sell (for AFS only), would be more-likely-than-not required to sell (for AFS only) or will be subject to an issuer call deemed probable of exercise prior to the expected recovery of its amortized cost basis (for AFS and HTM), the full impairment is recognized in earnings.

Recognition and Measurement of OTTI

The following tables present total OTTI recognized in earnings:

OTTI on Investments and Other Assets	Year ended December 31, 2016			
	AFS⁽¹⁾⁽²⁾	HTM	Other Assets⁽³⁾	Total
<i>In millions of dollars</i>				
Impairment losses related to securities that the Company does not intend to sell nor will likely be required to sell:				
Total OTTI losses recognized during the period	\$ 3	\$ 1	\$ —	\$ 4
Less: portion of impairment loss recognized in AOCI (before taxes)	—	—	—	—
Net impairment losses recognized in earnings for securities that the Company does not intend to sell nor will likely be required to sell	\$ 3	\$ 1	\$ —	\$ 4
Impairment losses recognized in earnings for securities that the Company intends to sell, would be more likely than not required to sell or will be subject to an issuer call deemed probable of exercise	246	38	332	616
Total impairment losses recognized in earnings	\$ 249	\$ 39	\$ 332	\$ 620

(1) Includes OTTI on non-marketable equity securities.

(2) Includes a \$160 million impairment related to AFS securities affected by changes in the Venezuela exchange rate during the year ended December 31, 2016.

(3) The impairment charge is related to the carrying value of an equity investment, which was sold in 2016.

OTTI on Investments and Other Assets

Year ended December 31, 2015

<i>In millions of dollars</i>	AFS ⁽¹⁾	HTM	Other Assets	Total
Impairment losses related to securities that the Company does not intend to sell nor will likely be required to sell:				
Total OTTI losses recognized during the period	\$ 33	\$ 1	\$ —	\$ 34
Less: portion of impairment loss recognized in AOCI (before taxes)	—	—	—	—
Net impairment losses recognized in earnings for securities that the Company does not intend to sell nor will likely be required to sell	\$ 33	\$ 1	\$ —	\$ 34
Impairment losses recognized in earnings for securities that the Company intends to sell, would be more likely than not required to sell or will be subject to an issuer call deemed probable of exercise	182	43	6	231
Total impairment losses recognized in earnings	\$ 215	\$ 44	\$ 6	\$ 265

(1) Includes OTTI on non-marketable equity securities.

OTTI on Investments and Other AssetsYear ended
December 31, 2014

<i>In millions of dollars</i>	AFS ⁽¹⁾	HTM	Other Assets	Total
Impairment losses related to securities that the Company does not intend to sell nor will likely be required to sell:				
Total OTTI losses recognized during the period	\$ 21	\$ 5	\$ —	\$ 26
Less: portion of impairment loss recognized in AOCI (before taxes)	8	—	—	8
Net impairment losses recognized in earnings for securities that the Company does not intend to sell nor will likely be required to sell	\$ 13	\$ 5	\$ —	\$ 18
Impairment losses recognized in earnings for securities that the Company intends to sell or more-likely-than-not will be required to sell before recovery	380	26	—	406
Total impairment losses recognized in earnings	\$ 393	\$ 31	\$ —	\$ 424

(1) Includes OTTI on non-marketable equity securities.

The following are 12-month rollforwards of the credit-related impairments recognized in earnings for AFS and HTM debt securities held that the Company does not intend to sell nor likely will be required to sell:

Cumulative OTTI credit losses recognized in earnings on securities still held					
<i>In millions of dollars</i>	Dec. 31, 2015 balance	Credit impairments recognized in earnings on securities not previously impaired	Credit impairments recognized in earnings on securities that have been previously impaired	Reductions due to credit-impaired securities sold, transferred or matured	Dec. 31, 2016 balance
AFS debt securities					
Mortgage-backed securities	\$ —	\$ 1	\$ —	\$ (1)	\$ —
State and municipal	12	—	—	(8)	4
Foreign government securities	5	—	—	(5)	—
Corporate	9	1	1	(6)	5
All other debt securities	47	—	—	(25)	22
Total OTTI credit losses recognized for AFS debt securities	\$ 73	\$ 2	\$ 1	\$ (45)	\$ 31
HTM debt securities					
Mortgage-backed securities ⁽¹⁾	\$ 132	\$ —	\$ —	\$ (31)	\$ 101
Corporate	—	1	—	(1)	—
All other debt securities	4	—	—	(1)	3
Total OTTI credit losses recognized for HTM debt securities	\$ 136	\$ 1	\$ —	\$ (33)	\$ 104

(1) Primarily consists of Alt-A securities.

Cumulative OTTI credit losses recognized in earnings on securities still held					
<i>In millions of dollars</i>	Dec. 31, 2014 balance	Credit impairments recognized in earnings on securities not previously impaired	Credit impairments recognized in earnings on securities that have been previously impaired	Reductions due to credit-impaired securities sold, transferred or matured	Dec. 31, 2015 balance
AFS debt securities					
Mortgage-backed securities	\$ 1	\$ —	\$ —	\$ (1)	\$ —
State and municipal	4	8	—	—	12
Foreign government securities	6	—	—	(1)	5
Corporate	15	2	—	(8)	9
All other debt securities	48	23	—	(24)	47
Total OTTI credit losses recognized for AFS debt securities	\$ 74	\$ 33	\$ —	\$ (34)	\$ 73
HTM debt securities					
Mortgage-backed securities ⁽¹⁾	\$ 246	\$ 1	\$ —	\$ (115)	\$ 132
Corporate	—	—	—	—	—
All other debt securities	5	—	—	(1)	4
Total OTTI credit losses recognized for HTM debt securities	\$ 251	\$ 1	\$ —	\$ (116)	\$ 136

(1) Primarily consists of Alt-A securities.

Investments in Alternative Investment Funds That Calculate Net Asset Value

The Company holds investments in certain alternative investment funds that calculate net asset value (NAV) or its equivalent, including hedge funds, private equity funds, funds of funds and real estate funds, as provided by third-party asset managers. Investments in such funds are generally classified as non-marketable equity securities carried at fair value. The fair values of these investments are estimated using the NAV of the Company's ownership interest in the funds. Some of these investments are in "covered funds" for purposes of the Volcker Rule, which prohibits certain proprietary investment activities and limits the ownership of, and relationships with, covered funds. The deadline for compliance with the Volcker Rule is July 21, 2017, by which date Citi is required to sell those of its investments in covered funds prohibited by the rule. Citi has submitted an application to request an extension of the permitted holding period for certain of its investments in illiquid funds subject to the Volcker Rule. If an extension is not granted and such investments need to be divested, the Company may receive value that is lower than the reported NAV for these investments.

<i>In millions of dollars</i>	Fair value		Unfunded commitments		Redemption frequency (if currently eligible) monthly, quarterly, annually	Redemption notice period
	December 31, 2016	December 31, 2015	December 31, 2016	December 31, 2015		
Hedge funds	\$ 4	\$ 3	\$ —	\$ —	Generally quarterly	10–95 days
Private equity funds ⁽¹⁾⁽²⁾	348	762	82	173	—	—
Real estate funds ⁽²⁾⁽³⁾	56	130	20	21	—	—
Total	\$ 408	\$ 895	\$ 102	\$ 194	—	—

(1) Private equity funds include funds that invest in infrastructure, emerging markets and venture capital.

(2) With respect to the Company's investments in private equity funds and real estate funds, distributions from each fund will be received as the underlying assets held by these funds are liquidated. It is estimated that the underlying assets of these funds will be liquidated over a period of several years as market conditions allow. Private equity and real estate funds do not allow redemption of investments by their investors. Investors are permitted to sell or transfer their investments, subject to the approval of the general partner or investment manager of these funds, which generally may not be unreasonably withheld.

(3) Includes several real estate funds that invest primarily in commercial real estate in the U.S., Europe and Asia.

14. LOANS

Citigroup loans are reported in two categories—consumer and corporate. These categories are classified primarily according to the segment and subsegment that manage the loans.

Consumer Loans

Consumer loans represent loans and leases managed primarily by *GCB* and *Corporate/Other*. The following table provides Citi's consumer loans by loan type:

<i>In millions of dollars</i>	December 31,	
	2016	2015
In U.S. offices		
Mortgage and real estate ⁽¹⁾	\$ 72,957	\$ 80,281
Installment, revolving credit and other	3,395	3,480
Cards ⁽²⁾	132,654	112,800
Commercial and industrial	7,159	6,407
	\$ 216,165	\$ 202,968
In offices outside the U.S.		
Mortgage and real estate ⁽¹⁾	\$ 42,803	\$ 47,062
Installment, revolving credit and other	24,887	29,480
Cards	23,783	27,342
Commercial and industrial	16,568	17,410
Lease financing	81	362
	\$ 108,122	\$ 121,656
Total consumer loans	\$ 324,287	\$ 324,624
Net unearned income	\$ 776	\$ 830
Consumer loans, net of unearned income	\$ 325,063	\$ 325,454

(1) Loans secured primarily by real estate.

(2) December 31, 2016 balance includes loans related to the acquisition of the Costco U.S. co-branded credit card portfolio, completed on June 17, 2016.

Citigroup has established a risk management process to monitor, evaluate and manage the principal risks associated with its consumer loan portfolio. Credit quality indicators that are actively monitored include delinquency status, consumer credit scores (FICO) and loan to value (LTV) ratios, each as discussed in more detail below.

Included in the loan table above are lending products whose terms may give rise to greater credit issues. Credit cards with below-market introductory interest rates and interest-only loans are examples of such products. These products are closely managed using credit techniques that are intended to mitigate their higher inherent risk.

During the years ended December 31, 2016 and 2015, the Company sold and/or reclassified to held-for-sale, \$9.7 billion and \$25.8 billion, respectively, of consumer loans.

Delinquency Status

Delinquency status is monitored and considered a key indicator of credit quality of consumer loans. Principally, the U.S. residential first mortgage loans use the Mortgage Bankers Association (MBA) method of reporting delinquencies, which considers a loan delinquent if a monthly payment has not been received by the end of the day immediately preceding the loan's next due date. All other loans use a method of reporting delinquencies that considers a loan delinquent if a monthly payment has not been received by the close of business on the loan's next due date.

As a general policy, residential first mortgages, home equity loans and installment loans are classified as non-accrual when loan payments are 90 days contractually past due. Credit cards and unsecured revolving loans generally accrue interest until payments are 180 days past due. Home equity loans in regulated bank entities are classified as non-accrual if the related residential first mortgage is 90 days or more past due. Mortgage loans in regulated bank entities discharged through Chapter 7 bankruptcy, other than Federal Housing Administration (FHA)-insured loans, are classified as non-accrual. Commercial market loans are placed on a cash (non-accrual) basis when it is determined, based on actual experience and a forward-looking assessment of the collectability of the loan in full, that the payment of interest or principal is doubtful or when interest or principal is 90 days past due.

The policy for re-aging modified U.S. consumer loans to current status varies by product. Generally, one of the conditions to qualify for these modifications is that a minimum number of payments (typically ranging from one to three) be made. Upon modification, the loan is re-aged to current status. However, re-aging practices for certain open-ended consumer loans, such as credit cards, are governed by Federal Financial Institutions Examination Council (FFIEC) guidelines. For open-ended consumer loans subject to FFIEC guidelines, one of the conditions for a loan to be re-aged to current status is that at least three consecutive minimum monthly payments, or the equivalent amount, must be received. In addition, under FFIEC guidelines, the number of times that such a loan can be re-aged is subject to limitations (generally once in 12 months and twice in five years). Furthermore, FHA and Department of Veterans Affairs (VA) loans are modified under those respective agencies' guidelines and payments are not always required in order to re-age a modified loan to current.

Consumer Loan Delinquency and Non-Accrual Details at December 31, 2016

<i>In millions of dollars</i>	Total current ⁽¹⁾⁽²⁾	30–89 days past due ⁽³⁾	≥ 90 days past due ⁽³⁾	Past due government guaranteed ⁽⁴⁾	Total loans ⁽²⁾	Total non- accrual	90 days past due and accruing
In North America offices							
Residential first mortgages ⁽⁵⁾	\$ 50,766	\$ 522	\$ 371	\$ 1,474	\$ 53,133	\$ 848	\$ 1,227
Home equity loans ⁽⁶⁾⁽⁷⁾	18,767	249	438	—	19,454	914	—
Credit cards	130,327	1,465	1,509	—	133,301	—	1,509
Installment and other	4,486	106	38	—	4,630	70	2
Commercial market loans	8,876	23	74	—	8,973	328	14
Total	\$ 213,222	\$ 2,365	\$ 2,430	\$ 1,474	\$ 219,491	\$ 2,160	\$ 2,752
In offices outside North America							
Residential first mortgages ⁽⁵⁾	\$ 35,862	\$ 206	\$ 135	\$ —	\$ 36,203	\$ 360	\$ —
Credit cards	22,363	368	324	—	23,055	258	239
Installment and other	22,683	264	126	—	23,073	163	—
Commercial market loans	23,054	72	112	—	23,238	217	—
Total	\$ 103,962	\$ 910	\$ 697	\$ —	\$ 105,569	\$ 998	\$ 239
Total <i>GCB</i> and <i>Corporate/Other</i> consumer	\$ 317,184	\$ 3,275	\$ 3,127	\$ 1,474	\$ 325,060	\$ 3,158	\$ 2,991
Other⁽⁸⁾	3	—	—	—	3	—	—
Total Citigroup	\$ 317,187	\$ 3,275	\$ 3,127	\$ 1,474	\$ 325,063	\$ 3,158	\$ 2,991

(1) Loans less than 30 days past due are presented as current.

(2) Includes \$29 million of residential first mortgages recorded at fair value.

(3) Excludes loans guaranteed by U.S. government-sponsored entities.

(4) Consists of residential first mortgages that are guaranteed by U.S. government-sponsored entities that are 30–89 days past due of \$0.2 billion and 90 days or more past due of \$1.3 billion.

(5) Includes approximately \$0.1 billion of residential first mortgage loans in process of foreclosure.

(6) Includes approximately \$0.1 billion of home equity loans in process of foreclosure.

(7) Fixed-rate home equity loans and loans extended under home equity lines of credit, which are typically in junior lien positions.

(8) Represents loans classified as consumer loans on the Consolidated Balance Sheet that are not included in the *Corporate/Other* consumer credit metrics.

Consumer Loan Delinquency and Non-Accrual Details at December 31, 2015

<i>In millions of dollars</i>	Total current ⁽¹⁾⁽²⁾	30–89 days past due ⁽³⁾	≥ 90 days past due ⁽³⁾	Past due government guaranteed ⁽⁴⁾	Total loans ⁽²⁾	Total non-accrual	90 days past due and accruing
In North America offices							
Residential first mortgages ⁽⁵⁾	\$ 53,146	\$ 846	\$ 564	\$ 2,318	\$ 56,874	\$ 1,216	\$ 1,997
Home equity loans ⁽⁶⁾⁽⁷⁾	22,335	136	277	—	22,748	1,017	—
Credit cards	110,814	1,296	1,243	—	113,353	—	1,243
Installment and other	4,576	80	33	—	4,689	56	2
Commercial market loans	8,241	16	61	—	8,318	222	17
Total	\$ 199,112	\$ 2,374	\$ 2,178	\$ 2,318	\$ 205,982	\$ 2,511	\$ 3,259
In offices outside North America							
Residential first mortgages ⁽⁸⁾	\$ 39,551	\$ 240	\$ 175	\$ —	\$ 39,966	\$ 388	\$ —
Credit cards	25,698	477	442	—	26,617	261	278
Installment and other	27,664	317	220	—	28,201	226	—
Commercial market loans	24,433	46	31	—	24,510	247	—
Total	\$ 117,346	\$ 1,080	\$ 868	\$ —	\$ 119,294	\$ 1,122	\$ 278
Total <i>GCB</i> and <i>Corporate/Other</i>	\$ 316,458	\$ 3,454	\$ 3,046	\$ 2,318	\$ 325,276	\$ 3,633	\$ 3,537
Other⁽⁹⁾	164	7	7	—	178	25	—
Total Citigroup	\$ 316,622	\$ 3,461	\$ 3,053	\$ 2,318	\$ 325,454	\$ 3,658	\$ 3,537

- (1) Loans less than 30 days past due are presented as current.
- (2) Includes \$34 million of residential first mortgages recorded at fair value.
- (3) Excludes loans guaranteed by U.S. government-sponsored entities.
- (4) Consists of residential first mortgages that are guaranteed by U.S. government-sponsored entities that are 30–89 days past due of \$0.3 billion and 90 days or more past due of \$2.0 billion.
- (5) Includes approximately \$0.2 billion of residential first mortgage loans in process of foreclosure.
- (6) Includes approximately \$0.1 billion of home equity loans in process of foreclosure.
- (7) Fixed-rate home equity loans and loans extended under home equity lines of credit, which are typically in junior lien positions.
- (8) Includes approximately \$0.1 billion of residential first mortgage loans in process of foreclosure.
- (9) Represents loans classified as consumer loans on the Consolidated Balance Sheet that are not included in the *Corporate/Other* consumer credit metrics.

Consumer Credit Scores (FICO)

In the U.S., independent credit agencies rate an individual's risk for assuming debt based on the individual's credit history and assign every consumer a "FICO" (Fair Isaac Corporation) credit score. These scores are continually updated by the agencies based upon an individual's credit actions (e.g., taking out a loan or missed or late payments).

The following tables provide details on the FICO scores for Citi's U.S. consumer loan portfolio (commercial market loans are excluded in the table since they are business based and FICO scores are not a primary driver in their credit evaluation). FICO scores are updated monthly for substantially all of the portfolio or, otherwise, on a quarterly basis for the remaining portfolio.

<i>In millions of dollars</i>	FICO score distribution in U.S. portfolio ⁽¹⁾⁽²⁾		
	December 31, 2016		
	Less than 620	≥ 620 but less than 660	Equal to or greater than 660
Residential first mortgages	\$ 2,744	\$ 2,422	\$ 44,279
Home equity loans	1,750	1,418	14,743
Credit cards	8,310	11,320	110,522
Installment and other	284	271	2,601
Total	\$ 13,088	\$ 15,431	\$ 172,145

Impaired Consumer Loans

Impaired loans are those loans where Citi believes it is probable all amounts due according to the original contractual terms of the loan will not be collected. Impaired consumer loans include non-accrual commercial market loans, as well as smaller-balance homogeneous loans whose terms have been modified due to the borrower's financial difficulties and where Citi has granted a concession to the borrower. These modifications may include interest rate reductions and/or principal forgiveness. Impaired consumer loans exclude smaller-balance homogeneous loans that have not been modified and are carried on a non-accrual basis.

FICO score distribution in U.S. portfolio ⁽¹⁾⁽²⁾	December 31, 2015		
	Less than 620	≥ 620 but less than 660	Equal to or greater than 660
<i>In millions of dollars</i>			
Residential first mortgages	\$ 3,483	\$ 3,036	\$ 45,047
Home equity loans	2,067	1,782	17,837
Credit cards	7,341	10,072	93,194
Installment and other	337	270	2,662
Total	\$ 13,228	\$ 15,160	\$ 158,740

- (1) Excludes loans guaranteed by U.S. government entities, loans subject to long-term standby commitments (LTSCs) with U.S. government-sponsored entities and loans recorded at fair value.
- (2) Excludes balances where FICO was not available. Such amounts are not material.

Loan to Value (LTV) Ratios

LTV ratios (loan balance divided by appraised value) are calculated at origination and updated by applying market price data.

The following tables provide details on the LTV ratios for Citi's U.S. consumer mortgage portfolios. LTV ratios are updated monthly using the most recent Core Logic Home Price Index data available for substantially all of the portfolio applied at the Metropolitan Statistical Area level, if available, or the state level if not. The remainder of the portfolio is updated in a similar manner using the Federal Housing Finance Agency indices.

LTV distribution in U.S. portfolio ⁽¹⁾⁽²⁾	December 31, 2016		
	Less than or equal to 80%	> 80% but less than or equal to 100%	Greater than 100%
<i>In millions of dollars</i>			
Residential first mortgages	\$ 45,849	\$ 3,467	\$ 324
Home equity loans	12,869	3,653	1,305
Total	\$ 58,718	\$ 7,120	\$ 1,629

LTV distribution in U.S. portfolio ⁽¹⁾⁽²⁾	December 31, 2015		
	Less than or equal to 80%	> 80% but less than or equal to 100%	Greater than 100%
<i>In millions of dollars</i>			
Residential first mortgages	\$ 46,559	\$ 4,478	\$ 626
Home equity loans	13,904	5,147	2,527
Total	\$ 60,463	\$ 9,625	\$ 3,153

- (1) Excludes loans guaranteed by U.S. government entities, loans subject to LTSCs with U.S. government-sponsored entities and loans recorded at fair value.
- (2) Excludes balances where LTV was not available. Such amounts are not material.

The following tables present information about impaired consumer loans and interest income recognized on impaired consumer loans:

<i>In millions of dollars</i>	At and for the year ended December 31, 2016				
	Recorded investment ⁽¹⁾⁽²⁾	Unpaid principal balance	Related specific allowance ⁽³⁾	Average carrying value ⁽⁴⁾	Interest income recognized ⁽⁵⁾
Mortgage and real estate					
Residential first mortgages	\$ 3,786	\$ 4,157	\$ 540	\$ 4,632	\$ 170
Home equity loans	1,298	1,824	189	1,326	35
Credit cards	1,747	1,781	566	1,831	158
Installment and other					
Individual installment and other	455	481	215	475	27
Commercial market loans	513	744	98	538	12
Total	\$ 7,799	\$ 8,987	\$ 1,608	\$ 8,802	\$ 402

- (1) Recorded investment in a loan includes net deferred loan fees and costs, unamortized premium or discount and direct write-downs and includes accrued interest only on credit card loans.
- (2) \$740 million of residential first mortgages, \$406 million of home equity loans and \$97 million of commercial market loans do not have a specific allowance.
- (3) Included in the *Allowance for loan losses*.
- (4) Average carrying value represents the average recorded investment ending balance for the last four quarters and does not include the related specific allowance.
- (5) Includes amounts recognized on both an accrual and cash basis.

<i>In millions of dollars</i>	At and for the year ended December 31, 2015				
	Recorded investment ⁽¹⁾⁽²⁾	Unpaid principal balance	Related specific allowance ⁽³⁾	Average carrying value ⁽⁴⁾	Interest income recognized ⁽⁵⁾⁽⁶⁾
Mortgage and real estate					
Residential first mortgages	\$ 6,038	\$ 6,610	\$ 739	\$ 8,932	\$ 439
Home equity loans	1,399	1,972	406	1,778	64
Credit cards	1,950	1,986	604	2,079	179
Installment and other					
Individual installment and other	464	519	197	449	33
Commercial market loans	341	572	100	361	13
Total	\$ 10,192	\$ 11,659	\$ 2,046	\$ 13,599	\$ 728

- (1) Recorded investment in a loan includes net deferred loan fees and costs, unamortized premium or discount and direct write-downs and includes accrued interest only on credit card loans.
- (2) \$1,151 million of residential first mortgages, \$459 million of home equity loans and \$86 million of commercial market loans do not have a specific allowance.
- (3) Included in the *Allowance for loan losses*.
- (4) Average carrying value represents the average recorded investment ending balance for the last four quarters and does not include the related specific allowance.
- (5) Includes amounts recognized on both an accrual and cash basis.
- (6) Interest income recognized for the year ended December 31, 2014 was \$1,106 million.

Consumer Troubled Debt Restructurings

At and for the year ended December 31, 2016

<i>In millions of dollars except number of loans modified</i>	Number of loans modified	Post-modification recorded investment ⁽¹⁾⁽²⁾	Deferred principal ⁽³⁾	Contingent principal forgiveness ⁽⁴⁾	Principal forgiveness ⁽⁵⁾	Average interest rate reduction
North America						
Residential first mortgages	5,023	\$ 726	\$ 6	\$ —	\$ 3	1%
Home equity loans	4,100	200	6	—	1	2
Credit cards	196,004	762	—	—	—	17
Installment and other revolving	5,649	47	—	—	—	14
Commercial banking ⁽⁶⁾	132	91	—	—	—	—
Total⁽⁸⁾	210,908	\$ 1,826	\$ 12	\$ —	\$ 4	
International						
Residential first mortgages	2,722	\$ 80	\$ —	\$ —	\$ —	—%
Credit cards	137,466	385	—	—	9	12
Installment and other revolving	60,094	276	—	—	7	7
Commercial banking ⁽⁶⁾	162	109	—	—	—	—
Total⁽⁸⁾	200,444	\$ 850	\$ —	\$ —	\$ 16	

At and for the year ended December 31, 2015

<i>In millions of dollars except number of loans modified</i>	Number of loans modified	Post-modification recorded investment ⁽¹⁾⁽⁷⁾	Deferred principal ⁽³⁾	Contingent principal forgiveness ⁽⁴⁾	Principal forgiveness ⁽⁵⁾	Average interest rate reduction
North America						
Residential first mortgages	9,487	\$ 1,282	\$ 9	\$ 4	\$ 25	1%
Home equity loans	4,317	157	1	—	3	2
Credit cards	188,502	771	—	—	—	16
Installment and other revolving	4,287	37	—	—	—	13
Commercial banking ⁽⁶⁾	300	47	—	—	—	—
Total⁽⁸⁾	206,893	\$ 2,294	\$ 10	\$ 4	\$ 28	
International						
Residential first mortgages	3,918	\$ 104	\$ —	\$ —	\$ —	—%
Credit cards	142,851	374	—	—	7	13
Installment and other revolving	65,895	280	—	—	5	5
Commercial banking ⁽⁶⁾	239	87	—	—	—	1
Total⁽⁸⁾	212,903	\$ 845	\$ —	\$ —	\$ 12	

- (1) Post-modification balances include past due amounts that are capitalized at the modification date.
- (2) Post-modification balances in *North America* include \$74 million of residential first mortgages and \$22 million of home equity loans to borrowers who have gone through Chapter 7 bankruptcy in the year ended December 31, 2016. These amounts include \$48 million of residential first mortgages and \$20 million of home equity loans that were newly classified as TDRs during 2016, based on previously received OCC guidance.
- (3) Represents portion of contractual loan principal that is non-interest bearing, but still due from the borrower. Such deferred principal is charged off at the time of permanent modification to the extent that the related loan balance exceeds the underlying collateral value.
- (4) Represents portion of contractual loan principal that is non-interest bearing and, depending upon borrower performance, eligible for forgiveness.
- (5) Represents portion of contractual loan principal that was forgiven at the time of permanent modification.
- (6) Commercial banking loans are generally borrower-specific modifications and incorporate changes in the amount and/or timing of principal and/or interest.
- (7) Post-modification balances in *North America* include \$209 million of residential first mortgages and \$55 million of home equity loans to borrowers who have gone through Chapter 7 bankruptcy in the year ended December 31, 2015. These amounts include \$126 million of residential first mortgages and \$47 million of home equity loans that were newly classified as TDRs during 2015, based on previously received OCC guidance.
- (8) The above tables reflect activity for loans outstanding as of the end of the reporting period that were considered TDRs.

The following table presents consumer TDRs that defaulted, for which the payment default occurred within one year of a permanent modification. Default is defined as 60 days past due, except for classifiably managed commercial banking loans, where default is defined as 90 days past due.

<i>In millions of dollars</i>	2016	2015
North America		
Residential first mortgages	\$ 229	\$ 420
Home equity loans	25	38
Credit cards	188	187
Installment and other revolving	9	8
Commercial banking	15	9
Total	\$ 466	\$ 662
International		
Residential first mortgages	\$ 11	\$ 22
Credit cards	148	141
Installment and other revolving	90	88
Commercial banking	37	28
Total	\$ 286	\$ 279

Corporate Loans

Corporate loans represent loans and leases managed by ICG. The following table presents information by corporate loan type:

<i>In millions of dollars</i>	December 31, 2016	December 31, 2015
In U.S. offices		
Commercial and industrial	\$ 49,586	\$ 46,011
Financial institutions	35,517	36,425
Mortgage and real estate ⁽¹⁾	38,691	32,623
Installment, revolving credit and other	34,501	33,423
Lease financing	1,518	1,780
	\$ 159,813	\$ 150,262
In offices outside the U.S.		
Commercial and industrial	\$ 81,882	\$ 82,689
Financial institutions	26,886	28,704
Mortgage and real estate ⁽¹⁾	5,363	5,106
Installment, revolving credit and other	19,965	20,853
Lease financing	251	303
Governments and official institutions	5,850	4,911
	\$ 140,197	\$ 142,566
Total corporate loans	\$ 300,010	\$ 292,828
Net unearned income	(704)	(665)
Corporate loans, net of unearned income	\$ 299,306	\$ 292,163

(1) Loans secured primarily by real estate.

The Company sold and/or reclassified to held-for-sale \$4.2 billion and \$2.8 billion of corporate loans during the years ended December 31, 2016 and 2015, respectively. The Company did not have significant purchases of corporate loans classified as held-for-investment for the years ended December 31, 2016 or 2015.

Delinquency Status

Citi generally does not manage corporate loans on a delinquency basis. Corporate loans are identified as impaired and placed on a cash (non-accrual) basis when it is determined, based on actual experience and a forward-looking assessment of the collectability of the loan in full, that the payment of interest or principal is doubtful or when interest or principal is 90 days past due, except when the loan is well collateralized and in the process of collection. Any interest accrued on impaired corporate loans and leases is reversed at 90 days and charged against current earnings, and interest is thereafter included in earnings only to the extent actually received in cash. When there is doubt regarding the ultimate collectability of principal, all cash receipts are thereafter applied to reduce the recorded investment in the loan. While corporate loans are generally managed based on their internally assigned risk rating (see further discussion below), the following tables present delinquency information by corporate loan type.

Corporate Loan Delinquency and Non-Accrual Details at December 31, 2016

<i>In millions of dollars</i>	30–89 days past due and accruing ⁽¹⁾	≥ 90 days past due and accruing ⁽¹⁾	Total past due and accruing	Total non-accrual ⁽²⁾	Total current ⁽³⁾	Total loans ⁽⁴⁾
Commercial and industrial	\$ 143	\$ 52	\$ 195	\$ 1,909	\$ 127,012	\$ 129,116
Financial institutions	119	2	121	185	61,254	61,560
Mortgage and real estate	148	137	285	139	43,607	44,031
Leases	27	8	35	56	1,678	1,769
Other	349	12	361	132	58,880	59,373
Loans at fair value						3,457
Purchased distressed loans						—
Total	\$ 786	\$ 211	\$ 997	\$ 2,421	\$ 292,431	\$ 299,306

Corporate Loan Delinquency and Non-Accrual Details at December 31, 2015

<i>In millions of dollars</i>	30–89 days past due and accruing ⁽¹⁾	≥ 90 days past due and accruing ⁽¹⁾	Total past due and accruing	Total non-accrual ⁽²⁾	Total current ⁽³⁾	Total loans ⁽⁴⁾
Commercial and industrial	\$ 87	\$ 4	\$ 91	\$ 1,071	\$ 123,523	\$ 124,685
Financial institutions	16	—	16	173	64,157	64,346
Mortgage and real estate	137	7	144	232	37,290	37,666
Leases	—	—	—	76	2,006	2,082
Other	29	—	29	44	58,335	58,408
Loans at fair value						4,971
Purchased distressed loans						5
Total	\$ 269	\$ 11	\$ 280	\$ 1,596	\$ 285,311	\$ 292,163

- (1) Corporate loans that are 90 days past due are generally classified as non-accrual. Corporate loans are considered past due when principal or interest is contractually due but unpaid.
- (2) Non-accrual loans generally include those loans that are ≥ 90 days past due or those loans for which Citi believes, based on actual experience and a forward-looking assessment of the collectability of the loan in full, that the payment of interest or principal is doubtful.
- (3) Corporate loans are past due when principal or interest is contractually due but unpaid. Loans less than 30 days past due are presented as current.
- (4) Total loans include loans at fair value, which are not included in the various delinquency columns.

Citigroup has a risk management process to monitor, evaluate and manage the principal risks associated with its corporate loan portfolio. As part of its risk management process, Citi assigns numeric risk ratings to its corporate loan facilities based on quantitative and qualitative assessments of the obligor and facility. These risk ratings are reviewed at least annually or more often if material events related to the obligor or facility warrant. Factors considered in assigning the risk ratings include financial condition of the obligor, qualitative assessment of management and strategy, amount and sources of repayment, amount and type of collateral and guarantee arrangements, amount and type of any contingencies associated with the obligor, and the obligor's industry and geography.

The obligor risk ratings are defined by ranges of default probabilities. The facility risk ratings are defined by ranges of loss norms, which are the product of the probability of default and the loss given default. The investment grade rating categories are similar to the category BBB-/Baa3 and above as defined by S&P and Moody's. Loans classified according to the bank regulatory definitions as special mention, substandard and doubtful will have risk ratings within the non-investment grade categories.

Corporate Loans Credit Quality Indicators

<i>In millions of dollars</i>	Recorded investment in loans⁽¹⁾	
	December 31, 2016	December 31, 2015
Investment grade⁽²⁾		
Commercial and industrial	\$ 85,369	\$ 89,963
Financial institutions	49,915	53,551
Mortgage and real estate	18,718	14,987
Leases	1,303	1,725
Other	51,930	51,498
Total investment grade	\$ 207,235	\$ 211,724
Non-investment grade⁽²⁾		
<i>Accrual</i>		
Commercial and industrial	\$ 41,838	\$ 32,726
Financial institutions	11,459	10,622
Mortgage and real estate	1,821	2,800
Leases	410	282
Other	7,312	6,867
<i>Non-accrual</i>		
Commercial and industrial	1,909	1,071
Financial institutions	185	173
Mortgage and real estate	139	232
Leases	56	76
Other	132	44
Total non-investment grade	\$ 65,261	\$ 54,893
Private bank loans managed on a delinquency basis⁽²⁾	\$ 23,353	\$ 20,575
Loans at fair value	3,457	4,971
Corporate loans, net of unearned income	\$ 299,306	\$ 292,163

- (1) Recorded investment in a loan includes net deferred loan fees and costs, unamortized premium or discount, less any direct write-downs.
- (2) Held-for-investment loans are accounted for on an amortized cost basis.

Impaired collateral-dependent loans and leases, where repayment is expected to be provided solely by the sale of the underlying collateral and there are no other available and reliable sources of repayment, are written down to the lower of cost or collateral value, less cost to sell. Cash-basis loans are returned to an accrual status when all contractual principal and interest amounts are reasonably assured of repayment and there is a sustained period of repayment performance, generally six months, in accordance with the contractual terms of the loan.

The following tables present non-accrual loan information by corporate loan type and interest income recognized on non-accrual corporate loans:

Non-Accrual Corporate Loans

At and for the year ended December 31, 2016

<i>In millions of dollars</i>	Recorded investment ⁽¹⁾	Unpaid principal balance	Related specific allowance	Average carrying value ⁽²⁾	Interest income recognized ⁽³⁾
Non-accrual corporate loans					
Commercial and industrial	\$ 1,909	\$ 2,259	\$ 362	\$ 1,919	\$ 25
Financial institutions	185	192	16	183	3
Mortgage and real estate	139	250	10	174	6
Lease financing	56	56	4	44	—
Other	132	197	—	87	6
Total non-accrual corporate loans	\$ 2,421	\$ 2,954	\$ 392	\$ 2,407	\$ 40

At and for the year ended December 31, 2015

<i>In millions of dollars</i>	Recorded investment ⁽¹⁾	Unpaid principal balance	Related specific allowance	Average carrying value ⁽²⁾	Interest income recognized ⁽³⁾
Non-accrual corporate loans					
Commercial and industrial	\$ 1,071	\$ 1,238	\$ 246	\$ 859	\$ 7
Financial institutions	173	196	10	194	—
Mortgage and real estate	232	322	21	240	4
Lease financing	76	76	54	62	—
Other	44	114	32	39	—
Total non-accrual corporate loans	\$ 1,596	\$ 1,946	\$ 363	\$ 1,394	\$ 11

<i>In millions of dollars</i>	December 31, 2016		December 31, 2015	
	Recorded investment ⁽¹⁾	Related specific allowance	Recorded investment ⁽¹⁾	Related specific allowance
Non-accrual corporate loans with valuation allowances				
Commercial and industrial	\$ 1,343	\$ 362	\$ 571	\$ 246
Financial institutions	45	16	18	10
Mortgage and real estate	41	10	60	21
Lease financing	55	4	75	54
Other	1	—	40	32
Total non-accrual corporate loans with specific allowance	\$ 1,485	\$ 392	\$ 764	\$ 363
Non-accrual corporate loans without specific allowance				
Commercial and industrial	\$ 566		\$ 500	
Financial institutions	140		155	
Mortgage and real estate	98		172	
Lease financing	1		1	
Other	131		4	
Total non-accrual corporate loans without specific allowance	\$ 936	N/A	\$ 832	N/A

(1) Recorded investment in a loan includes net deferred loan fees and costs, unamortized premium or discount, less any direct write-downs.

(2) Average carrying value represents the average recorded investment balance and does not include related specific allowance.

(3) Interest income recognized for the year ended December 31, 2014 was \$47 million.

N/A Not Applicable

Corporate Troubled Debt Restructurings

The following table presents corporate TDR activity at and for the year ended December 31, 2016:

<i>In millions of dollars</i>	Carrying Value	TDRs involving changes in the amount and/or timing of principal payments ⁽¹⁾	TDRs involving changes in the amount and/or timing of interest payments ⁽²⁾	TDRs involving changes in the amount and/or timing of both principal and interest payments
Commercial and industrial	\$ 338	\$ 176	\$ 34	\$ 128
Financial institutions	10	10	—	—
Mortgage and real estate	15	6	—	9
Other	142	—	142	—
Total	\$ 505	\$ 192	\$ 176	\$ 137

The following table presents corporate TDR activity at and for the year ended December 31, 2015:

<i>In millions of dollars</i>	Carrying Value	TDRs involving changes in the amount and/or timing of principal payments ⁽¹⁾	TDRs involving changes in the amount and/or timing of interest payments ⁽²⁾	TDRs involving changes in the amount and/or timing of both principal and interest payments
Commercial and industrial	\$ 120	\$ 67	\$ —	\$ 53
Mortgage and real estate	47	3	—	44
Total	\$ 167	\$ 70	\$ —	\$ 97

- (1) TDRs involving changes in the amount or timing of principal payments may involve principal forgiveness or deferral of periodic and/or final principal payments. Because forgiveness of principal is rare for corporate loans, modifications typically have little to no impact on the loans' projected cash flows and thus little to no impact on the allowance established for the loans. Charge-offs for amounts deemed uncollectable may be recorded at the time of the restructuring or may have already been recorded in prior periods such that no charge-off is required at the time of the modification.
- (2) TDRs involving changes in the amount or timing of interest payments may involve a below-market interest rate.

The following table presents total corporate loans modified in a TDR as well as those TDRs that defaulted and for which the payment default occurred within one year of a permanent modification. Default is defined as 60 days past due, except for classifiably managed commercial banking loans, where default is defined as 90 days past due.

<i>In millions of dollars</i>	TDR balances at December 31, 2016	TDR loans in payment default during the year ended December 31, 2016	TDR balances at December 31, 2015	TDR loans in payment default during the year ended December 31, 2015
Commercial and industrial	\$ 408	\$ 7	\$ 142	\$ —
Loans to financial institutions	9	—	5	1
Mortgage and real estate	87	8	131	—
Other	228	—	308	—
Total⁽¹⁾	\$ 732	\$ 15	\$ 586	\$ 1

- (1) The above tables reflect activity for loans outstanding as of the end of the reporting period that were considered TDRs.

15. ALLOWANCE FOR CREDIT LOSSES

<i>In millions of dollars</i>	2016	2015	2014
Allowance for loan losses at beginning of period	\$ 12,626	\$ 15,994	\$ 19,648
Gross credit losses	(8,222)	(9,041)	(11,108)
Gross recoveries ⁽¹⁾	1,661	1,739	2,135
Net credit losses (NCLs)	\$ (6,561)	\$ (7,302)	\$ (8,973)
NCLs	\$ 6,561	\$ 7,302	\$ 8,973
Net reserve builds (releases)	340	139	(1,879)
Net specific reserve releases	(152)	(333)	(266)
Total provision for loan losses	\$ 6,749	\$ 7,108	\$ 6,828
Other, net (see table below)	(754)	(3,174)	(1,509)
Allowance for loan losses at end of period	\$ 12,060	\$ 12,626	\$ 15,994
Allowance for credit losses on unfunded lending commitments at beginning of period	\$ 1,402	\$ 1,063	\$ 1,229
Provision (release) for unfunded lending commitments	29	74	(162)
Other, net ⁽²⁾	(13)	265	(4)
Allowance for credit losses on unfunded lending commitments at end of period⁽³⁾	\$ 1,418	\$ 1,402	\$ 1,063
Total allowance for loans, leases, and unfunded lending commitments	\$ 13,478	\$ 14,028	\$ 17,057

(1) Recoveries have been reduced by certain collection costs that are incurred only if collection efforts are successful.

(2) 2015 includes a reclassification of \$271 million of Allowance for loan losses to Allowance for unfunded lending commitments, included in Other, net. This reclassification reflects the re-attribution of \$271 million in Allowances for credit losses between the funded and unfunded portions of the corporate credit portfolios and does not reflect a change in the underlying credit performance of these portfolios.

(3) Represents additional credit loss reserves for unfunded lending commitments and letters of credit recorded in *Other liabilities* on the Consolidated Balance Sheet.

Other, net details:

<i>In millions of dollars</i>	2016	2015	2014
Sales or transfers of various consumer loan portfolios to held-for-sale			
Transfer of real estate loan portfolios	\$ (106)	\$ (1,462)	\$ (411)
Transfer of other loan portfolios	(468)	(948)	(657)
Sales or transfers of various consumer loan portfolios to held-for-sale	\$ (574)	\$ (2,410)	\$ (1,068)
FX translation, consumer	(199)	(474)	(463)
Other	19	(290)	22
Other, net	\$ (754)	\$ (3,174)	\$ (1,509)

Allowance for Credit Losses and Investment in Loans at December 31, 2016

<i>In millions of dollars</i>	Corporate	Consumer	Total
Allowance for loan losses at beginning of period	\$ 2,791	\$ 9,835	\$ 12,626
Charge-offs	(580)	(7,642)	(8,222)
Recoveries	67	1,594	1,661
Replenishment of net charge-offs	513	6,048	6,561
Net reserve builds (releases)	(85)	425	340
Net specific reserve releases	—	(152)	(152)
Other	(4)	(750)	(754)
Ending balance	\$ 2,702	\$ 9,358	\$ 12,060
Allowance for loan losses			
Determined in accordance with ASC 450	\$ 2,310	\$ 7,744	\$ 10,054
Determined in accordance with ASC 310-10-35	392	1,608	2,000
Determined in accordance with ASC 310-30	—	6	6
Total allowance for loan losses	\$ 2,702	\$ 9,358	\$ 12,060
Loans, net of unearned income			
Loans collectively evaluated for impairment in accordance with ASC 450	\$ 293,218	\$ 317,048	\$ 610,266
Loans individually evaluated for impairment in accordance with ASC 310-10-35	2,631	7,799	10,430
Loans acquired with deteriorated credit quality in accordance with ASC 310-30	—	187	187
Loans held at fair value	3,457	29	3,486
Total loans, net of unearned income	\$ 299,306	\$ 325,063	\$ 624,369

Allowance for Credit Losses and Investment in Loans at December 31, 2015

<i>In millions of dollars</i>	Corporate	Consumer	Total
Allowance for loan losses at beginning of period	\$ 2,447	\$ 13,547	\$ 15,994
Charge-offs	(349)	(8,692)	(9,041)
Recoveries	105	1,634	1,739
Replenishment of net charge-offs	244	7,058	7,302
Net reserve builds (releases)	550	(411)	139
Net specific reserve builds (releases)	86	(419)	(333)
Other	(292)	(2,882)	(3,174)
Ending balance	\$ 2,791	\$ 9,835	\$ 12,626
Allowance for loan losses			
Determined in accordance with ASC 450	\$ 2,408	\$ 7,776	\$ 10,184
Determined in accordance with ASC 310-10-35	380	2,046	2,426
Determined in accordance with ASC 310-30	3	13	16
Total allowance for loan losses	\$ 2,791	\$ 9,835	\$ 12,626
Loans, net of unearned income			
Loans collectively evaluated for impairment in accordance with ASC 450	\$ 285,384	\$ 314,983	\$ 600,367
Loans individually evaluated for impairment in accordance with ASC 310-10-35	1,803	10,192	11,995
Loans acquired with deteriorated credit quality in accordance with ASC 310-30	5	245	250
Loans held at fair value	4,971	34	5,005
Total loans, net of unearned income	\$ 292,163	\$ 325,454	\$ 617,617

Allowance for Credit Losses at December 31, 2014

<i>In millions of dollars</i>	Corporate	Consumer	Total
Allowance for loan losses at beginning of period	\$ 2,674	\$ 16,974	\$ 19,648
Charge-offs	(454)	(10,654)	(11,108)
Recoveries	160	1,975	2,135
Replenishment of net charge-offs	294	8,679	8,973
Net reserve releases	(145)	(1,734)	(1,879)
Net specific reserve releases	(20)	(246)	(266)
Other	(62)	(1,447)	(1,509)
Ending balance	\$ 2,447	\$ 13,547	\$ 15,994

16. GOODWILL AND INTANGIBLE ASSETS

Goodwill

The changes in *Goodwill* were as follows:

In millions of dollars

Balance at December 31, 2013	\$	25,009
Foreign exchange translation and other		(1,214)
Divestitures and purchase accounting adjustments ⁽¹⁾		(203)
Balance at December 31, 2014	\$	23,592
Foreign exchange translation and other	\$	(1,000)
Divestitures ⁽²⁾		(212)
Impairment of Goodwill ⁽³⁾		(31)
Balance at December 31, 2015	\$	22,349
Foreign exchange translation and other	\$	(613)
Divestitures ⁽⁴⁾		(77)
Balance at December 31, 2016	\$	21,659

The changes in *Goodwill* by segment were as follows:

<i>In millions of dollars</i>	Global Consumer Banking	Institutional Clients Group	Corporate/ Other	Total
Balance at December 31, 2014 ⁽⁵⁾	\$ 13,083	\$ 10,190	\$ 319	\$ 23,592
Foreign exchange translation and other	(355)	(644)	(1)	(1,000)
Impairment of goodwill ⁽³⁾	—	—	(31)	(31)
Divestitures ⁽²⁾	(24)	(1)	(187)	(212)
Balance at December 31, 2015	\$ 12,704	\$ 9,545	\$ 100	\$ 22,349
Foreign exchange translation and other	(174)	(447)	8	(613)
Divestitures ⁽⁴⁾	—	(13)	(64)	(77)
Balance at December 31, 2016	\$ 12,530	\$ 9,085	\$ 44	\$ 21,659

- (1) Primarily related to the sales of the Spain consumer operations and the Japan retail banking business. See Note 2 to the Consolidated Financial Statements.
- (2) Primarily related to the sales of the Latin America Retirement Services and Japan cards businesses completed during the year, and agreements to sell certain businesses in Citi Holdings as of December 31, 2015. See Note 2 to the Consolidated Financial Statements.
- (3) Goodwill impairment related to reporting units subsequently sold, including Citi Holdings—*Consumer Finance South Korea* of \$16 million and Citi Holdings—*Consumer Latin America* of \$15 million.
- (4) Primarily related to the sale of the private equity services business and the announced sales of the Argentina and Brazil consumer operations.
- (5) December 31, 2014 has been restated to reflect intersegment goodwill allocations that resulted from the reorganizations in 2015, 2016 and January 1, 2017 including transfers of *GCB* businesses to *ICG* and to *Corporate/Other*. See Note 3 to the Consolidated Financial Statements.

Goodwill impairment testing is performed at the level below each business segment (referred to as a reporting unit). The Company performed its annual goodwill impairment test as of July 1, 2016 resulting in no impairment for any of the reporting units.

Furthermore, interim goodwill impairment tests were performed during the years presented, which resulted in no goodwill impairment, except for the \$31 million of goodwill impairment recorded in *Operating expenses* in 2015.

Effective January 1, 2016, the *Latin America GCB* reporting unit was reorganized, which included the transfer of the consumer businesses in Argentina, Brazil and Colombia to Citi Holdings—*Consumer Latin America* reported as part of *Corporate/Other*.

Goodwill balances associated with the transfers were allocated to each of the component businesses based on their

relative fair values to the legacy reporting units. An interim goodwill impairment test was performed as of January 1, 2016 for the impacted reporting units resulting in no impairment under the legacy and current reporting unit structures.

During the fourth quarter of 2016, Citigroup signed separate agreements for the sale of its Argentina and Brazil consumer businesses and allocated goodwill to these disposals. The disposed businesses represents a significant portion of Citi Holdings—*Consumer Latin America*, and therefore was considered a trigger event. As a result, an interim goodwill impairment test was performed during the quarter, resulting in no impairment on the remaining reporting unit. While there was no indication of impairment, the \$16 million of goodwill present in Citi Holdings—*Consumer Latin America* may be particularly sensitive to

further deterioration in economic conditions. The fair value as a percentage of allocated book value as of December 31, 2016 was 107%.

Effective January 1, 2017, the mortgage servicing business in *North America GCB* was reorganized and is now reported as part of *Corporate/Other*. Goodwill was allocated to the transferred business based on its relative fair value to the legacy *North America GCB* reporting unit.

The fair values of the Company's reporting units exceeded their carrying values and did not indicate a risk of impairment based on current valuations.

The following table shows reporting units with goodwill balances as of December 31, 2016 and the fair value as a percentage of allocated book value as of the latest impairment test:

In millions of dollars

Reporting unit ⁽¹⁾	Goodwill	Fair value as a % of allocated book value
<i>North America Global Consumer Banking</i>	\$ 6,730	148%
<i>Asia Global Consumer Banking</i> ⁽²⁾	4,709	157
<i>Latin America Global Consumer Banking</i> ⁽³⁾	1,092	180
<i>ICG—Banking</i>	2,694	194
<i>ICG—Markets and Securities Services</i>	6,390	115
<i>Citi Holdings—Consumer Latin America</i>	16	107
<i>Citi Holdings—REL</i> ⁽⁴⁾	28	38
Total	\$ 21,659	

- (1) Other Citi Holdings reporting units are excluded from the table as there is no goodwill allocated to them or the entire goodwill balance is classified as held-for-sale as of December 31, 2016.
- (2) *Asia Global Consumer Banking* includes the consumer businesses in UK, Russia, Poland, UAE and Bahrain beginning in the first quarter of 2016.
- (3) *Latin America Global Consumer Banking* contains only the consumer business in Mexico beginning in the first quarter of 2016.
- (4) The allocated goodwill to the mortgage servicing business was fully impaired upon transfer to Citi Holdings—*REL* effective January 1, 2017.

Intangible Assets

The components of intangible assets were as follows:

<i>In millions of dollars</i>	December 31, 2016			December 31, 2015		
	Gross carrying amount	Accumulated amortization	Net carrying amount	Gross carrying amount	Accumulated amortization	Net carrying amount
Purchased credit card relationships	\$ 8,215	\$ 6,549	\$ 1,666	\$ 7,606	\$ 6,520	\$ 1,086
Credit card contract related intangibles	5,149	2,177	2,972	3,922	2,021	1,901
Core deposit intangibles	801	771	30	1,050	969	81
Other customer relationships	474	272	202	471	252	219
Present value of future profits	31	27	4	37	31	6
Indefinite-lived intangible assets	210	—	210	284	—	284
Other	504	474	30	737	593	144
Intangible assets (excluding MSR)	\$ 15,384	\$ 10,270	\$ 5,114	\$ 14,107	\$ 10,386	\$ 3,721
Mortgage servicing rights (MSR) ⁽¹⁾	1,564	—	1,564	1,781	—	1,781
Total intangible assets	\$ 16,948	\$ 10,270	\$ 6,678	\$ 15,888	\$ 10,386	\$ 5,502

- (1) In January 2017, Citi signed agreements to effectively exit its U.S. mortgage servicing operations by the end of 2018 and intensify its focus on loan originations. For additional information on these transactions, see Note 29 to the Consolidated Financial Statements.

Intangible assets amortization expense was \$595 million, \$625 million and \$756 million for 2016, 2015 and 2014, respectively. Intangible assets amortization expense is estimated to be \$579 million in 2017, \$514 million in 2018, \$478 million in 2019, \$317 million in 2020 and \$321 million in 2021.

The changes in intangible assets were as follows:

<i>In millions of dollars</i>	Net carrying amount at					Net carrying amount at
	December 31, 2015	Acquisitions/ divestitures ⁽¹⁾	Amortization	Impairments	FX translation and other	December 31, 2016
Purchased credit card relationships	\$ 1,086	\$ 827	\$ (203)	\$ —	\$ (44)	\$ 1,666
Credit card contract-related intangibles ⁽²⁾	1,901	1,314	(326)	—	83	2,972
Core deposit intangibles	81	(18)	(28)	—	(5)	30
Other customer relationships	219	—	(25)	—	8	202
Present value of future profits	6	—	(1)	—	(1)	4
Indefinite-lived intangible assets	284	(25)	—	(1)	(48)	210
Other	144	(109)	(12)	—	7	30
Intangible assets (excluding MSR)	\$ 3,721	\$ 1,989	\$ (595)	\$ (1)	\$ —	\$ 5,114
Mortgage servicing rights (MSR) ⁽³⁾	1,781					1,564
Total intangible assets	\$ 5,502					\$ 6,678

- (1) Reflects the recognition during the second quarter of 2016 of additional purchased credit card relationships and contract-related intangible assets as a result of the acquisition of the Costco cards portfolio, as well as the renewal and extension of the co-branded credit card program agreement with American Airlines.
- (2) Primarily reflects contract-related intangibles associated with the American Airlines, Sears, The Home Depot, Costco and AT&T credit card program agreements, which represent 97% of the aggregate net carrying amount as of December 31, 2016.
- (3) For additional information on Citi's MSRs, including the rollforward from 2015 to 2016, see Note 21 to the Consolidated Financial Statements.

17. DEBT

Short-Term Borrowings

<i>In millions of dollars</i>	2016		2015	
	Balance	Weighted average coupon	Balance	Weighted average coupon
Commercial paper	\$ 9,989	0.79%	\$ 9,995	0.22%
Other borrowings⁽¹⁾	20,712	1.39	11,084	1.5
Total	\$ 30,701		\$ 21,079	

(1) Includes borrowings from the Federal Home Loan Banks and other market participants. At December 31, 2016, collateralized short-term advances from the Federal Home Loan Banks were \$12.0 billion. At December 31, 2015, no amounts were outstanding.

Borrowings under bank lines of credit may be at interest rates based on LIBOR, CD rates, the prime rate or bids submitted by the banks. Citigroup pays commitment fees for its lines of credit.

Some of Citigroup's non-bank subsidiaries have credit facilities with Citigroup's subsidiary depository institutions, including Citibank. Borrowings under these facilities are secured in accordance with Section 23A of the Federal Reserve Act.

Citigroup Global Markets Holdings Inc. (CGMHI) has borrowing agreements consisting of facilities that CGMHI has been advised are available, but where no contractual lending obligation exists. These arrangements are reviewed on an ongoing basis to ensure flexibility in meeting CGMHI's short-term requirements.

Long-Term Debt

<i>In millions of dollars</i>	Weighted average coupon	Maturities	Balances at December 31,	
			2016	2015
Citigroup Inc.⁽¹⁾				
Senior debt	4.00%	2017-2098	\$ 118,881	\$ 113,569
Subordinated debt ⁽²⁾	4.48	2017-2046	26,758	26,875
Trust preferred securities	6.90	2036-2067	1,694	1,713
Bank⁽³⁾				
Senior debt	1.88	2017-2038	49,454	55,131
Broker-dealer⁽⁴⁾				
Senior debt	2.08	2017-2047	9,387	3,968
Subordinated debt ⁽²⁾	0.95	2033-2037	4	19
Total	3.49%		\$ 206,178	\$ 201,275
Senior debt			\$ 177,722	\$ 172,668
Subordinated debt ⁽²⁾			26,762	26,894
Trust preferred securities			1,694	1,713
Total			\$ 206,178	\$ 201,275

(1) Parent holding company, Citigroup Inc.

(2) Includes notes that are subordinated within certain countries, regions or subsidiaries.

(3) Represents Citibank entities as well as other bank entities. At December 31, 2016 and December 31, 2015, collateralized long-term advances from the Federal Home Loan Banks were \$21.6 billion and \$17.8 billion, respectively.

(4) Represents broker-dealer subsidiaries that are consolidated into Citigroup Inc., the parent holding company.

The Company issues both fixed- and variable-rate debt in a range of currencies. It uses derivative contracts, primarily interest rate swaps, to effectively convert a portion of its fixed-rate debt to variable-rate debt and variable-rate debt to fixed-rate debt. The maturity structure of the derivatives generally corresponds to the maturity structure of the debt being hedged. In addition, the Company uses other derivative contracts to manage the foreign exchange impact of certain debt issuances. At December 31, 2016, the Company's overall weighted average interest rate for long-term debt was 3.49% on a contractual basis and 2.63% including the effects of derivative contracts.

Aggregate annual maturities of long-term debt obligations (based on final maturity dates) including trust preferred securities are as follows:

<i>In millions of dollars</i>	2017	2018	2019	2020	2021	Thereafter	Total
Bank	\$ 15,046	\$ 24,128	\$ 4,865	\$ 445	\$ 3,903	\$ 1,067	\$ 49,454
Broker-dealer	2,637	1,388	283	1,103	168	3,812	9,391
Citigroup Inc.	18,442	20,573	16,865	8,627	15,060	67,766	147,333
Total	\$ 36,125	\$ 46,089	\$ 22,013	\$ 10,175	\$ 19,131	\$ 72,645	\$ 206,178

The following table summarizes the Company's outstanding trust preferred securities at December 31, 2016:

Trust	Issuance date	Securities issued	Liquidation value ⁽¹⁾	Coupon rate ⁽²⁾	Common shares issued to parent	Junior subordinated debentures owned by trust		
						Amount	Maturity	Redeemable by issuer beginning
<i>In millions of dollars, except share amounts</i>								
Citigroup Capital III	Dec. 1996	194,053	\$ 194	7.625%	6,003	\$ 200	Dec. 1, 2036	Not redeemable
Citigroup Capital XIII	Sept. 2010	89,840,000	2,246	3 mo LIBOR + 637 bps	1,000	2,246	Oct. 30, 2040	Oct. 30, 2015
Citigroup Capital XVIII	June 2007	99,901	123	6.829	50	124	June 28, 2067	June 28, 2017
Total obligated			\$ 2,563			\$ 2,570		

Note: Distributions on the trust preferred securities and interest on the subordinated debentures are payable semi-annually for Citigroup Capital III and Citigroup Capital XVIII and quarterly for Citigroup Capital XIII.

(1) Represents the notional value received by investors from the trusts at the time of issuance.

(2) In each case, the coupon rate on the subordinated debentures is the same as that on the trust preferred securities.

18. REGULATORY CAPITAL

Citigroup is subject to risk-based capital and leverage standards issued by the Federal Reserve Board which constitute the U.S. Basel III rules. Citi's U.S. insured depository institution subsidiaries, including Citibank, are subject to similar standards issued by their respective primary federal bank regulatory agencies. These standards are used to evaluate capital adequacy and include the required minimums shown in the following table. The regulatory agencies are

required by law to take specific prompt actions with respect to institutions that do not meet minimum capital standards.

The following table sets forth for Citigroup and Citibank the regulatory capital tiers, total risk-weighted assets, quarterly adjusted average total assets, Total Leverage Exposure, risk-based capital ratios and leverage ratios in accordance with current regulatory standards (reflecting Basel III Transition Arrangements).

	Citigroup			Citibank	
	Stated minimum	Well capitalized minimum	December 31, 2016	Well capitalized minimum	December 31, 2016
<i>In millions of dollars, except ratios</i>					
Common Equity Tier 1 Capital			\$ 167,378	\$ 126,220	
Tier 1 Capital			178,387	126,465	
Total Capital (Tier 1 Capital + Tier 2 Capital)			202,146	138,821	
Total risk-weighted assets ⁽¹⁾			1,166,764	973,933	
Quarterly adjusted average total assets ⁽²⁾			1,768,415	1,333,161	
Total Leverage Exposure ⁽³⁾			2,351,883	1,859,394	
Common Equity Tier 1 Capital ratio ⁽⁴⁾	4.5%	N/A	14.35%	6.5%	12.61%
Tier 1 Capital ratio ⁽⁴⁾	6.0	6.0%	15.29	8.0	12.63
Total Capital ratio ⁽⁴⁾	8.0	10.0	17.33	10.0	14.25
Tier 1 Leverage ratio	4.0	N/A	10.09	5.0	9.49
Supplementary Leverage ratio ⁽⁵⁾	N/A	N/A	7.58	N/A	6.80

(1) Reflected in the table above are Citigroup's and Citibank's total risk-weighted assets as derived under the Basel III Advanced Approaches. At December 31, 2016, Citigroup's and Citibank's total risk-weighted assets as derived under the Basel III Standardized Approach were \$1,126 billion and \$1,001 billion, respectively.

(2) Tier 1 Leverage ratio denominator.

(3) Supplementary Leverage ratio denominator.

(4) As of December 31, 2016, Citigroup's reportable Common Equity Tier 1 Capital, Tier 1 Capital, and Total Capital ratios were the lower derived under the Basel III Advanced Approaches framework. As of December 31, 2016, Citibank's reportable Common Equity Tier 1 Capital and Tier 1 Capital ratios were the lower derived under the Basel III Standardized Approach framework, while Citibank's reportable Total Capital ratio was the lower derived under the Basel III Advanced Approaches framework.

(5) Commencing on January 1, 2018, Citi and Citibank will be required to maintain a stated minimum Supplementary Leverage ratio of 3%, and Citibank will be required to maintain a Supplementary Leverage ratio of 6% to be considered "well capitalized."

N/A Not Applicable

As indicated in the table above, Citigroup and Citibank were "well capitalized" under the current federal bank regulatory definitions as of December 31, 2016.

organizations should generally pay dividends out of current operating earnings. Citigroup received \$13.8 billion and \$13.5 billion in dividends from Citibank during 2016 and 2015, respectively.

Banking Subsidiaries—Constraints on Dividends

There are various legal limitations on the ability of Citigroup's subsidiary depository institutions to extend credit, pay dividends or otherwise supply funds to Citigroup and its non-bank subsidiaries. The approval of the Office of the Comptroller of the Currency is required if total dividends declared in any calendar year exceed amounts specified by the applicable agency's regulations. State-chartered depository institutions are subject to dividend limitations imposed by applicable state law.

In determining the dividends, each depository institution must also consider its effect on applicable risk-based capital and leverage ratio requirements, as well as policy statements of the federal regulatory agencies that indicate that banking

19. CHANGES IN ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS)

Changes in each component of Citigroup's *Accumulated other comprehensive income (loss)*:

<i>In millions of dollars</i>	Net unrealized gains (losses) on investment securities	Debt valuation adjustment (DVA) ⁽¹⁾	Cash flow hedges ⁽²⁾	Benefit plans ⁽³⁾	Foreign currency translation adjustment (CTA), net of hedges ⁽⁴⁾	Accumulated other comprehensive income (loss)
Balance, December 31, 2013	\$ (1,640)	\$ —	\$ (1,245)	\$ (3,989)	\$ (12,259)	\$ (19,133)
Other comprehensive income before reclassifications	1,790	—	85	(1,346)	(4,946)	(4,417)
Increase (decrease) due to amounts reclassified from AOCI	(93)	—	251	176	—	334
Change, net of taxes ⁽⁵⁾	\$ 1,697	\$ —	\$ 336	\$ (1,170)	\$ (4,946)	\$ (4,083)
Balance, December 31, 2014	\$ 57	\$ —	\$ (909)	\$ (5,159)	\$ (17,205)	\$ (23,216)
Other comprehensive income before reclassifications	\$ (695)	\$ —	\$ 83	\$ (143)	\$ (5,465)	\$ (6,220)
Increase (decrease) due to amounts reclassified from AOCI	(269)	—	209	186	(34)	92
Change, net of taxes	\$ (964)	\$ —	\$ 292	\$ 43	\$ (5,499)	\$ (6,128)
Balance, December 31, 2015	\$ (907)	\$ —	\$ (617)	\$ (5,116)	\$ (22,704)	\$ (29,344)
Adjustment to opening balance, net of taxes	\$ —	\$ (15)	\$ —	\$ —	\$ —	\$ (15)
Adjusted balance, beginning of period	\$ (907)	\$ (15)	\$ (617)	\$ (5,116)	\$ (22,704)	\$ (29,359)
Other comprehensive income before reclassifications	530	(335)	(88)	(208)	(2,802)	(2,903)
Increase (decrease) due to amounts reclassified from AOCI	(422)	(2)	145	160	—	(119)
Change, net of taxes	\$ 108	\$ (337)	\$ 57	\$ (48)	\$ (2,802)	\$ (3,022)
Balance at December 31, 2016	\$ (799)	\$ (352)	\$ (560)	\$ (5,164)	\$ (25,506)	\$ (32,381)

- (1) Beginning in the first quarter of 2016, changes in DVA are reflected as a component of AOCI, pursuant to the adoption of only the provisions of ASU No. 2016-01 relating to the presentation of DVA on fair value option liabilities. See Note 1 to the Consolidated Financial Statements for further information regarding this change.
- (2) Primarily driven by Citi's pay fixed/receive floating interest rate swap programs that hedge the floating rates on liabilities.
- (3) Primarily reflects adjustments based on the quarterly actuarial valuations of Citi's significant pension and postretirement plans, annual actuarial valuations of all other plans, and amortization of amounts previously recognized in Other comprehensive income.
- (4) Primarily reflects the movements in (by order of impact) the Mexican peso, Euro, British pound and Indian rupee against the U.S. dollar, and changes in related tax effects and hedges for the year ended December 31, 2016. Primarily reflects the movements in (by order of impact) the Mexican peso, Brazilian real, Korean won and Euro against the U.S. dollar, and changes in related tax effects and hedges for the year ended December 31, 2015. Primarily reflects the movements in (by order of impact) the Mexican peso, Euro, Japanese yen, and Russian ruble against the U.S. dollar, and changes in related tax effects and hedges for the year ended December 31, 2014.
- (5) During 2014, \$137 million (\$84 million net of tax) was reclassified to reflect the allocation of FX translation between Net unrealized gains (losses) on investment securities to Foreign currency translation adjustment (CTA).

The pretax and after-tax changes in each component of *Accumulated other comprehensive income (loss)* are as follows:

<i>In millions of dollars</i>	Pretax	Tax effect	After-tax
Balance, December 31, 2013	\$ (27,596)	\$ 8,463	\$ (19,133)
Change in net unrealized gains (losses) on investment securities	2,704	(1,007)	1,697
Cash flow hedges	543	(207)	336
Benefit plans	(1,830)	660	(1,170)
Foreign currency translation adjustment	(4,881)	(65)	(4,946)
Change	\$ (3,464)	\$ (619)	\$ (4,083)
Balance, December 31, 2014	\$ (31,060)	\$ 7,844	\$ (23,216)
Change in net unrealized gains (losses) on investment securities	(1,462)	498	(964)
Cash flow hedges	468	(176)	292
Benefit plans	19	24	43
Foreign currency translation adjustment	(6,405)	906	(5,499)
Change	\$ (7,380)	\$ 1,252	\$ (6,128)
Balance, December 31, 2015	\$ (38,440)	\$ 9,096	\$ (29,344)
Adjustment to opening balance ⁽¹⁾	(26)	11	(15)
Adjusted balance, beginning of period	\$ (38,466)	\$ 9,107	\$ (29,359)
Change in net unrealized gains (losses) on investment securities	167	(59)	108
Debt valuation adjustment (DVA)	(538)	201	(337)
Cash flow hedges	84	(27)	57
Benefit plans	(78)	30	(48)
Foreign currency translation adjustment	(3,204)	402	(2,802)
Change	\$ (3,569)	\$ 547	\$ (3,022)
Balance, December 31, 2016	\$ (42,035)	\$ 9,654	\$ (32,381)

(1) Represents the \$(15) million adjustment related to the initial adoption of ASU No. 2016-01. See Note 1 to the Consolidated Financial Statements.

The Company recognized pretax gain (loss) related to amounts in AOCI reclassified in the Consolidated Statement of Income as follows:

<i>In millions of dollars</i>	Increase (decrease) in AOCI due to amounts reclassified to Consolidated Statement of Income		
	Year ended December 31,		
	2016	2015	2014
Realized (gains) losses on sales of investments	\$ (948)	\$ (682)	\$ (570)
OTTI gross impairment losses	288	265	424
Subtotal, pretax	\$ (660)	\$ (417)	\$ (146)
Tax effect	238	148	53
Net realized (gains) losses on investment securities, after-tax⁽¹⁾	\$ (422)	\$ (269)	\$ (93)
Realized DVA (gains) losses on fair value option liabilities	\$ (3)	\$ —	\$ —
Subtotal, pretax	\$ (3)	\$ —	\$ —
Tax effect	1	—	—
Net realized debt valuation adjustment, after-tax	\$ (2)	\$ —	\$ —
Interest rate contracts	\$ 140	\$ 186	\$ 260
Foreign exchange contracts	93	146	149
Subtotal, pretax	\$ 233	\$ 332	\$ 409
Tax effect	(88)	(123)	(158)
Amortization of cash flow hedges, after-tax⁽²⁾	\$ 145	\$ 209	\$ 251
Amortization of unrecognized			
Prior service cost (benefit)	\$ (40)	\$ (40)	\$ (40)
Net actuarial loss	272	276	243
Curtailment/settlement impact ⁽³⁾	18	57	76
Subtotal, pretax	\$ 250	\$ 293	\$ 279
Tax effect	(90)	(107)	(103)
Amortization of benefit plans, after-tax⁽³⁾	\$ 160	\$ 186	\$ 176
Foreign currency translation adjustment	\$ —	\$ (53)	\$ —
Tax effect	—	19	—
Foreign currency translation adjustment	\$ —	\$ (34)	\$ —
Total amounts reclassified out of AOCI, pretax	\$ (180)	\$ 155	\$ 542
Total tax effect	61	(63)	(208)
Total amounts reclassified out of AOCI, after-tax	\$ (119)	\$ 92	\$ 334

(1) The pretax amount is reclassified to *Realized gains (losses) on sales of investments, net* and *Gross impairment losses* on the Consolidated Statement of Income. See Note 13 to the Consolidated Financial Statements for additional details.

(2) See Note 23 to the Consolidated Financial Statements for additional details.

(3) See Note 8 to the Consolidated Financial Statements for additional details.

20. PREFERRED STOCK

The following table summarizes the Company's preferred stock outstanding:

	Issuance date	Redeemable by issuer beginning	Dividend rate	Redemption price per depositary share/preference share	Number of depositary shares	Carrying value <i>in millions of dollars</i>	
						December 31, 2016	December 31, 2015
Series AA ⁽¹⁾	January 25, 2008	February 15, 2018	8.125%	\$ 25	3,870,330	\$ 97	\$ 97
Series E ⁽²⁾	April 28, 2008	April 30, 2018	8.400	1,000	121,254	121	121
Series A ⁽³⁾	October 29, 2012	January 30, 2023	5.950	1,000	1,500,000	1,500	1,500
Series B ⁽⁴⁾	December 13, 2012	February 15, 2023	5.900	1,000	750,000	750	750
Series C ⁽⁵⁾	March 26, 2013	April 22, 2018	5.800	25	23,000,000	575	575
Series D ⁽⁶⁾	April 30, 2013	May 15, 2023	5.350	1,000	1,250,000	1,250	1,250
Series J ⁽⁷⁾	September 19, 2013	September 30, 2023	7.125	25	38,000,000	950	950
Series K ⁽⁸⁾	October 31, 2013	November 15, 2023	6.875	25	59,800,000	1,495	1,495
Series L ⁽⁹⁾	February 12, 2014	February 12, 2019	6.875	25	19,200,000	480	480
Series M ⁽¹⁰⁾	April 30, 2014	May 15, 2024	6.300	1,000	1,750,000	1,750	1,750
Series N ⁽¹¹⁾	October 29, 2014	November 15, 2019	5.800	1,000	1,500,000	1,500	1,500
Series O ⁽¹²⁾	March 20, 2015	March 27, 2020	5.875	1,000	1,500,000	1,500	1,500
Series P ⁽¹³⁾	April 24, 2015	May 15, 2025	5.950	1,000	2,000,000	2,000	2,000
Series Q ⁽¹⁴⁾	August 12, 2015	August 15, 2020	5.950	1,000	1,250,000	1,250	1,250
Series R ⁽¹⁵⁾	November 13, 2015	November 15, 2020	6.125	1,000	1,500,000	1,500	1,500
Series S ⁽¹⁶⁾	February 2, 2016	February 12, 2021	6.300	25	41,400,000	1,035	—
Series T ⁽¹⁷⁾	April 25, 2016	August 15, 2026	6.250	1,000	1,500,000	1,500	—
						\$ 19,253	\$ 16,718

- (1) Issued as depositary shares, each representing a 1/1,000th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable quarterly on February 15, May 15, August 15 and November 15, in each case when, as and if declared by the Citi Board of Directors.
- (2) Issued as depositary shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semi-annually on April 30 and October 30 at a fixed rate until April 30, 2018, thereafter payable quarterly on January 30, April 30, July 30 and October 30 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (3) Issued as depositary shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semi-annually on January 30 and July 30 at a fixed rate until January 30, 2023, thereafter payable quarterly on January 30, April 30, July 30 and October 30 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (4) Issued as depositary shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semi-annually on February 15 and August 15 at a fixed rate until February 15, 2023, thereafter payable quarterly on February 15, May 15, August 15 and November 15 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (5) Issued as depositary shares, each representing a 1/1,000th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable quarterly on January 22, April 22, July 22 and October 22 when, as and if declared by the Citi Board of Directors.
- (6) Issued as depositary shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semi-annually on May 15 and November 15 at a fixed rate until May 15, 2023, thereafter payable quarterly on February 15, May 15, August 15 and November 15 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (7) Issued as depositary shares, each representing a 1/1,000th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable quarterly on March 30, June 30, September 30 and December 30 at a fixed rate until September 30, 2023, thereafter payable quarterly on the same dates at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (8) Issued as depositary shares, each representing a 1/1,000th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable quarterly on February 15, May 15, August 15 and November 15 at a fixed rate until November 15, 2023, thereafter payable quarterly on the same dates at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (9) Issued as depositary shares, each representing a 1/1,000th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable quarterly on February 12, May 12, August 12 and November 12 at a fixed rate, in each case when, as and if declared by the Citi Board of Directors.
- (10) Issued as depositary shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semi-annually on May 15 and November 15 at a fixed rate until May 15, 2024, thereafter payable quarterly on February 15, May 15, August 15 and November 15 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (11) Issued as depositary shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semi-annually on May 15 and November 15 at a fixed rate until, but excluding, November 15, 2019, and thereafter payable quarterly on February 15, May 15, August 15 and November 15 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (12) Issued as depositary shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semi-annually on March 27 and September 27 at a fixed rate until, but excluding, March 27, 2020, and thereafter payable quarterly on March 27, June 27, September 27 and December 27 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.

- (13) Issued as depository shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semi-annually on May 15 and November 15 at a fixed rate until, but excluding, May 15, 2025, and thereafter payable quarterly on February 15, May 15, August 15 and November 15 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (14) Issued as depository shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semi-annually on February 15 and August 15 at a fixed rate until, but excluding, August 15, 2020, and thereafter payable quarterly on February 15, May 15, August 15 and November 15 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (15) Issued as depository shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semi-annually on May 15 and November 15 at a fixed rate until, but excluding, November 15, 2020, and thereafter payable quarterly on February 15, May 15, August 15 and November 15 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.
- (16) Issued as depository shares, each representing a 1/1,000th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable quarterly on February 12, May 12, August 12 and November 12 at a fixed rate, in each case when, as and if declared by the Citi Board of Directors.
- (17) Issued as depository shares, each representing a 1/25th interest in a share of the corresponding series of non-cumulative perpetual preferred stock. Dividends are payable semi-annually on February 15 and August 15 at a fixed rate until August 15, 2026, thereafter payable quarterly on February 15, May 15, August 15 and November 15 at a floating rate, in each case when, as and if declared by the Citi Board of Directors.

During 2016, Citi distributed \$1,077 million in dividends on its outstanding preferred stock. Based on its preferred stock outstanding as of December 31, 2016, Citi estimates it will distribute preferred dividends of approximately \$1,213 million during 2017, in each case assuming such dividends are declared by the Citi Board of Directors.

21. SECURITIZATIONS AND VARIABLE INTEREST ENTITIES

Uses of Special Purpose Entities

A special purpose entity (SPE) is an entity designed to fulfill a specific limited need of the company that organized it. The principal uses of SPEs by Citi are to obtain liquidity and favorable capital treatment by securitizing certain financial assets, to assist clients in securitizing their financial assets and to create investment products for clients. SPEs may be organized in various legal forms, including trusts, partnerships or corporations. In a securitization, the company transferring assets to an SPE converts all (or a portion) of those assets into cash before they would have been realized in the normal course of business through the SPE's issuance of debt and equity instruments, certificates, commercial paper or other notes of indebtedness. These issuances are recorded on the balance sheet of the SPE, which may or may not be consolidated onto the balance sheet of the company that organized the SPE.

Investors usually have recourse only to the assets in the SPE, but may also benefit from other credit enhancements, such as a collateral account, a line of credit or a liquidity facility, such as a liquidity put option or asset purchase agreement. Because of these enhancements, the SPE issuances typically obtain a more favorable credit rating than the transferor could obtain for its own debt issuances. This results in less expensive financing costs than unsecured debt. The SPE may also enter into derivative contracts in order to convert the yield or currency of the underlying assets to match the needs of the SPE investors or to limit or change the credit risk of the SPE. Citigroup may be the provider of certain credit enhancements as well as the counterparty to any related derivative contracts.

Most of Citigroup's SPEs are variable interest entities (VIEs), as described below.

Variable Interest Entities

VIEs are entities that have either a total equity investment that is insufficient to permit the entity to finance its activities without additional subordinated financial support, or whose equity investors lack the characteristics of a controlling financial interest (i.e., ability to make significant decisions through voting rights or similar rights and a right to receive the expected residual returns of the entity or an obligation to absorb the expected losses of the entity). Investors that finance the VIE through debt or equity interests or other counterparties providing other forms of support, such as guarantees, certain fee arrangements or certain types of derivative contracts are variable interest holders in the entity.

The variable interest holder, if any, that has a controlling financial interest in a VIE is deemed to be the primary beneficiary and must consolidate the VIE. Citigroup would be deemed to have a controlling financial interest and be the primary beneficiary if it has both of the following characteristics:

- power to direct the activities of the VIE that most significantly impact the entity's economic performance; and
- an obligation to absorb losses of the entity that could potentially be significant to the VIE, or a right to receive benefits from the entity that could potentially be significant to the VIE.

The Company must evaluate each VIE to understand the purpose and design of the entity, the role the Company had in the entity's design and its involvement in the VIE's ongoing activities. The Company then must evaluate which activities most significantly impact the economic performance of the VIE and who has the power to direct such activities.

For those VIEs where the Company determines that it has the power to direct the activities that most significantly impact the VIE's economic performance, the Company must then evaluate its economic interests, if any, and determine whether it could absorb losses or receive benefits that could potentially be significant to the VIE. When evaluating whether the Company has an obligation to absorb losses that could potentially be significant, it considers the maximum exposure to such loss without consideration of probability. Such obligations could be in various forms, including, but not limited to, debt and equity investments, guarantees, liquidity agreements and certain derivative contracts.

In various other transactions, the Company may (i) act as a derivative counterparty (for example, interest rate swap, cross-currency swap, or purchaser of credit protection under a credit default swap or total return swap where the Company pays the total return on certain assets to the SPE); (ii) act as underwriter or placement agent; (iii) provide administrative, trustee or other services; or (iv) make a market in debt securities or other instruments issued by VIEs. The Company generally considers such involvement, by itself, not to be variable interests and thus not an indicator of power or potentially significant benefits or losses.

Citigroup's involvement with consolidated and unconsolidated VIEs with which the Company holds significant variable interests or has continuing involvement through servicing a majority of the assets in a VIE is presented below:

As of December 31, 2016									
Maximum exposure to loss in significant unconsolidated VIEs ⁽¹⁾									
Funded exposures ⁽²⁾ Unfunded exposures									
<i>In millions of dollars</i>	Total involvement with SPE assets	Consolidated VIE / SPE assets	Significant unconsolidated VIE assets ⁽³⁾	Debt investments	Equity investments	Funding commitments	Guarantees and derivatives	Total	
Credit card securitizations	\$ 50,171	\$ 50,171	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Mortgage securitizations ⁽⁴⁾									
U.S. agency-sponsored	214,458	—	214,458	3,852	—	—	78	3,930	
Non-agency-sponsored	15,965	1,092	14,873	312	35	—	1	348	
Citi-administered asset-backed commercial paper conduits (ABCP)	19,693	19,693	—	—	—	—	—	—	
Collateralized loan obligations (CLOs)	18,886	—	18,886	5,128	—	—	62	5,190	
Asset-based financing	53,168	733	52,435	16,553	475	4,915	—	21,943	
Municipal securities tender option bond trusts (TOBs)	7,070	2,843	4,227	40	—	2,842	—	2,882	
Municipal investments	17,679	14	17,665	2,441	3,578	2,580	—	8,599	
Client intermediation	515	371	144	49	—	—	3	52	
Investment funds	2,788	767	2,021	32	120	27	3	182	
Other	1,429	607	822	116	11	58	43	228	
Total	\$ 401,822	\$ 76,291	\$ 325,531	\$ 28,523	\$ 4,219	\$ 10,422	\$ 190	\$ 43,354	

As of December 31, 2015									
Maximum exposure to loss in significant unconsolidated VIEs ⁽¹⁾									
Funded exposures ⁽²⁾ Unfunded exposures									
<i>In millions of dollars</i>	Total involvement with SPE assets	Consolidated VIE / SPE assets	Significant unconsolidated VIE assets ⁽³⁾	Debt investments	Equity investments	Funding commitments	Guarantees and derivatives	Total	
Credit card securitizations	\$ 54,916	\$ 54,916	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Mortgage securitizations ⁽⁴⁾									
U.S. agency-sponsored	217,291	—	217,291	3,571	—	—	95	3,666	
Non-agency-sponsored	13,036	1,586	11,450	527	—	—	1	528	
Citi-administered asset-backed commercial paper conduits (ABCP)	21,280	21,280	—	—	—	—	—	—	
Collateralized loan obligations (CLOs)	16,719	—	16,719	3,150	—	—	86	3,236	
Asset-based financing	58,862	1,364	57,498	21,270	269	3,616	—	25,155	
Municipal securities tender option bond trusts (TOBs)	8,572	3,830	4,742	2	—	3,100	—	3,102	
Municipal investments	20,290	44	20,246	2,196	2,487	2,335	—	7,018	
Client intermediation	434	335	99	49	—	—	—	49	
Investment funds	1,730	842	888	13	138	102	—	253	
Other	4,915	597	4,318	292	554	—	52	898	
Total	\$ 418,045	\$ 84,794	\$ 333,251	\$ 31,070	\$ 3,448	\$ 9,153	\$ 234	\$ 43,905	

Note: Certain adjustments have been made to the December 31, 2015 information to conform to the current period's presentation.

(1) The definition of maximum exposure to loss is included in the text that follows this table.

(2) Included on Citigroup's December 31, 2016 and 2015 Consolidated Balance Sheet.

(3) A significant unconsolidated VIE is an entity where the Company has any variable interest or continuing involvement considered to be significant, regardless of the likelihood of loss.

(4) Citigroup mortgage securitizations also include agency and non-agency (private-label) re-securitization activities. These SPEs are not consolidated. See "Re-securitizations" below for further discussion.

The previous tables do not include:

- certain venture capital investments made by some of the Company's private equity subsidiaries, as the Company accounts for these investments in accordance with the Investment Company Audit Guide (codified in ASC 946);
- certain investment funds for which the Company provides investment management services and personal estate trusts for which the Company provides administrative, trustee and/or investment management services;
- certain VIEs structured by third parties where the Company holds securities in inventory, as these investments are made on arm's-length terms;
- certain positions in mortgage-backed and asset-backed securities held by the Company, which are classified as *Trading account assets* or *Investments*, where the Company has no other involvement with the related securitization entity deemed to be significant (for more information on these positions, see Notes 24 and 13 to the Consolidated Financial Statements);
- certain representations and warranties exposures in legacy ICG-sponsored mortgage-backed and asset-backed securitizations, where the Company has no variable interest or continuing involvement as servicer. The outstanding balance of mortgage loans securitized during 2005 to 2008 where the Company has no variable interest or continuing involvement as servicer was approximately \$10 billion and \$12 billion at December 31, 2016 and 2015, respectively;
- certain representations and warranties exposures in Citigroup residential mortgage securitizations, where the original mortgage loan balances are no longer outstanding; and
- VIEs such as trust preferred securities trusts used in connection with the Company's funding activities. The Company does not have a variable interest in these trusts.

The asset balances for consolidated VIEs represent the carrying amounts of the assets consolidated by the Company. The carrying amount may represent the amortized cost or the current fair value of the assets depending on the legal form of the asset (e.g., loan or security) and the Company's standard accounting policies for the asset type and line of business.

The asset balances for unconsolidated VIEs where the Company has significant involvement represent the most current information available to the Company. In most cases, the asset balances represent an amortized cost basis without regard to impairments, unless fair value information is readily available to the Company.

The maximum funded exposure represents the balance sheet carrying amount of the Company's investment in the VIE. It reflects the initial amount of cash invested in the VIE adjusted for any accrued interest and cash principal payments received. The carrying amount may also be adjusted for increases or declines in fair value or any impairment in value recognized in earnings. The maximum exposure of unfunded positions represents the remaining undrawn committed amount, including liquidity and credit facilities provided by the Company, or the notional amount of a derivative instrument considered to be a variable interest. In certain transactions, the Company has entered into derivative instruments or other arrangements that are not considered variable interests in the VIE (e.g., interest rate swaps, cross-currency swaps, or where the Company is the purchaser of credit protection under a credit default swap or total return swap where the Company pays the total return on certain assets to the SPE). Receivables under such arrangements are not included in the maximum exposure amounts.

Funding Commitments for Significant Unconsolidated VIEs—Liquidity Facilities and Loan Commitments

The following table presents the notional amount of liquidity facilities and loan commitments that are classified as funding commitments in the VIE tables above:

<i>In millions of dollars</i>	December 31, 2016		December 31, 2015	
	Liquidity facilities	Loan / equity commitments	Liquidity facilities	Loan / equity commitments
Asset-based financing	\$ 5	\$ 4,910	\$ 5	\$ 3,611
Municipal securities tender option bond trusts (TOBs)	2,842	—	3,100	—
Municipal investments	—	2,580	—	2,335
Investment funds	—	27	—	102
Other	—	58	—	—
Total funding commitments	\$ 2,847	\$ 7,575	\$ 3,105	\$ 6,048

Consolidated VIEs

The Company engages in on-balance sheet securitizations, which are securitizations that do not qualify for sales treatment; thus, the assets remain on the Company's Consolidated Balance Sheet, and any proceeds received are recognized as secured liabilities. The consolidated VIEs represent hundreds of separate entities with which the Company is involved. In general, the third-party investors in the obligations of consolidated VIEs have legal recourse only to the assets of the respective VIEs and do not have such recourse to the Company, except where the Company has provided a guarantee to the investors or is the counterparty to

certain derivative transactions involving the VIE. Thus, the Company's maximum legal exposure to loss related to consolidated VIEs is significantly less than the carrying value of the consolidated VIE assets due to outstanding third-party financing. Intercompany assets and liabilities are excluded from Citi's Consolidated Balance Sheet. All VIE assets are restricted from being sold or pledged as collateral. The cash flows from these assets are the only source used to pay down the associated liabilities, which are non-recourse to the Company's general assets. See the Consolidated Balance Sheet for more information about these Consolidated VIE assets and liabilities.

Significant Interests in Unconsolidated VIEs—Balance Sheet Classification

The following table presents the carrying amounts and classification of significant variable interests in unconsolidated VIEs:

<i>In billions of dollars</i>	December 31, 2016	December 31, 2015
Cash	\$ 0.1	\$ 0.1
Trading account assets	8.0	6.2
Investments	4.4	3.0
Total loans, net of allowance	18.8	23.6
Other	1.5	1.7
Total assets	\$ 32.8	\$ 34.6

Credit Card Securitizations

The Company securitizes credit card receivables through trusts established to purchase the receivables. Citigroup transfers receivables into the trusts on a non-recourse basis. Credit card securitizations are revolving securitizations; as customers pay their credit card balances, the cash proceeds are used to purchase new receivables and replenish the receivables in the trust.

Substantially all of the Company's credit card securitization activity is through two trusts—Citibank Credit Card Master Trust (Master Trust) and the Citibank Omni Master Trust (Omni Trust), with the substantial majority through the Master Trust. These trusts are consolidated

entities because, as servicer, Citigroup has the power to direct the activities that most significantly impact the economic performance of the trusts, Citigroup holds a seller's interest and certain securities issued by the trusts, which could result in exposure to potentially significant losses or benefits from the trusts. Accordingly, the transferred credit card receivables remain on Citi's Consolidated Balance Sheet with no gain or loss recognized. The debt issued by the trusts to third parties is included on Citi's Consolidated Balance Sheet.

The Company utilizes securitizations as one of the sources of funding for its business in *North America*. The following table reflects amounts related to the Company's securitized credit card receivables:

<i>In billions of dollars</i>	December 31, 2016	December 31, 2015
Ownership interests in principal amount of trust credit card receivables		
Sold to investors via trust-issued securities	\$ 22.7	\$ 29.7
Retained by Citigroup as trust-issued securities	7.4	9.4
Retained by Citigroup via non-certificated interests	20.6	16.5
Total	\$ 50.7	\$ 55.6

The following table summarizes selected cash flow information related to Citigroup's credit card securitizations:

<i>In billions of dollars</i>	2016	2015	2014
Proceeds from new securitizations	\$ 3.3	\$ —	\$ 12.6
Pay down of maturing notes	(10.3)	(7.4)	(7.8)

Managed Loans

After securitization of credit card receivables, the Company continues to maintain credit card customer account relationships and provides servicing for receivables transferred to the trusts. As a result, the Company considers the securitized credit card receivables to be part of the business it manages. As Citigroup consolidates the credit card trusts, all managed securitized card receivables are on-balance sheet.

Funding, Liquidity Facilities and Subordinated Interests

As noted above, Citigroup securitizes credit card receivables through two securitization trusts—Master Trust and Omni Trust. The liabilities of the trusts are included in the Consolidated Balance Sheet, excluding those retained by Citigroup.

The Master Trust issues fixed- and floating-rate term notes. Some of the term notes may be issued to multi-seller commercial paper conduits. The weighted average maturity of the term notes issued by the Master Trust was 2.6 years as of December 31, 2016 and 2.4 years as of December 31, 2015.

Master Trust Liabilities (at Par Value)

<i>In billions of dollars</i>	Dec. 31, 2016	Dec. 31, 2015
Term notes issued to third parties	\$ 21.7	\$ 28.4
Term notes retained by Citigroup affiliates	5.5	7.5
Total Master Trust liabilities	\$ 27.2	\$ 35.9

The Omni Trust issues fixed- and floating-rate term notes, some of which are purchased by multi-seller commercial paper conduits. The weighted average maturity of the third-party term notes issued by the Omni Trust was 1.9 years as of December 31, 2016 and 0.9 years as of December 31, 2015.

Omni Trust Liabilities (at Par Value)

<i>In billions of dollars</i>	Dec. 31, 2016	Dec. 31, 2015
Term notes issued to third parties	\$ 1.0	\$ 1.3
Term notes retained by Citigroup affiliates	1.9	1.9
Total Omni Trust liabilities	\$ 2.9	\$ 3.2

Mortgage Securitizations

The Company provides a wide range of mortgage loan products to a diverse customer base. Once originated, the Company often securitizes these loans through the use of VIEs. These VIEs are funded through the issuance of trust certificates backed solely by the transferred assets. These certificates have the same life as the transferred assets. In addition to providing a source of liquidity and less expensive funding, securitizing these assets also reduces the Company's credit exposure to the borrowers. These mortgage loan securitizations are primarily non-recourse, thereby effectively transferring the risk of future credit losses to the purchasers of the securities issued by the trust. However, the Company's U.S. consumer mortgage business generally retains the servicing rights and in certain instances retains investment securities, interest-only strips and residual interests in future cash flows from the trusts and also provides servicing for a limited number of ICG securitizations.

The Company securitizes mortgage loans generally through either a government-sponsored agency, such as Ginnie Mae, Fannie Mae or Freddie Mac (U.S. agency-sponsored mortgages), or private-label (non-agency-sponsored mortgages) securitization. The Company is not the primary beneficiary of its U.S. agency-sponsored mortgage

securitizations because Citigroup does not have the power to direct the activities of the VIE that most significantly impact the entity's economic performance. Therefore, Citi does not consolidate these U.S. agency-sponsored mortgage securitizations. Substantially all of the Consumer loans sold or securitized through non-consolidated trusts by Citigroup are U.S. prime residential mortgage loans. Retained interests in non-consolidated mortgage securitization trusts are classified as *Trading account assets*, except for MSRs which are included in *Mortgage servicing rights* on Citigroup's Consolidated Balance Sheet.

The Company does not consolidate certain non-agency-sponsored mortgage securitizations because Citi is either not the servicer with the power to direct the significant activities of the entity or Citi is the servicer, but the servicing relationship is deemed to be a fiduciary relationship; therefore, Citi is not deemed to be the primary beneficiary of the entity.

In certain instances, the Company has (i) the power to direct the activities and (ii) the obligation to either absorb losses or the right to receive benefits that could be potentially significant to its non-agency-sponsored mortgage securitizations and, therefore, is the primary beneficiary and, thus, consolidates the VIE.

The following table summarizes selected cash flow information related to Citigroup mortgage securitizations:

	2016		2015		2014	
	U.S. agency-sponsored mortgages	Non-agency-sponsored mortgages	U.S. agency-sponsored mortgages	Non-agency-sponsored mortgages	U.S. agency-sponsored mortgages	Non-agency-sponsored mortgages
<i>In billions of dollars</i>						
Proceeds from new securitizations ⁽¹⁾	\$ 41.3	\$ 11.8	\$ 35.0	\$ 12.1	\$ 27.8	\$ 11.8
Contractual servicing fees received	0.4	—	0.5	—	0.6	—
Cash flows received on retained interests and other net cash flows	0.1	—	0.1	—	0.1	—

(1) The proceeds from new securitizations in 2016 and 2015 include \$0.5 billion and \$0.7 billion, respectively, related to personal loan securitizations.

Agency and non-agency securitization gains for the year ended December 31, 2016 were \$105 million and \$107 million, respectively.

Agency and non-agency securitization gains for the year ended December 31, 2015 were \$149 million and \$41 million, respectively, and \$214 million and \$53 million, respectively, for the year ended December 31, 2014.

Key assumptions used in measuring the fair value of retained interests at the date of sale or securitization of mortgage receivables were as follows:

	December 31, 2016		
	U.S. agency-sponsored mortgages	Non-agency-sponsored mortgages ⁽¹⁾	
		Senior interests	Subordinated interests
Discount rate	0.8% to 13.7%	—	—
Weighted average discount rate	9.9%	—	—
Constant prepayment rate	3.8% to 30.9%	—	—
Weighted average constant prepayment rate	11.1%	—	—
Anticipated net credit losses ⁽²⁾	NM	—	—
Weighted average anticipated net credit losses	NM	—	—
Weighted average life	0.5 to 17.5 years	—	—

Note: Citi held no retained interests in non-agency-sponsored mortgages securitized during 2016.

	December 31, 2015		
	Non-agency-sponsored mortgages ⁽¹⁾		
	U.S. agency- sponsored mortgages	Senior interests	Subordinated interests
Discount rate	0.0% to 11.4%	2.0% to 3.2%	2.9% to 12.1%
Weighted average discount rate	6.8%	2.9%	5.2%
Constant prepayment rate	5.7% to 34.9%	—	2.8% to 8.0%
Weighted average constant prepayment rate	11.8%	—	3.5%
Anticipated net credit losses ⁽²⁾	NM	40.0%	38.1% to 92.0%
Weighted average anticipated net credit losses	NM	40.0%	70.6%
Weighted average life	3.5 to 13.8 years	2.5 to 9.8 years	8.9 to 12.9 years

(1) Disclosure of non-agency-sponsored mortgages as senior and subordinated interests is indicative of the interests' position in the capital structure of the securitization.

(2) Anticipated net credit losses represent estimated loss severity associated with defaulted mortgage loans underlying the mortgage securitizations disclosed above. Anticipated net credit losses, in this instance, do not represent total credit losses incurred to date, nor do they represent credit losses expected on retained interests in mortgage securitizations.

NM Anticipated net credit losses are not meaningful due to U.S. agency guarantees.

The interests retained by the Company range from highly rated and/or senior in the capital structure to unrated and/or residual interests.

The key assumptions used to value retained interests, and the sensitivity of the fair value to adverse changes of 10% and 20% in each of the key assumptions, are set forth in the tables

below. The negative effect of each change is calculated independently, holding all other assumptions constant. Because the key assumptions may not be independent, the net effect of simultaneous adverse changes in the key assumptions may be less than the sum of the individual effects shown below.

	December 31, 2016		
	Non-agency-sponsored mortgages ⁽¹⁾		
	U.S. agency- sponsored mortgages	Senior interests	Subordinated interests
Discount rate	0.7% to 28.2%	0.0% to 8.1%	5.1% to 26.4%
Weighted average discount rate	9.0%	2.1%	13.1%
Constant prepayment rate	6.8% to 22.8%	4.2% to 14.7%	0.5% to 37.5%
Weighted average constant prepayment rate	10.2%	11.0%	10.8%
Anticipated net credit losses ⁽²⁾	NM	0.5% to 85.6%	8.0% to 63.7%
Weighted average anticipated net credit losses	NM	31.4%	48.3%
Weighted average life	0.2 to 28.8 years	5.0 to 8.5 years	1.2 to 12.1 years

	December 31, 2015		
	Non-agency-sponsored mortgages ⁽¹⁾		
	U.S. agency- sponsored mortgages	Senior interests	Subordinated interests
Discount rate	0.0% to 27.0%	1.6% to 67.6%	2.0% to 24.9%
Weighted average discount rate	4.9%	7.6%	8.4%
Constant prepayment rate	5.7% to 27.8%	4.2% to 100.0%	0.5% to 20.8%
Weighted average constant prepayment rate	12.3%	14.0%	7.5%
Anticipated net credit losses ⁽²⁾	NM	0.2% to 89.1%	3.8% to 92.0%
Weighted average anticipated net credit losses	NM	48.9%	54.4%
Weighted average life	1.3 to 21.0 years	0.3 to 18.1 years	0.9 to 19.0 years

(1) Disclosure of non-agency-sponsored mortgages as senior and subordinated interests is indicative of the interests' position in the capital structure of the securitization.

(2) Anticipated net credit losses represent estimated loss severity associated with defaulted mortgage loans underlying the mortgage securitizations disclosed above. Anticipated net credit losses, in this instance, do not represent total credit losses incurred to date, nor do they represent credit losses expected on retained interests in mortgage securitizations.

NM Anticipated net credit losses are not meaningful due to U.S. agency guarantees.

<i>In millions of dollars</i>	December 31, 2016		
	U.S. agency- sponsored mortgages	Non-agency-sponsored mortgages ⁽¹⁾	
		Senior interests	Subordinated interests
Carrying value of retained interests	\$ 2,258	\$ 26	\$ 161
Discount rates			
Adverse change of 10%	\$ (71)	\$ (7)	\$ (8)
Adverse change of 20%	(138)	(14)	(16)
Constant prepayment rate			
Adverse change of 10%	(80)	(2)	(4)
Adverse change of 20%	(160)	(3)	(8)
Anticipated net credit losses			
Adverse change of 10%	NM	(7)	(1)
Adverse change of 20%	NM	(14)	(2)

<i>In millions of dollars</i>	December 31, 2015		
	U.S. agency- sponsored mortgages	Non-agency-sponsored mortgages ⁽¹⁾	
		Senior interests	Subordinated interests
Carrying value of retained interests	\$ 3,546	\$ 179	\$ 533
Discount rates			
Adverse change of 10%	\$ (79)	\$ (8)	\$ (25)
Adverse change of 20%	(155)	(15)	(49)
Constant prepayment rate			
Adverse change of 10%	(111)	(3)	(9)
Adverse change of 20%	(213)	(6)	(18)
Anticipated net credit losses			
Adverse change of 10%	NM	(6)	(7)
Adverse change of 20%	NM	(11)	(14)

(1) Disclosure of non-agency-sponsored mortgages as senior and subordinated interests is indicative of the interests' position in the capital structure of the securitization.

NM Anticipated net credit losses are not meaningful due to U.S. agency guarantees.

Mortgage Servicing Rights

In connection with the securitization of mortgage loans, the Company's U.S. consumer mortgage business generally retains the servicing rights, which entitle the Company to a future stream of cash flows based on the outstanding principal balances of the loans and the contractual servicing fee. Failure to service the loans in accordance with contractual requirements may lead to a termination of the servicing rights and the loss of future servicing fees.

These transactions create an intangible asset referred to as mortgage servicing rights (MSRs), which are recorded at fair value on Citi's Consolidated Balance Sheet. The fair value of Citi's capitalized MSRs was \$1.6 billion and \$1.8 billion at December 31, 2016 and 2015, respectively. The MSRs correspond to principal loan balances of \$168 billion and \$198 billion as of December 31, 2016 and 2015, respectively. The following table summarizes the changes in capitalized MSRs:

<i>In millions of dollars</i>	2016	2015
Balance, beginning of year	\$ 1,781	\$ 1,845
Originations	152	214
Changes in fair value of MSRs due to changes in inputs and assumptions	(36)	110
Other changes ⁽¹⁾	(313)	(350)
Sale of MSRs ⁽²⁾	(20)	(38)
Balance, as of December 31	\$ 1,564	\$ 1,781

- (1) Represents changes due to customer payments and passage of time.
(2) Amount includes sales of credit challenged MSRs for which Citi paid the new servicer.

The fair value of the MSRs is primarily affected by changes in prepayments of mortgages that result from shifts in mortgage interest rates. Specifically, higher interest rates tend to lead to declining prepayments, which causes the fair value of the MSRs to increase. In managing this risk, the Company economically hedges a significant portion of the value of its MSRs through the use of interest rate derivative contracts, forward purchase and sale commitments of mortgage-backed securities and purchased securities all classified as *Trading account assets*. The Company receives fees during the course of servicing previously securitized mortgages. The amounts of these fees were as follows:

<i>In millions of dollars</i>	2016	2015	2014
Servicing fees	\$ 484	\$ 552	\$ 638
Late fees	14	16	25
Ancillary fees	17	31	56
Total MSR fees	\$ 515	\$ 599	\$ 719

In the Consolidated Statement of Income these fees are primarily classified as *Commissions and fees*, and changes in MSR fair values are classified as *Other revenue*.

In January 2017, Citi signed agreements to effectively exit its U.S. mortgage servicing operations by the end of 2018 and intensify its focus on loan originations. For additional information on these transactions, see Note 29 to the Consolidated Financial Statements.

Re-securitizations

The Company engages in re-securitization transactions in which debt securities are transferred to a VIE in exchange for new beneficial interests. Citi did not transfer non-agency (private-label) securities to re-securitization entities during the year ended December 31, 2016. During the year ended December 31, 2015, Citi transferred non-agency (private-label) securities with an original par value of \$885 million to re-securitization entities. These securities are backed by either residential or commercial mortgages and are often structured on behalf of clients.

As of December 31, 2016, the fair value of Citi-retained interests in private-label re-securitization transactions structured by Citi totaled approximately \$126 million (all related to re-securitization transactions prior to 2016), which has been recorded in *Trading account assets*. Of this amount, substantially all was related to subordinated beneficial interests. As of December 31, 2015, the fair value of Citi-retained interests in private-label re-securitization transactions structured by Citi totaled approximately \$428 million (including \$132 million related to re-securitization transactions executed in 2015). Of this amount, approximately \$18 million was related to senior beneficial interests and approximately \$410 million was related to subordinated beneficial interests. The original par value of private-label re-securitization transactions in which Citi holds a retained interest as of December 31, 2016 and 2015 was approximately \$1.3 billion and \$3.7 billion, respectively.

The Company also re-securitizes U.S. government-agency guaranteed mortgage-backed (agency) securities. During the years ended December 31, 2016 and 2015, Citi transferred agency securities with a fair value of approximately \$23.9

billion and \$17.8 billion, respectively, to re-securitization entities.

As of December 31, 2016, the fair value of Citi-retained interests in agency re-securitization transactions structured by Citi totaled approximately \$2.3 billion (including \$741 million related to re-securitization transactions executed in 2016) compared to \$1.8 billion as of December 31, 2015 (including \$1.5 billion related to re-securitization transactions executed in 2015), which is recorded in *Trading account assets*. The original fair value of agency re-securitization transactions in which Citi holds a retained interest as of December 31, 2016 and 2015 was approximately \$71.8 billion and \$65.0 billion, respectively.

As of December 31, 2016 and 2015, the Company did not consolidate any private-label or agency re-securitization entities.

Citi-Administered Asset-Backed Commercial Paper Conduits

The Company is active in the asset-backed commercial paper conduit business as administrator of several multi-seller commercial paper conduits and also as a service provider to single-seller and other commercial paper conduits sponsored by third parties.

Citi's multi-seller commercial paper conduits are designed to provide the Company's clients access to low-cost funding in the commercial paper markets. The conduits purchase assets from or provide financing facilities to clients and are funded by issuing commercial paper to third-party investors. The conduits generally do not purchase assets originated by the Company. The funding of the conduits is facilitated by the liquidity support and credit enhancements provided by the Company.

As administrator to Citi's conduits, the Company is generally responsible for selecting and structuring assets purchased or financed by the conduits, making decisions regarding the funding of the conduits, including determining the tenor and other features of the commercial paper issued, monitoring the quality and performance of the conduits' assets, and facilitating the operations and cash flows of the conduits. In return, the Company earns structuring fees from customers for individual transactions and earns an administration fee from the conduit, which is equal to the income from the client program and liquidity fees of the conduit after payment of conduit expenses. This administration fee is fairly stable, since most risks and rewards of the underlying assets are passed back to the clients. Once the asset pricing is negotiated, most ongoing income, costs and fees are relatively stable as a percentage of the conduit's size.

The conduits administered by the Company do not generally invest in liquid securities that are formally rated by third parties. The assets are privately negotiated and structured transactions that are generally designed to be held by the conduit, rather than actively traded and sold. The yield earned by the conduit on each asset is generally tied to the rate on the commercial paper issued by the conduit, thus passing interest rate risk to the client. Each asset purchased by the conduit is structured with transaction-specific credit enhancement features provided by the third-party client seller, including over collateralization, cash and excess spread collateral accounts, direct recourse or third-party guarantees. These

credit enhancements are sized with the objective of approximating a credit rating of A or above, based on the Company's internal risk ratings. At December 31, 2016 and 2015, the conduits had approximately \$19.7 billion and \$21.3 billion of purchased assets outstanding, respectively, and had incremental funding commitments with clients of approximately \$12.8 billion and \$11.6 billion, respectively.

Substantially all of the funding of the conduits is in the form of short-term commercial paper. At December 31, 2016 and 2015, the weighted average remaining lives of the commercial paper issued by the conduits were approximately 55 and 56 days, respectively.

The primary credit enhancement provided to the conduit investors is in the form of transaction-specific credit enhancements described above. In addition to the transaction-specific credit enhancements, the conduits, other than the government guaranteed loan conduit, have obtained a letter of credit from the Company, which is equal to at least 8% to 10% of the conduit's assets with a minimum of \$200 million. The letters of credit provided by the Company to the conduits total approximately \$1.8 billion as of December 31, 2016 and 2015. The net result across multi-seller conduits administered by the Company, other than the government guaranteed loan conduit, is that, in the event defaulted assets exceed the transaction-specific credit enhancements described above, any losses in each conduit are allocated first to the Company and then the commercial paper investors.

The Company also provides the conduits with two forms of liquidity agreements that are used to provide funding to the conduits in the event of a market disruption, among other events. Each asset of the conduits is supported by a transaction-specific liquidity facility in the form of an asset purchase agreement (APA). Under the APA, the Company has generally agreed to purchase non-defaulted eligible receivables from the conduit at par. The APA is not designed to provide credit support to the conduit, as it generally does not permit the purchase of defaulted or impaired assets. Any funding under the APA will likely subject the underlying conduit clients to increased interest costs. In addition, the Company provides the conduits with program-wide liquidity in the form of short-term lending commitments. Under these commitments, the Company has agreed to lend to the conduits in the event of a short-term disruption in the commercial paper market, subject to specified conditions. The Company receives fees for providing both types of liquidity agreements and considers these fees to be on fair market terms.

Finally, the Company is one of several named dealers in the commercial paper issued by the conduits and earns a market-based fee for providing such services. Along with third-party dealers, the Company makes a market in the commercial paper and may from time to time fund commercial paper pending sale to a third party. On specific dates with less liquidity in the market, the Company may hold in inventory commercial paper issued by conduits administered by the Company, as well as conduits administered by third parties. Separately, in the normal course of business, the Company purchases commercial paper, including commercial paper issued by the Company's conduits. At December 31, 2016 and 2015, the Company owned \$9.7 billion and \$11.4 billion, respectively, of the commercial paper issued by its

administered conduits. The Company's purchases were not driven by market illiquidity and, other than the amounts required to be held pursuant to credit risk retention rules, the Company is not obligated under any agreement to purchase the commercial paper issued by the conduits.

The asset-backed commercial paper conduits are consolidated by the Company. The Company has determined that, through its roles as administrator and liquidity provider, it has the power to direct the activities that most significantly impact the entities' economic performance. These powers include its ability to structure and approve the assets purchased by the conduits, its ongoing surveillance and credit mitigation activities, its ability to sell or repurchase assets out of the conduits, and its liability management. In addition, as a result of all the Company's involvement described above, it was concluded that the Company has an economic interest that could potentially be significant. However, the assets and liabilities of the conduits are separate and apart from those of Citigroup. No assets of any conduit are available to satisfy the creditors of Citigroup or any of its other subsidiaries.

Collateralized Loan Obligations

A collateralized loan obligation (CLO) is a VIE that purchases a portfolio of assets consisting primarily of non-investment grade corporate loans. CLOs issue multiple tranches of debt and equity to investors to fund the asset purchases and pay upfront expenses associated with forming the CLO. A third-party asset manager is contracted by the CLO to purchase the underlying assets from the open market and monitor the credit risk associated with those assets. Over the term of a CLO, the asset manager directs purchases and sales of assets in a manner consistent with the CLO's asset management agreement and indenture. In general, the CLO asset manager will have the power to direct the activities of the entity that most significantly impact the economic performance of the CLO. Investors in a CLO, through their ownership of debt and/or equity in the CLO, can also direct certain activities of the CLO, including removing the CLO asset manager under limited circumstances, optionally redeeming the notes, voting on amendments to the CLO's operating documents and other activities. A CLO has a finite life, typically 12 years.

Citi serves as a structuring and placement agent with respect to the CLOs. Typically, the debt and equity of the CLOs are sold to third-party investors. On occasion, certain Citi entities may purchase some portion of a CLO's liabilities for investment purposes. In addition, Citi may purchase, typically in the secondary market, certain securities issued by the CLOs to support its market making activities.

The Company does not generally have the power to direct the activities of the entity that most significantly impact the economic performance of the CLOs, as this power is generally held by a third-party asset manager of the CLO. As such, those CLOs are not consolidated.

Key Assumptions and Retained Interests

The key assumptions used to value retained interests in CLOs, and the sensitivity of the fair value to adverse changes of 10% and 20% are set forth in the tables below:

	Dec. 31, 2016	Dec. 31, 2015
Discount rate	1.3% to 1.7%	1.4% to 49.6%

<i>In millions of dollars</i>	Dec. 31, 2016	Dec. 31, 2015
Carrying value of retained interests	\$ 4,261	\$ 2,299
Discount rates		
Adverse change of 10%	\$ (30)	(5)
Adverse change of 20%	(62)	(10)

Asset-Based Financing

The Company provides loans and other forms of financing to VIEs that hold assets. Those loans are subject to the same credit approvals as all other loans originated or purchased by the Company. Financings in the form of debt securities or derivatives are, in most circumstances, reported in *Trading account assets* and accounted for at fair value through earnings. The Company generally does not have the power to direct the activities that most significantly impact these VIEs' economic performance; thus, it does not consolidate them.

The primary types of Citi's asset-based financings, total assets of the unconsolidated VIEs with significant involvement, and Citi's maximum exposure to loss are shown below. For Citi to realize the maximum loss, the VIE (borrower) would have to default with no recovery from the assets held by the VIE.

	December 31, 2016	
<i>In millions of dollars</i>	Total unconsolidated VIE assets	Maximum exposure to unconsolidated VIEs
Type		
Commercial and other real estate	\$ 8,784	\$ 2,368
Corporate loans	4,051	2,684
Hedge funds and equities	370	54
Airplanes, ships and other assets	39,230	16,837
Total	\$ 52,435	\$ 21,943

	December 31, 2015	
<i>In millions of dollars</i>	Total unconsolidated VIE assets	Maximum exposure to unconsolidated VIEs
Type		
Commercial and other real estate	\$ 17,459	\$ 6,528
Corporate loans	1,274	1,871
Hedge funds and equities	385	55
Airplanes, ships and other assets	38,380	16,701
Total	\$ 57,498	\$ 25,155

The following table summarizes selected cash flow information related to asset-based financings:

<i>In billions of dollars</i>	2016	2015	2014
Proceeds from new securitizations	\$ —	\$ —	\$ 0.5
Cash flows received on retained interests and other net cash flows	—	—	0.3

There were no gains recognized on the securitizations of asset-based financings for the years ended December 31, 2016, 2015 and 2014.

Municipal Securities Tender Option Bond (TOB) Trusts

Municipal TOB trusts may hold fixed- or floating-rate, taxable or tax-exempt securities issued by state and local governments and municipalities. TOB trusts are typically structured as single-issuer entities whose assets are purchased from either the Company or from other investors in the municipal securities market. TOB trusts finance the purchase of their municipal assets by issuing two classes of certificates: long-dated, floating rate certificates ("Floaters") that are puttable pursuant to a liquidity facility and residual interest certificates ("Residuals"). The Floaters are purchased by third-party investors, typically tax-exempt money market funds. The Residuals are purchased by the original owner of the municipal securities that are being financed.

From the Company's perspective, there are two types of TOB trusts: customer TOB trusts and non-customer TOB trusts. Customer TOB trusts are those trusts utilized by customers of the Company to finance their municipal securities investments. The Residuals issued by these trusts are purchased by the customer being financed. Non-customer TOB trusts are trusts that are used by the Company to finance its own municipal securities investments; the Residuals issued by non-customer TOB trusts are purchased by the Company.

With respect to both customer and non-customer TOB trusts, the Company may provide remarketing agent services. If Floaters are optionally tendered and the Company, in its role as remarketing agent, is unable to find a new investor to purchase the optionally tendered Floaters within a specified period of time, the Company may, but is not obligated to, purchase the tendered Floaters into its own inventory. The level of the Company's inventory of such Floaters fluctuates.

For certain customer TOB trusts, the Company may also serve as a voluntary advance provider. In this capacity, the Company may, but is not obligated to, make loan advances to customer TOB trusts to purchase optionally tendered Floaters that have not otherwise been successfully remarketed to new investors. Such loans are secured by pledged Floaters. As of December 31, 2016, the Company had no outstanding voluntary advances to customer TOB trusts.

For certain non-customer trusts, the Company also provides credit enhancement. Approximately \$82 million of the municipal bonds owned by non-customer TOB trusts were subject to a credit guarantee provided by the Company at both December 31, 2016 and 2015.

The Company also provides liquidity services to many customer and non-customer trusts. If a trust is unwound early due to an event other than a credit event on the underlying municipal bonds, the underlying municipal bonds are sold out

of the Trust and bond sale proceeds are used to redeem the outstanding Trust certificates. If this results in a shortfall between the bond sale proceeds and the redemption price of the tendered Floaters, the Company, pursuant to the liquidity agreement, would be obligated to make a payment to the trust to satisfy that shortfall. For certain customer TOB trusts, the Company has also executed a reimbursement agreement with the holder of the Residual, pursuant to which the Residual holder is obligated to reimburse the Company for any payment the Company makes under the liquidity arrangement. These reimbursement agreements may be subject to daily margining based on changes in the market value of the underlying municipal bonds. In cases where a third party provides liquidity to a non-customer TOB trust, a similar reimbursement arrangement may be executed, whereby the Company (or a consolidated subsidiary of the Company), as Residual holder, would absorb any losses incurred by the liquidity provider.

For certain other non-customer TOB trusts, the Company serves as tender option provider. The tender option provider arrangement allows Floater holders to put their interests directly to the Company at any time, subject to the requisite notice period requirements, at a price of par.

At December 31, 2016 and 2015, liquidity agreements provided with respect to customer TOB trusts totaled \$2.9 billion and \$3.1 billion, respectively, of which \$2.1 billion and \$2.2 billion, respectively, were offset by reimbursement agreements. For the remaining exposure related to TOB transactions, where the Residual owned by the customer was at least 25% of the bond value at the inception of the transaction, no reimbursement agreement was executed.

The Company considers both customer and non-customer TOB trusts to be VIEs. Customer TOB trusts are not consolidated by the Company, as the power to direct the activities that most significantly impact the trust's economic performance rests with the customer Residual holder, which may unilaterally cause the sale of the trust's bonds.

Non-customer TOB trusts generally are consolidated because the Company holds the Residual interest, and thus has the unilateral power to cause the sale of the trust's bonds.

The Company also provides other liquidity agreements or letters of credit to customer-sponsored municipal investment funds, which are not variable interest entities, and municipality-related issuers that totaled \$7.4 billion and \$8.1 billion as of December 31, 2016 and 2015, respectively. These liquidity agreements and letters of credit are offset by reimbursement agreements with various term-out provisions.

Municipal Investments

Municipal investment transactions include debt and equity interests in partnerships that finance the construction and rehabilitation of low-income housing, facilitate lending in new or underserved markets, or finance the construction or operation of renewable municipal energy facilities. The Company generally invests in these partnerships as a limited partner and earns a return primarily through the receipt of tax credits and grants earned from the investments made by the partnership. The Company may also provide construction loans or permanent loans for the development or operation of real estate properties held by partnerships. These entities are generally considered VIEs. The power to direct the activities of these entities is typically held by the general partner. Accordingly, these entities are not consolidated by the Company.

Client Intermediation

Client intermediation transactions represent a range of transactions designed to provide investors with specified returns based on the returns of an underlying security, referenced asset or index. These transactions include credit-linked notes and equity-linked notes. In these transactions, the VIE typically obtains exposure to the underlying security, referenced asset or index through a derivative instrument, such as a total-return swap or a credit-default swap. In turn, the VIE issues notes to investors that pay a return based on the specified underlying security, referenced asset or index. The VIE invests the proceeds in a financial asset or a guaranteed insurance contract that serves as collateral for the derivative contract over the term of the transaction. The Company's involvement in these transactions includes being the counterparty to the VIE's derivative instruments and investing in a portion of the notes issued by the VIE. In certain transactions, the investor's maximum risk of loss is limited, and the Company absorbs risk of loss above a specified level. The Company does not have the power to direct the activities of the VIEs that most significantly impact their economic performance, and thus it does not consolidate them.

The Company's maximum risk of loss in these transactions is defined as the amount invested in notes issued by the VIE and the notional amount of any risk of loss absorbed by the Company through a separate instrument issued by the VIE. The derivative instrument held by the Company may generate a receivable from the VIE (for example, where the Company purchases credit protection from the VIE in connection with the VIE's issuance of a credit-linked note), which is collateralized by the assets owned by the VIE. These derivative instruments are not considered variable interests, and any associated receivables are not included in the calculation of maximum exposure to the VIE.

The proceeds from new securitizations related to the Company's client intermediation transactions for the years ended December 31, 2016 and 2015 totaled approximately \$2.3 billion and \$2.0 billion, respectively.

Investment Funds

The Company is the investment manager for certain investment funds and retirement funds that invest in various asset classes including private equity, hedge funds, real estate, fixed income and infrastructure. The Company earns a management fee, which is a percentage of capital under management, and may earn performance fees. In addition, for some of these funds the Company has an ownership interest in the investment funds. The Company has also established a number of investment funds as opportunities for qualified employees to invest in private equity investments. The Company acts as investment manager to these funds and may provide employees with financing on both recourse and non-recourse bases for a portion of the employees' investment commitments.

Prior to January 1, 2016, the Company determined that a majority of the investment entities managed by Citigroup were provided a deferral from the requirements of ASC 810, because they met the criteria in ASU No. 2010-10, *Consolidation (Topic 810): Amendments for Certain Investment Funds*. As part of the amended guidance under ASU 2015-02, *Consolidation (Topic 810): Amendments to the Consolidation Analysis*, effective January 1, 2016, these entities were evaluated and the Company determined that these entities continue to meet the definition of a VIE because the limited partners in the fund do not have the ability to remove the Company as investment manager. The Company is considered the primary beneficiary and consolidates those VIE entities where it has both the power to direct the activities and a potentially significant variable interest.

22. DERIVATIVES ACTIVITIES

In the ordinary course of business, Citigroup enters into various types of derivative transactions. These derivative transactions include:

- *Futures and forward contracts*, which are commitments to buy or sell at a future date a financial instrument, commodity or currency at a contracted price and may be settled in cash or through delivery of an item readily convertible to cash.
- *Swap contracts*, which are commitments to settle in cash at a future date or dates that may range from a few days to a number of years, based on differentials between specified indices or financial instruments, as applied to a notional principal amount.
- *Option contracts*, which give the purchaser, for a premium, the right, but not the obligation, to buy or sell within a specified time a financial instrument, commodity or currency at a contracted price that may also be settled in cash, based on differentials between specified indices or prices.

Swaps, forwards and some option contracts are over-the-counter (OTC) derivatives that are bilaterally negotiated with counterparties and settled with those counterparties, except for swap contracts that are novated and "cleared" through central counterparties (CCPs). Futures contracts and other option contracts are standardized contracts that are traded on an exchange with a CCP as the counterparty from the inception of the transaction. Citigroup enters into derivative contracts relating to interest rate, foreign currency, commodity and other market/credit risks for the following reasons:

- *Trading Purposes*: Citigroup trades derivatives as an active market maker. Citigroup offers its customers derivatives in connection with their risk management actions to transfer, modify or reduce their interest rate, foreign exchange and other market/credit risks or for their own trading purposes. Citigroup also manages its derivative risk positions through offsetting trade activities, controls focused on price verification and daily reporting of positions to senior managers.
- *Hedging*: Citigroup uses derivatives in connection with its own risk management activities to hedge certain risks or reposition the risk profile of the Company. Hedging may be accomplished by applying hedge accounting in accordance with ASC 815, *Derivatives and Hedging*, or by an economic hedge. For example, Citigroup issues fixed-rate long-term debt and then enters into a receive-fixed, pay-variable-rate interest rate swap with the same tenor and notional amount to synthetically convert the interest payments to a net variable-rate basis. This strategy is the most common form of an interest rate hedge, as it minimizes net interest cost in certain yield curve environments. Derivatives are also used to manage market risks inherent in specific groups of on-balance sheet assets and liabilities, including AFS securities, commodities and borrowings, as well as other interest-sensitive assets and liabilities. In addition, foreign-

exchange contracts are used to hedge non-U.S.-dollar-denominated debt, foreign-currency-denominated AFS securities and net investment exposures.

Derivatives may expose Citigroup to market, credit or liquidity risks in excess of the amounts recorded on the Consolidated Balance Sheet. Market risk on a derivative product is the exposure created by potential fluctuations in interest rates, market prices, foreign exchange rates and other factors and is a function of the type of product, the volume of transactions, the tenor and terms of the agreement and the underlying volatility. Credit risk is the exposure to loss in the event of nonperformance by the other party to satisfy a derivative liability where the value of any collateral held by Citi is not adequate to cover such losses. The recognition in earnings of unrealized gains on derivative transactions is subject to management's assessment of the probability of counterparty default. Liquidity risk is the potential exposure that arises when the size of a derivative position may affect the ability to monetize the position in a reasonable period of time and at a reasonable cost in periods of high volatility and financial stress.

Derivative transactions are customarily documented under industry standard master netting agreements that provide that following an event of default, the non-defaulting party may promptly terminate all transactions between the parties and determine the net amount due to be paid to, or by, the defaulting party. Events of default include (i) failure to make a payment on a derivatives transaction that remains uncured following applicable notice and grace periods, (ii) breach of agreement that remains uncured after applicable notice and grace periods, (iii) breach of a representation, (iv) cross default, either to third-party debt or to other derivative transactions entered into between the parties, or, in some cases, their affiliates, (v) the occurrence of a merger or consolidation which results in a party's becoming a materially weaker credit, and (vi) the cessation or repudiation of any applicable guarantee or other credit support document. Obligations under master netting agreements are often secured by collateral posted under an industry standard credit support annex to the master netting agreement. An event of default may also occur under a credit support annex if a party fails to make a collateral delivery that remains uncured following applicable notice and grace periods.

The netting and collateral rights incorporated in the master netting agreements are considered to be legally enforceable if a supportive legal opinion has been obtained from counsel of recognized standing that provides the requisite level of certainty regarding enforceability and that the exercise of rights by the non-defaulting party to terminate and close-out transactions on a net basis under these agreements will not be stayed or avoided under applicable law upon an event of default including bankruptcy, insolvency or similar proceeding.

A legal opinion may not be sought for certain jurisdictions where local law is silent or unclear as to the enforceability of such rights or where adverse case law or conflicting regulation may cast doubt on the enforceability of such rights. In some jurisdictions and for some counterparty types, the insolvency

law may not provide the requisite level of certainty. For example, this may be the case for certain sovereigns, municipalities, central banks and U.S. pension plans.

Exposure to credit risk on derivatives is affected by market volatility, which may impair the ability of counterparties to satisfy their obligations to the Company. Credit limits are established and closely monitored for customers engaged in derivatives transactions. Citi considers the level of legal certainty regarding enforceability of its offsetting rights under master netting agreements and credit support annexes to be an important factor in its risk management process. Specifically, Citi generally transacts much lower volumes of derivatives under master netting agreements where Citi does not have the requisite level of legal certainty regarding enforceability, because such derivatives consume greater amounts of single counterparty credit limits than those executed under enforceable master netting agreements.

Cash collateral and security collateral in the form of G10 government debt securities is often posted by a party to a master netting agreement to secure the net open exposure of the other party; the receiving party is free to commingle/rehypothecate such collateral in the ordinary course of its business. Nonstandard collateral such as corporate bonds, municipal bonds, U.S. agency securities and/or MBS may also be pledged as collateral for derivative transactions. Security collateral posted to open and maintain a master netting agreement with a counterparty, in the form of cash and/or securities, may from time to time be segregated in an account at a third-party custodian pursuant to a tri-party account control agreement.

Information pertaining to Citigroup's derivative activities, based on notional amounts, is presented in the table below. Derivative notional amounts are reference amounts from which contractual payments are derived and do not represent a complete and accurate measure of Citi's exposure to derivative transactions. Rather, Citi's derivative exposure arises primarily from market fluctuations (i.e., market risk), counterparty failure (i.e., credit risk) and/or periods of high volatility or financial stress (i.e., liquidity risk), as well as any market valuation adjustments that may be required on the

transactions. Moreover, notional amounts do not reflect the netting of offsetting trades. For example, if Citi enters into a receive-fixed interest rate swap with \$100 million notional, and offsets this risk with an identical but opposite pay-fixed position with a different counterparty, \$200 million in derivative notionals is reported, although these offsetting positions may result in de minimis overall market risk. Aggregate derivative notional amounts can fluctuate from period to period in the normal course of business based on Citi's market share, levels of client activity and other factors.

Derivative Notionals

In millions of dollars	Hedging instruments under ASC 815 ⁽¹⁾⁽²⁾		Other derivative instruments			
	December 31, 2016	December 31, 2015	Trading derivatives		Management hedges ⁽³⁾	
			December 31, 2016	December 31, 2015	December 31, 2016	December 31, 2015
Interest rate contracts						
Swaps	\$ 151,331	\$ 166,576	\$ 19,145,250	\$ 22,208,794	\$ 47,324	\$ 28,969
Futures and forwards	97	—	6,864,276	6,868,340	30,834	38,421
Written options	—	—	2,921,070	3,033,617	4,759	2,606
Purchased options	—	—	2,768,528	2,887,605	7,320	4,575
Total interest rate contract notionals	\$ 151,428	\$ 166,576	\$ 31,699,124	\$ 34,998,356	\$ 90,237	\$ 74,571
Foreign exchange contracts						
Swaps	\$ 19,042	\$ 23,007	\$ 5,492,145	\$ 4,765,687	\$ 22,676	\$ 23,960
Futures, forwards and spot	56,964	72,124	3,251,132	2,563,649	3,419	3,034
Written options	—	448	1,194,325	1,125,664	—	—
Purchased options	—	819	1,215,961	1,131,816	—	—
Total foreign exchange contract notionals	\$ 76,006	\$ 96,398	\$ 11,153,563	\$ 9,586,816	\$ 26,095	\$ 26,994
Equity contracts						
Swaps	\$ —	\$ —	\$ 192,366	\$ 180,963	\$ —	\$ —
Futures and forwards	—	—	37,557	33,735	—	—
Written options	—	—	304,579	298,876	—	—
Purchased options	—	—	266,070	265,062	—	—
Total equity contract notionals	\$ —	\$ —	\$ 800,572	\$ 778,636	\$ —	\$ —
Commodity and other contracts						
Swaps	\$ —	\$ —	\$ 70,774	\$ 70,561	\$ —	\$ —
Futures and forwards	182	789	142,530	106,474	—	—
Written options	—	—	74,627	72,648	—	—
Purchased options	—	—	69,629	66,051	—	—
Total commodity and other contract notionals	\$ 182	\$ 789	\$ 357,560	\$ 315,734	\$ —	\$ —
Credit derivatives⁽⁴⁾						
Protection sold	\$ —	\$ —	\$ 859,420	\$ 950,922	\$ —	\$ —
Protection purchased	—	—	883,003	981,586	19,470	23,628
Total credit derivatives	\$ —	\$ —	\$ 1,742,423	\$ 1,932,508	\$ 19,470	\$ 23,628
Total derivative notionals	\$ 227,616	\$ 263,763	\$ 45,753,242	\$ 47,612,050	\$ 135,802	\$ 125,193

- (1) The notional amounts presented in this table do not include hedge accounting relationships under ASC 815 where Citigroup is hedging the foreign currency risk of a net investment in a foreign operation by issuing a foreign-currency-denominated debt instrument. The notional amount of such debt was \$1,825 million and \$2,102 million at December 31, 2016 and December 31, 2015, respectively.
- (2) Derivatives in hedge accounting relationships accounted for under ASC 815 are recorded in either *Other assets/Other liabilities* or *Trading account assets/Trading account liabilities* on the Consolidated Balance Sheet.
- (3) Management hedges represent derivative instruments used to mitigate certain economic risks, but for which hedge accounting is not applied. These derivatives are recorded in either *Other assets/Other liabilities* or *Trading account assets/Trading account liabilities* on the Consolidated Balance Sheet.
- (4) Credit derivatives are arrangements designed to allow one party (protection buyer) to transfer the credit risk of a "reference asset" to another party (protection seller). These arrangements allow a protection seller to assume the credit risk associated with the reference asset without directly purchasing that asset. The

Company enters into credit derivative positions for purposes such as risk management, yield enhancement, reduction of credit concentrations and diversification of overall risk.

The following tables present the gross and net fair values of the Company's derivative transactions and the related offsetting amounts as of December 31, 2016 and December 31, 2015. Gross positive fair values are offset against gross negative fair values by counterparty pursuant to enforceable master netting agreements. Under ASC 815-10-45, payables and receivables in respect of cash collateral received from or paid to a given counterparty pursuant to a credit support annex are included in the offsetting amount if a legal opinion supporting the enforceability of netting and collateral rights has been obtained. GAAP does not permit similar offsetting for security collateral. The tables also present amounts that are not permitted to be offset, such as security collateral or cash collateral posted at third-party custodians, but which would be eligible for offsetting to the extent an event of default occurred and a legal opinion supporting enforceability of the netting and collateral rights has been obtained.

Derivative Mark-to-Market (MTM) Receivables/Payables

<i>In millions of dollars at December 31, 2016</i>	Derivatives classified in trading account assets / liabilities ⁽¹⁾⁽²⁾⁽³⁾		Derivatives classified in Other assets / liabilities ⁽²⁾⁽³⁾	
	Assets	Liabilities	Assets	Liabilities
Derivatives instruments designated as ASC 815 hedges				
Over-the-counter	\$ 716	\$ 171	\$ 1,927	\$ 22
Cleared	3,530	2,154	47	82
Interest rate contracts	\$ 4,246	\$ 2,325	\$ 1,974	\$ 104
Over-the-counter	\$ 2,494	\$ 393	\$ 747	\$ 645
Foreign exchange contracts	\$ 2,494	\$ 393	\$ 747	\$ 645
Total derivative instruments designated as ASC 815 hedges	\$ 6,740	\$ 2,718	\$ 2,721	\$ 749
Derivatives instruments not designated as ASC 815 hedges				
Over-the-counter	\$ 244,072	\$ 221,534	\$ 225	\$ 5
Cleared	120,920	130,855	240	349
Exchange traded	87	47	—	—
Interest rate contracts	\$ 365,079	\$ 352,436	\$ 465	\$ 354
Over-the-counter	\$ 182,659	\$ 186,867	\$ —	\$ 60
Cleared	482	470	—	—
Exchange traded	27	31	—	—
Foreign exchange contracts	\$ 183,168	\$ 187,368	\$ —	\$ 60
Over-the-counter	\$ 15,625	\$ 19,119	\$ —	\$ —
Cleared	1	21	—	—
Exchange traded	8,484	7,376	—	—
Equity contracts	\$ 24,110	\$ 26,516	\$ —	\$ —
Over-the-counter	\$ 13,046	\$ 14,234	\$ —	\$ —
Exchange traded	719	798	—	—
Commodity and other contracts	\$ 13,765	\$ 15,032	\$ —	\$ —
Over-the-counter	\$ 19,033	\$ 19,563	\$ 159	\$ 78
Cleared	5,582	5,874	47	310
Credit derivatives⁽⁴⁾	\$ 24,615	\$ 25,437	\$ 206	\$ 388
Total derivatives instruments not designated as ASC 815 hedges	\$ 610,737	\$ 606,789	\$ 671	\$ 802
Total derivatives	\$ 617,477	\$ 609,507	\$ 3,392	\$ 1,551
Cash collateral paid/received ⁽⁵⁾⁽⁶⁾	\$ 11,188	\$ 15,731	\$ 8	\$ 1
Less: Netting agreements ⁽⁷⁾	(519,000)	(519,000)	—	—
Less: Netting cash collateral received/paid ⁽⁸⁾	(45,912)	(49,811)	(1,345)	(53)
Net receivables/payables included on the consolidated balance sheet⁽⁹⁾	\$ 63,753	\$ 56,427	\$ 2,055	\$ 1,499
Additional amounts subject to an enforceable master netting agreement, but not offset on the Consolidated Balance Sheet				
Less: Cash collateral received/paid	\$ (819)	\$ (19)	\$ —	\$ —
Less: Non-cash collateral received/paid	(11,767)	(5,883)	(530)	—
Total net receivables/payables⁽⁹⁾	\$ 51,167	\$ 50,525	\$ 1,525	\$ 1,499

(1) The trading derivatives fair values are presented in Note 24 to the Consolidated Financial Statements.

(2) Derivative mark-to-market receivables/payables related to management hedges are recorded in either *Other assets/Other liabilities* or *Trading account assets/Trading account liabilities*.

(3) Over-the-counter (OTC) derivatives are derivatives executed and settled bilaterally with counterparties without the use of an organized exchange or central clearing house. Cleared derivatives include derivatives executed bilaterally with a counterparty in the OTC market, but then novated to a central clearing house, whereby the central clearing house becomes the counterparty to both of the original counterparties. Exchange traded derivatives include derivatives executed directly on an organized exchange that provides pre-trade price transparency.

(4) The credit derivatives trading assets comprise \$8,871 million related to protection purchased and \$15,744 million related to protection sold as of December 31, 2016. The credit derivatives trading liabilities comprise \$16,722 million related to protection purchased and \$8,715 million related to protection sold as of December 31, 2016.

(5) For the trading account assets/liabilities, reflects the net amount of the \$60,999 million and \$61,643 million of gross cash collateral paid and received, respectively. Of the gross cash collateral paid, \$49,811 million was used to offset trading derivative liabilities and, of the gross cash collateral received, \$45,912 million was used to offset trading derivative assets.

- (6) For cash collateral paid with respect to non-trading derivative assets, reflects the net amount of \$61 million of gross cash collateral paid, of which \$53 million is netted against non-trading derivative positions within *Other liabilities*. For cash collateral received with respect to non-trading derivative liabilities, reflects the net amount of \$1,346 million of gross cash collateral received, of which \$1,345 million is netted against OTC non-trading derivative positions within *Other assets*.
- (7) Represents the netting of derivative receivable and payable balances with the same counterparty under enforceable netting agreements. Approximately \$383 billion, \$128 billion and \$8 billion of the netting against trading account asset/liability balances is attributable to each of the OTC, cleared and exchange-traded derivatives, respectively.
- (8) Represents the netting of cash collateral paid and received by counterparty under enforceable credit support agreements. Substantially all cash collateral received and paid is netted against OTC derivative assets and liabilities, respectively.
- (9) The net receivables/payables include approximately \$7 billion of derivative asset and \$9 billion of derivative liability fair values not subject to enforceable master netting agreements, respectively.

In millions of dollars at December 31, 2015

Derivatives instruments designated as ASC 815 hedges	Derivatives classified in trading account assets / liabilities ⁽¹⁾⁽²⁾⁽³⁾		Derivatives classified in Other assets / liabilities ⁽²⁾⁽³⁾	
	Assets	Liabilities	Assets	Liabilities
Over-the-counter	\$ 262	\$ 105	\$ 2,328	\$ 106
Cleared	4,607	1,471	5	—
Interest rate contracts	\$ 4,869	\$ 1,576	\$ 2,333	\$ 106
Over-the-counter	\$ 2,688	\$ 364	\$ 95	\$ 677
Foreign exchange contracts	\$ 2,688	\$ 364	\$ 95	\$ 677
Total derivative instruments designated as ASC 815 hedges	\$ 7,557	\$ 1,940	\$ 2,428	\$ 783
Derivatives instruments not designated as ASC 815 hedges				
Over-the-counter	\$ 289,124	\$ 267,761	\$ 182	\$ 12
Cleared	120,848	126,532	244	216
Exchange traded	53	35	—	—
Interest rate contracts	\$ 410,025	\$ 394,328	\$ 426	\$ 228
Over-the-counter	\$ 126,474	\$ 133,361	\$ —	\$ 66
Cleared	134	152	—	—
Exchange traded	21	36	—	—
Foreign exchange contracts	\$ 126,629	\$ 133,549	\$ —	\$ 66
Over-the-counter	\$ 14,560	\$ 20,107	\$ —	\$ —
Cleared	28	3	—	—
Exchange traded	7,297	6,406	—	—
Equity contracts	\$ 21,885	\$ 26,516	\$ —	\$ —
Over-the-counter	\$ 16,794	\$ 18,641	\$ —	\$ —
Exchange traded	1,216	1,912	—	—
Commodity and other contracts	\$ 18,010	\$ 20,553	\$ —	\$ —
Over-the-counter	\$ 31,072	\$ 30,608	\$ 711	\$ 245
Cleared	3,803	3,560	131	318
Credit derivatives⁽⁴⁾	\$ 34,875	\$ 34,168	\$ 842	\$ 563
Total derivatives instruments not designated as ASC 815 hedges	\$ 611,424	\$ 609,114	\$ 1,268	\$ 857
Total derivatives	\$ 618,981	\$ 611,054	\$ 3,696	\$ 1,640
Cash collateral paid/received ⁽⁵⁾⁽⁶⁾	\$ 4,911	\$ 13,628	\$ 8	\$ 37
Less: Netting agreements ⁽⁷⁾	(524,481)	(524,481)	—	—
Less: Netting cash collateral received/paid ⁽⁸⁾	(43,227)	(42,609)	(1,949)	(53)
Net receivables/payables included on the Consolidated Balance Sheet⁽⁹⁾	\$ 56,184	\$ 57,592	\$ 1,755	\$ 1,624
Additional amounts subject to an enforceable master netting agreement, but not offset on the Consolidated Balance Sheet				
Less: Cash collateral received/paid	\$ (779)	\$ (2)	\$ —	\$ —
Less: Non-cash collateral received/paid	(9,855)	(5,131)	(270)	—
Total net receivables/payables⁽⁹⁾	\$ 45,550	\$ 52,459	\$ 1,485	\$ 1,624

- (1) The trading derivatives fair values are presented in Note 24 to the Consolidated Financial Statements.
- (2) Derivative mark-to-market receivables/payables related to management hedges are recorded in either *Other assets/Other liabilities* or *Trading account assets/Trading account liabilities*.
- (3) Over-the-counter (OTC) derivatives include derivatives executed and settled bilaterally with counterparties without the use of an organized exchange or central clearing house. Cleared derivatives include derivatives executed bilaterally with a counterparty in the OTC market, but then novated to a central clearing house,

whereby the central clearing house becomes the counterparty to both of the original counterparties. Exchange traded derivatives include derivatives executed directly on an organized exchange that provides pre-trade price transparency.

- (4) The credit derivatives trading assets comprise \$17,957 million related to protection purchased and \$16,918 million related to protection sold as of December 31, 2015. The credit derivatives trading liabilities comprise \$16,968 million related to protection purchased and \$17,200 million related to protection sold as of December 31, 2015.
- (5) For the trading account assets/liabilities, reflects the net amount of the \$47,520 million and \$56,855 million of gross cash collateral paid and received, respectively. Of the gross cash collateral paid, \$42,609 million was used to offset derivative liabilities and, of the gross cash collateral received, \$43,227 million was used to offset derivative assets.
- (6) For cash collateral paid with respect to non-trading derivative assets, reflects the net amount of \$61 million of the gross cash collateral paid, of which \$53 million is netted against non-trading derivative positions within *Other liabilities*. For cash collateral received with respect to non-trading derivative liabilities, reflects the net amount of \$1,986 million of gross cash collateral received of which \$1,949 million is netted against non-trading derivative positions within *Other assets*.
- (7) Represents the netting of derivative receivable and payable balances with the same counterparty under enforceable netting agreements. Approximately \$391 billion, \$126 billion and \$7 billion of the netting against trading account asset/liability balances is attributable to each of the OTC, cleared and exchange-traded derivatives, respectively.
- (8) Represents the netting of cash collateral paid and received by counterparty under enforceable credit support agreements. Substantially all cash collateral received and paid is netted against OTC derivative assets and liabilities, respectively.
- (9) The net receivables/payables include approximately \$10 billion of derivative asset and \$10 billion of liability fair values not subject to enforceable master netting agreements.

For the years ended December 31, 2016, 2015 and 2014, the amounts recognized in *Principal transactions* in the Consolidated Statement of Income related to derivatives not designated in a qualifying hedging relationship, as well as the underlying non-derivative instruments, are presented in Note 6 to the Consolidated Financial Statements. Citigroup presents this disclosure by business classification, showing derivative gains and losses related to its trading activities together with gains and losses related to non-derivative instruments within the same trading portfolios, as this represents the way these portfolios are risk managed.

The amounts recognized in *Other revenue* in the Consolidated Statement of Income related to derivatives not designated in a qualifying hedging relationship are shown below. The table below does not include any offsetting gains/losses on the economically hedged items to the extent such amounts are also recorded in *Other revenue*.

<i>In millions of dollars</i>	Gains (losses) included in <i>Other revenue</i>		
	2016	2015	2014
Interest rate contracts	\$ (81)	\$ 117	\$ (227)
Foreign exchange	12	(39)	14
Credit derivatives	(1,009)	476	(150)
Total Citigroup	\$ (1,078)	\$ 554	\$ (363)

Accounting for Derivative Hedging

Citigroup accounts for its hedging activities in accordance with ASC 815, *Derivatives and Hedging*. As a general rule, hedge accounting is permitted where the Company is exposed to a particular risk, such as interest rate or foreign exchange risk, that causes changes in the fair value of an asset or liability or variability in the expected future cash flows of an existing asset, liability or a forecasted transaction that may affect earnings.

Derivative contracts hedging the risks associated with changes in fair value are referred to as fair value hedges, while contracts hedging the variability of expected future cash flows are cash flow hedges. Hedges that utilize derivatives or debt instruments to manage the foreign exchange risk associated with equity investments in non-U.S.-dollar-functional-currency foreign subsidiaries (net investment in a foreign operation) are net investment hedges.

To qualify as an accounting hedge under the hedge accounting rules (versus an economic hedge where hedge accounting is not applied), a hedging relationship must be highly effective in offsetting the risk designated as being hedged. The hedge relationship must be formally documented at inception, detailing the particular risk management objective and strategy for the hedge. This includes the item and risk(s) being hedged, the hedging instrument being used and how effectiveness will be assessed. The effectiveness of these hedging relationships is evaluated at hedge inception and on an ongoing basis both on a retrospective and prospective basis, typically using quantitative measures of correlation, with hedge ineffectiveness measured and recorded in current earnings. Hedge effectiveness assessment methodologies are performed in a similar manner for similar hedges, and are used consistently throughout the hedging relationships. The assessment of effectiveness may exclude changes in the value of the hedged item that are unrelated to the risks being hedged and the changes in fair value of the derivative associated with time value. These excluded items are recognized in current earnings for the hedging derivative, while changes in the value of a hedged item that are not related to the hedged risk are not recorded.

Discontinued Hedge Accounting

A hedging instrument must be highly effective in accomplishing the hedge objective of offsetting either changes in the fair value or cash flows of the hedged item for the risk being hedged. Management may voluntarily de-designate an accounting hedge at any time, but if a hedge relationship is not highly effective, it no longer qualifies for hedge accounting and must be de-designated. Subsequent changes in the fair value of the derivative are recognized in *Other revenue* or *Principal transactions*, similar to trading derivatives, with no offset recorded related to the hedged item.

For fair value hedges, any changes in the fair value of the hedged item remain as part of the basis of the asset or liability and are ultimately realized as an element of the yield on the item. For cash flow hedges, changes in fair value of the end-user derivative remain in *Accumulated other comprehensive income (loss)* (AOCI) and are included in the earnings of future periods when the forecasted hedged cash flows impact earnings. However, if it becomes probable that some or all of the hedged forecasted transactions will not occur, any amounts

that remain in AOCI related to these transactions must be immediately reflected in *Other revenue*.

The foregoing criteria are applied on a decentralized basis, consistent with the level at which market risk is managed, but are subject to various limits and controls. The underlying asset, liability or forecasted transaction may be an individual item or a portfolio of similar items.

Fair Value Hedges

Hedging of Benchmark Interest Rate Risk

Citigroup's fair value hedges are primarily hedges of fixed-rate long-term debt or assets, such as available-for-sale securities.

Citigroup hedges exposure to changes in the fair value of outstanding fixed-rate issued debt. These hedges are designated as fair value hedges of the benchmark interest rate risk associated with the currency of the hedged liability. The fixed cash flows of the hedged items are typically converted to benchmark variable-rate cash flows by entering into receive-fixed, pay-variable interest rate swaps. By designating an interest rate swap contract as a hedging instrument and electing to apply ASC 815 fair value hedge accounting, the carrying value of the debt is adjusted to reflect the impact of changes in the benchmark interest rate, with such changes in value recorded in *Other revenue*. The related interest rate swap is recorded on the balance sheet at fair value, with changes in fair value also reflected in *Other revenue*. These amounts are expected to, and generally do, offset. Any net amount, representing hedge ineffectiveness, is automatically reflected in current earnings. These fair value hedge relationships use either regression or dollar-offset ratio analysis to assess whether the hedging relationships are highly effective at inception and on an ongoing basis.

Citigroup also hedges its exposure to changes in the fair value of fixed-rate assets due to changes in benchmark interest rates, including available-for-sale debt securities and loans. The hedging instruments are typically receive-variable, pay-fixed interest rate swaps. These fair value hedging relationships use either regression or dollar-offset ratio analysis to assess whether the hedging relationships are highly effective at inception and on an ongoing basis.

Hedging of Foreign Exchange Risk

Citigroup hedges the change in fair value attributable to foreign exchange rate movements in available-for-sale securities that are denominated in currencies other than the functional currency of the entity holding the securities, which may be within or outside the U.S. The hedging instrument is generally a forward foreign exchange contract. In this hedge, the portion of the change in the fair value of the hedged available-for-sale security attributable to foreign exchange risk (i.e., spot rates) is reported in earnings, and not AOCI—which offsets the change in the fair value of the forward contract that is also reflected in earnings. Citigroup considers the premium associated with forward contracts (i.e., the differential between spot and contractual forward rates) as the cost of hedging; this amount is excluded from the assessment of hedge effectiveness and reflected directly in earnings over the life of the hedge. The dollar-offset method is used to assess hedge effectiveness. Since that assessment is based on changes in fair value attributable to changes in spot rates on both the available-for-sale securities and the forward contracts for the portion of the relationship hedged, the amount of hedge ineffectiveness is not significant.

Hedging of Commodity Price Risk

Citigroup hedges the change in fair value attributable to spot price movements in physical commodities inventory. The hedging instrument is a futures contract to sell the underlying commodity. In this hedge, the change in the value of the hedged inventory is reflected in earnings, which offsets the change in the fair value of the futures contract that is also reflected in earnings. Although the change in the fair value of the hedging instrument recorded in earnings includes changes in forward rates, Citigroup excludes the differential between the spot and the contractual forward rates under the futures contract from the assessment of hedge effectiveness. Since the assessment is based on changes in fair value attributable to change in spot prices on both the physical commodity and the futures contract, the amount of hedge ineffectiveness is not significant.

The following table summarizes the gains (losses) on the Company's fair value hedges:

<i>In millions of dollars</i>	Gains (losses) on fair value hedges⁽¹⁾		
	Year ended December 31,		
	2016	2015	2014
Gain (loss) on the derivatives in designated and qualifying fair value hedges			
Interest rate contracts	\$ (753)	\$ (847)	\$ 1,546
Foreign exchange contracts	(1,415)	1,315	1,367
Commodity contracts	182	41	(221)
Total gain (loss) on the derivatives in designated and qualifying fair value hedges	\$ (1,986)	\$ 509	\$ 2,692
Gain (loss) on the hedged item in designated and qualifying fair value hedges			
Interest rate hedges	\$ 668	\$ 792	\$ (1,496)
Foreign exchange hedges	1,573	(1,258)	(1,422)
Commodity hedges	(210)	(35)	250
Total gain (loss) on the hedged item in designated and qualifying fair value hedges	\$ 2,031	\$ (501)	\$ (2,668)
Hedge ineffectiveness recognized in earnings on designated and qualifying fair value hedges			
Interest rate hedges	\$ (84)	\$ (47)	\$ 53
Foreign exchange hedges	4	(23)	(16)
Total hedge ineffectiveness recognized in earnings on designated and qualifying fair value hedges	\$ (80)	\$ (70)	\$ 37
Net gain (loss) excluded from assessment of the effectiveness of fair value hedges			
Interest rate contracts	\$ (1)	\$ (8)	\$ (3)
Foreign exchange contracts ⁽²⁾	154	80	(39)
Commodity hedges ⁽²⁾	(28)	6	29
Total net gain (loss) excluded from assessment of the effectiveness of fair value hedges	\$ 125	\$ 78	\$ (13)

(1) Amounts are included in *Other revenue* on the Consolidated Statement of Income. The accrued interest income on fair value hedges is recorded in *Net interest revenue* and is excluded from this table.

(2) Amounts relate to the premium associated with forward contracts (differential between spot and contractual forward rates). These amounts are excluded from the assessment of hedge effectiveness and are reflected directly in earnings.

Cash Flow Hedges

Hedging of Benchmark Interest Rate Risk

Citigroup hedges the variability of forecasted cash flows associated with floating-rate assets/liabilities and other forecasted transactions. Variable cash flows from those liabilities are synthetically converted to fixed-rate cash flows by entering into receive-variable, pay-fixed interest rate swaps and receive-variable, pay-fixed forward-starting interest rate swaps. Variable cash flows associated with certain assets are synthetically converted to fixed-rate cash flows by entering into receive-fixed, pay-variable interest rate swaps. These cash flow hedging relationships use either regression analysis or dollar-offset ratio analysis to assess whether the hedging relationships are highly effective at inception and on an ongoing basis. When the variable interest rates associated with hedged items do not qualify as benchmark interest rates, Citigroup designates the risk being hedged as the risk of overall variability in the hedged cash flows. Because efforts are made to match the terms of the derivatives to those of the hedged forecasted cash flows as closely as possible, the amount of hedge ineffectiveness is not significant.

For cash flow hedges in which derivatives hedge the variability of forecasted cash flows related to recognized assets, liabilities or forecasted transactions, the accounting treatment depends on the effectiveness of the hedge. To the extent these derivatives are effective in offsetting the variability of the forecasted hedged cash flows, the effective portion of the changes in the derivatives' fair values will not

be included in current earnings, but will be reported in AOCI. These changes in fair value will be included in the earnings of future periods when the hedged cash flows impact earnings. To the extent these derivatives are not fully effective, changes in their fair values are immediately included in *Other revenue*. Citigroup's cash flow hedges primarily include hedges of floating-rate assets or liabilities which may include loans and securities purchased under agreements to resell, as well as forecasted transactions.

Hedging of Foreign Exchange Risk

Citigroup locks in the functional currency equivalent cash flows of long-term debt and short-term borrowings that are denominated in currencies other than the functional currency of the issuing entity. Depending on risk management objectives, these types of hedges are designated either as cash flow hedges of foreign exchange risk only or cash flow hedges of both foreign exchange risk and interest rate risk, and the hedging instruments are foreign exchange cross-currency swaps and forward contracts. These cash flow hedge relationships use dollar-offset ratio analysis to determine whether the hedging relationships are highly effective at inception and on an ongoing basis.

The amount of hedge ineffectiveness on the cash flow hedges recognized in earnings for the years ended December 31, 2016, 2015 and 2014 is not significant. The pretax change in AOCI from cash flow hedges is presented below:

<i>In millions of dollars</i>	Year ended December 31,		
	2016	2015	2014
Effective portion of cash flow hedges included in AOCI			
Interest rate contracts	\$ (219)	\$ 357	\$ 299
Foreign exchange contracts	69	(220)	(167)
Credit derivatives	—	—	2
Total effective portion of cash flow hedges included in AOCI	\$ (150)	\$ 137	\$ 134
Effective portion of cash flow hedges reclassified from AOCI to earnings			
Interest rate contracts	\$ (140)	\$ (186)	\$ (260)
Foreign exchange contracts	(93)	(146)	(149)
Total effective portion of cash flow hedges reclassified from AOCI to earnings⁽¹⁾	\$ (233)	\$ (332)	\$ (409)

(1) Included primarily in *Other revenue* and *Net interest revenue* on the Consolidated Income Statement.

For cash flow hedges, the changes in the fair value of the hedging derivative remain in AOCI on the Consolidated Balance Sheet and will be included in the earnings of future periods to offset the variability of the hedged cash flows when such cash flows affect earnings. The net gain associated with cash flow hedges expected to be reclassified from AOCI within 12 months of December 31, 2016 is approximately \$0.1 billion. The maximum length of time over which forecasted cash flows are hedged is 10 years.

The after-tax impact of cash flow hedges on AOCI is shown in Note 19 to the Consolidated Financial Statements.

Net Investment Hedges

Consistent with ASC 830-20, *Foreign Currency Matters—Foreign Currency Transactions*, ASC 815 allows the hedging of the foreign currency risk of a net investment in a foreign operation. Citigroup uses foreign currency forwards, cross-currency swaps, options and foreign-currency-denominated debt instruments to manage the foreign exchange risk associated with Citigroup's equity investments in several non-U.S.-dollar-functional-currency foreign subsidiaries. Citigroup records the change in the carrying amount of these investments in the *Foreign currency translation adjustment* account within AOCI. Simultaneously, the effective portion of the hedge of this exposure is also recorded in the *Foreign currency translation adjustment* account and any ineffective portion is immediately recorded in earnings.

For derivatives designated as net investment hedges, Citigroup follows the forward-rate method outlined in ASC 815-35-35. According to that method, all changes in fair value, including changes related to the forward-rate component of the foreign currency forward contracts and the time value of foreign currency options, are recorded in the *Foreign currency translation adjustment* account within AOCI.

For foreign-currency-denominated debt instruments that are designated as hedges of net investments, the translation gain or loss that is recorded in the *Foreign currency translation adjustment* account is based on the spot exchange rate between the functional currency of the respective subsidiary and the U.S. dollar, which is the functional currency of Citigroup. To the extent the notional amount of the hedging instrument exactly matches the hedged net investment and the underlying exchange rate of the derivative hedging instrument relates to the exchange rate between the functional currency of the net investment and Citigroup's functional currency (or, in the case of a non-derivative debt instrument, such instrument is denominated in the functional currency of the net investment), no ineffectiveness is recorded in earnings.

The pretax gain (loss) recorded in the *Foreign currency translation adjustment* account within AOCI, related to the effective portion of the net investment hedges, is \$(220) million, \$2,475 million and \$2,890 million for the years ended December 31, 2016, 2015 and 2014, respectively.

Economic Hedges

Citigroup often uses economic hedges when hedge accounting would be too complex or operationally burdensome. End-user derivatives that are economic hedges are carried at fair value, with changes in value included in either *Principal transactions* or *Other revenue*.

For asset/liability management hedging, fixed-rate long-term debt is recorded at amortized cost under GAAP.

For other hedges that either do not meet the ASC 815 hedging criteria or for which management decides not to apply ASC 815 hedge accounting, the derivative is recorded at fair value on the balance sheet with the associated changes in fair value recorded in earnings, while the debt continues to be carried at amortized cost. Therefore, current earnings are affected by the interest rate shifts and other factors that cause a change in the swap's value, but for which no offsetting change in value is recorded on the debt.

Citigroup may alternatively elect to account for the debt at fair value under the fair value option. Once the irrevocable election is made upon issuance of the debt, the full change in fair value of the debt is reported in earnings. The changes in fair value of the related interest rate swap are also reflected in earnings, which provides a natural offset to the debt's fair value change. To the extent the two amounts differ because the full change in the fair value of the debt includes risks not offset by the interest rate swap, the difference is automatically captured in current earnings.

Additional economic hedges include hedges of the credit risk component of commercial loans and loan commitments. Citigroup periodically evaluates its hedging strategies in other areas and may designate either an accounting hedge or an economic hedge after considering the relative costs and benefits. Economic hedges are also employed when the hedged item itself is marked to market through current earnings, such as hedges of commitments to originate one- to four-family mortgage loans to be held for sale and MSR's.

Credit Derivatives

Citi is a market maker and trades a range of credit derivatives. Through these contracts, Citi either purchases or writes protection on either a single name or a portfolio of reference credits. Citi also uses credit derivatives to help mitigate credit risk in its corporate and consumer loan portfolios and other cash positions and to facilitate client transactions.

Citi monitors its counterparty credit risk in credit derivative contracts. As of December 31, 2016 and December 31, 2015, approximately 97% and 98%, respectively, of the gross receivables are from counterparties with which Citi maintains collateral agreements. A majority of Citi's top 15 counterparties (by receivable balance owed to Citi) are banks, financial institutions or other dealers. Contracts with these counterparties do not include ratings-based termination events. However, counterparty ratings downgrades may have an incremental effect by lowering the threshold at which Citi may call for additional collateral.

The range of credit derivatives entered into includes credit default swaps, total return swaps, credit options and credit-linked notes.

A credit default swap is a contract in which, for a fee, a protection seller agrees to reimburse a protection buyer for any losses that occur due to a predefined credit event on a reference entity. These credit events are defined by the terms of the derivative contract and the reference credit and are generally limited to the market standard of failure to pay on indebtedness and bankruptcy of the reference credit and, in a more limited range of transactions, debt restructuring. Credit derivative transactions that reference emerging market entities also typically include additional credit events to cover the acceleration of indebtedness and the risk of repudiation or a payment moratorium. In certain transactions, protection may be provided on a portfolio of reference entities or asset-backed securities. If there is no credit event, as defined by the specific derivative contract, then the protection seller makes no payments to the protection buyer and receives only the contractually specified fee. However, if a credit event occurs

as defined in the specific derivative contract sold, the protection seller will be required to make a payment to the protection buyer. Under certain contracts, the seller of protection may not be required to make a payment until a specified amount of losses has occurred with respect to the portfolio and/or may only be required to pay for losses up to a specified amount.

A total return swap typically transfers the total economic performance of a reference asset, which includes all associated cash flows, as well as capital appreciation or depreciation. The protection buyer receives a floating rate of interest and any depreciation on the reference asset from the protection seller and, in return, the protection seller receives the cash flows associated with the reference asset plus any appreciation. Thus, according to the total return swap agreement, the protection seller will be obligated to make a payment any time the floating interest rate payment plus any depreciation of the reference asset exceeds the cash flows associated with the underlying asset. A total return swap may terminate upon a default of the reference asset or a credit event with respect to the reference entity subject to the provisions of the related total return swap agreement between the protection seller and the protection buyer.

A credit option is a credit derivative that allows investors to trade or hedge changes in the credit quality of a reference entity. For example, in a credit spread option, the option writer assumes the obligation to purchase or sell credit protection on the reference entity at a specified “strike” spread level. The option purchaser buys the right to sell credit default protection on the reference entity to, or purchase it from, the option writer at the strike spread level. The payments on credit spread options depend either on a particular credit spread or the price of the underlying credit-sensitive asset or other reference entity. The options usually terminate if a credit event occurs with respect to the underlying reference entity.

A credit-linked note is a form of credit derivative structured as a debt security with an embedded credit default swap. The purchaser of the note effectively provides credit protection to the issuer by agreeing to receive a return that could be negatively affected by credit events on the underlying reference credit. If the reference entity defaults, the note may be cash settled or physically settled by delivery of a debt security of the reference entity. Thus, the maximum amount of the note purchaser’s exposure is the amount paid for the credit-linked note.

The following tables summarize the key characteristics of Citi's credit derivatives portfolio by counterparty and derivative form:

<i>In millions of dollars at December 31, 2016</i>	Fair values		Notionals	
	Receivable ⁽¹⁾	Payable ⁽²⁾	Protection purchased	Protection sold
By industry/counterparty				
Banks	\$ 11,895	\$ 10,930	\$ 407,992	\$ 414,720
Broker-dealers	3,536	3,952	115,013	119,810
Non-financial	82	99	4,014	2,061
Insurance and other financial institutions	9,308	10,844	375,454	322,829
Total by industry/counterparty	\$ 24,821	\$ 25,825	\$ 902,473	\$ 859,420
By instrument				
Credit default swaps and options	\$ 24,502	\$ 24,631	\$ 883,719	\$ 852,900
Total return swaps and other	319	1,194	18,754	6,520
Total by instrument	\$ 24,821	\$ 25,825	\$ 902,473	\$ 859,420
By rating				
Investment grade	\$ 9,605	\$ 9,995	\$ 675,138	\$ 648,247
Non-investment grade	15,216	15,830	227,335	211,173
Total by rating	\$ 24,821	\$ 25,825	\$ 902,473	\$ 859,420
By maturity				
Within 1 year	\$ 4,113	\$ 4,841	\$ 293,059	\$ 287,262
From 1 to 5 years	17,735	17,986	551,155	523,371
After 5 years	2,973	2,998	58,259	48,787
Total by maturity	\$ 24,821	\$ 25,825	\$ 902,473	\$ 859,420

(1) The fair value amount receivable is composed of \$9,077 million under protection purchased and \$15,744 million under protection sold.

(2) The fair value amount payable is composed of \$17,110 million under protection purchased and \$8,715 million under protection sold.

<i>In millions of dollars at December 31, 2015</i>	Fair values		Notionals	
	Receivable ⁽¹⁾	Payable ⁽²⁾	Protection purchased	Protection sold
By industry/counterparty				
Banks	\$ 18,377	\$ 16,988	\$ 513,335	\$ 508,459
Broker-dealers	5,895	6,697	155,195	152,604
Non-financial	128	123	3,969	2,087
Insurance and other financial institutions	11,317	10,923	332,715	287,772
Total by industry/counterparty	\$ 35,717	\$ 34,731	\$ 1,005,214	\$ 950,922
By instrument				
Credit default swaps and options	\$ 34,849	\$ 34,158	\$ 981,999	\$ 940,650
Total return swaps and other	868	573	23,215	10,272
Total by instrument	\$ 35,717	\$ 34,731	\$ 1,005,214	\$ 950,922
By rating				
Investment grade	\$ 12,694	\$ 13,142	\$ 764,040	\$ 720,521
Non-investment grade	23,023	21,589	241,174	230,401
Total by rating	\$ 35,717	\$ 34,731	\$ 1,005,214	\$ 950,922
By maturity				
Within 1 year	\$ 3,871	\$ 3,559	\$ 265,632	\$ 254,225
From 1 to 5 years	27,991	27,488	669,834	639,460
After 5 years	3,855	3,684	69,748	57,237
Total by maturity	\$ 35,717	\$ 34,731	\$ 1,005,214	\$ 950,922

- (1) The fair value amount receivable is composed of \$18,799 million under protection purchased and \$16,918 million under protection sold.
- (2) The fair value amount payable is composed of \$17,531 million under protection purchased and \$17,200 million under protection sold.

Fair values included in the above tables are prior to application of any netting agreements and cash collateral. For notional amounts, Citi generally has a mismatch between the total notional amounts of protection purchased and sold, and it may hold the reference assets directly, rather than entering into offsetting credit derivative contracts as and when desired. The open risk exposures from credit derivative contracts are largely matched after certain cash positions in reference assets are considered and after notional amounts are adjusted, either to a duration-based equivalent basis or to reflect the level of subordination in tranching structures. The ratings of the credit derivatives portfolio presented in the tables and used to evaluate payment/performance risk are based on the assigned internal or external ratings of the reference asset or entity. Where external ratings are used, investment-grade ratings are considered to be 'Baa/BBB' and above, while anything below is considered non-investment grade. Citi's internal ratings are in line with the related external rating system.

Citigroup evaluates the payment/performance risk of the credit derivatives for which it stands as a protection seller based on the credit rating assigned to the underlying reference credit. Credit derivatives written on an underlying non-investment grade reference credit represent greater payment risk to the Company. The non-investment grade category in the table above also includes credit derivatives where the underlying reference entity has been downgraded subsequent to the inception of the derivative.

The maximum potential amount of future payments under credit derivative contracts presented in the table above is based on the notional value of the derivatives. The Company believes that the notional amount for credit protection sold is not representative of the actual loss exposure based on historical experience. This amount has not been reduced by the value of the reference assets and the related cash flows. In accordance with most credit derivative contracts, should a credit event occur, the Company usually is liable for the difference between the protection sold and the value of the reference assets. Furthermore, the notional amount for credit protection sold has not been reduced for any cash collateral paid to a given counterparty, as such payments would be calculated after netting all derivative exposures, including any credit derivatives with that counterparty in accordance with a related master netting agreement. Due to such netting processes, determining the amount of collateral that corresponds to credit derivative exposures alone is not possible. The Company actively monitors open credit-risk exposures and manages this exposure by using a variety of strategies, including purchased credit derivatives, cash collateral or direct holdings of the referenced assets. This risk mitigation activity is not captured in the table above.

Credit-Risk-Related Contingent Features in Derivatives

Certain derivative instruments contain provisions that require the Company to either post additional collateral or immediately settle any outstanding liability balances upon the occurrence of a specified event related to the credit risk of the Company. These events, which are defined by the existing derivative contracts, are primarily downgrades in the credit ratings of the Company and its affiliates. The fair value (excluding CVA) of all derivative instruments with credit-risk-related contingent features that were in a net liability position at both December 31, 2016 and December 31, 2015 was \$26 billion and \$22 billion, respectively. The Company posted \$26 billion and \$19 billion as collateral for this exposure in the normal course of business as of December 31, 2016 and December 31, 2015, respectively.

A downgrade could trigger additional collateral or cash settlement requirements for the Company and certain affiliates. In the event that Citigroup and Citibank were downgraded a single notch by all three major rating agencies as of December 31, 2016, the Company could be required to post an additional \$1.5 billion as either collateral or settlement of the derivative transactions. Additionally, the Company could be required to segregate with third-party custodians collateral previously received from existing derivative counterparties in the amount of \$0.1 billion upon the single notch downgrade, resulting in aggregate cash obligations and collateral requirements of approximately \$1.6 billion.

Derivatives Accompanied by Financial Asset Transfers

The Company executes total return swaps which provide it with synthetic exposure to substantially all of the economic return of the securities or other financial assets referenced in the contract. In certain cases, the derivative transaction is accompanied by the Company's transfer of the referenced financial asset to the derivative counterparty, most typically in response to the derivative counterparty's desire to hedge, in whole or in part, its synthetic exposure under the derivative contract by holding the referenced asset in funded form. In certain jurisdictions these transactions qualify as sales, resulting in derecognition of the securities transferred (see Note 1 to the Consolidated Financial Statements for further discussion of the related sale conditions for transfers of financial assets). For a significant portion of the transactions, the Company has also executed another total return swap where the Company passes on substantially all of the economic return of the referenced securities to a different third party seeking the exposure. In those cases, the Company is not exposed, on a net basis, to changes in the economic return of the referenced securities.

These transactions generally involve the transfer of the Company's liquid government bonds, convertible bonds, or publicly traded corporate equity securities from the trading portfolio and are executed with third-party financial institutions. The accompanying derivatives are typically total

return swaps. The derivatives are cash settled and subject to ongoing margin requirements.

When the conditions for sale accounting are met, the Company reports the transfer of the referenced financial asset as a sale and separately reports the accompanying derivative transaction. These transactions generally do not result in a gain or loss on the sale of the security, because the transferred security was held at fair value in the Company's trading portfolio. For transfers of financial assets accounted for by the Company as a sale, where the Company has retained substantially all of the economic exposure to the transferred asset through a total return swap executed in contemplation of the initial sale with the same counterparty and still outstanding as of December 31, 2016 and December 31, 2015, both the asset carrying amounts derecognized and gross cash proceeds received as of the date of derecognition were \$1.0 billion. At December 31, 2016, the fair value of these previously derecognized assets was \$1.0 billion and the fair value of the total return swaps was \$32 million recorded as gross derivative assets and \$23 million recorded as gross derivative liabilities. At December 31, 2015, the fair value of these previously derecognized assets was \$1 billion and the fair value of the total return swaps was \$7 million recorded as gross derivative assets and \$35 million recorded as gross derivative liabilities. The balances for the total return swaps are on a gross basis, before the application of counterparty and cash collateral netting, and are included primarily as equity derivatives in the tabular disclosures in this Note.

23. CONCENTRATIONS OF CREDIT RISK

Concentrations of credit risk exist when changes in economic, industry or geographic factors similarly affect groups of counterparties whose aggregate credit exposure is material in relation to Citigroup's total credit exposure. Although Citigroup's portfolio of financial instruments is broadly diversified along industry, product, and geographic lines, material transactions are completed with other financial institutions, particularly in the securities trading, derivatives and foreign exchange businesses.

In connection with the Company's efforts to maintain a diversified portfolio, the Company limits its exposure to any one geographic region, country or individual creditor and monitors this exposure on a continuous basis. At December 31, 2016, Citigroup's most significant concentration of credit risk was with the U.S. government and its agencies. The Company's exposure, which primarily results from trading assets and investments issued by the U.S. government and its agencies, amounted to \$228.5 billion and \$223.0 billion at December 31, 2016 and 2015, respectively. The German and Japan governments and their agencies, which are rated investment grade by both Moody's and S&P, were the next largest exposures. The Company's exposure to Germany amounted to \$27.6 billion and \$17.7 billion at December 31, 2016 and 2015, respectively, and was composed of investment securities, loans and trading assets. The Company's exposure to Japan amounted to \$27.3 billion and \$18.8 billion at December 31, 2016 and 2015, respectively, and was composed of investment securities, loans and trading assets.

The Company's exposure to states and municipalities amounted to \$30.7 billion and \$29.3 billion at December 31, 2016 and 2015, respectively, and was composed of trading assets, investment securities, derivatives and lending activities.

24. FAIR VALUE MEASUREMENT

ASC 820-10 *Fair Value Measurement*, defines fair value, establishes a consistent framework for measuring fair value and requires disclosures about fair value measurements. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

Among other things, the standard requires the Company to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value.

Under ASC 820-10, the probability of default of a counterparty is factored into the valuation of derivative and other positions as well as the impact of Citigroup's own credit risk on derivatives and other liabilities measured at fair value.

Fair Value Hierarchy

ASC 820-10 specifies a hierarchy of inputs based on whether the inputs are observable or unobservable.

Observable inputs are developed using market data and reflect market participant assumptions, while unobservable inputs reflect the Company's market assumptions. These two types of inputs have created the following fair value hierarchy:

- Level 1: Quoted prices for *identical* instruments in active markets.
- Level 2: Quoted prices for *similar* instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs and significant value drivers are *observable* in active markets.
- Level 3: Valuations derived from valuation techniques in which one or more significant inputs or significant value drivers are *unobservable*.

As required under the fair value hierarchy, the Company considers relevant and observable market inputs in its valuations where possible. The frequency of transactions, the size of the bid-ask spread and the amount of adjustment necessary when comparing similar transactions are all factors in determining the liquidity of markets and the relevance of observed prices in those markets.

The Company's policy with respect to transfers between levels of the fair value hierarchy is to recognize transfers into and out of each level as of the end of the reporting period.

Determination of Fair Value

For assets and liabilities carried at fair value, the Company measures fair value using the procedures set out below, irrespective of whether the assets and liabilities are measured at fair value as a result of an election or whether they are required to be measured at fair value.

When available, the Company uses quoted market prices to determine fair value and classifies such items as Level 1. In some cases where a market price is available, the

Company will make use of acceptable practical expedients (such as matrix pricing) to calculate fair value, in which case the items are classified as Level 2.

The Company may also apply a price-based methodology, which utilizes, where available, quoted prices or other market information obtained from recent trading activity in positions with the same or similar characteristics to the position being valued. The market activity and the amount of the bid-ask spread are among the factors considered in determining the liquidity of markets and the observability of prices from those markets. If relevant and observable prices are available, those valuations may be classified as Level 2. When less liquidity exists for a security or loan, a quoted price is stale, a significant adjustment to the price of a similar security is necessary to reflect differences in the terms of the actual security or loan being valued, or prices from independent sources are insufficient to corroborate the valuation, the "price" inputs are considered unobservable and the fair value measurements are classified as Level 3.

If quoted market prices are not available, fair value is based upon internally developed valuation techniques that use, where possible, current market-based parameters, such as interest rates, currency rates and option volatilities. Items valued using such internally generated valuation techniques are classified according to the lowest level input or value driver that is significant to the valuation. Thus, an item may be classified as Level 3 even though there may be some significant inputs that are readily observable.

Fair value estimates from internal valuation techniques are verified, where possible, to prices obtained from independent vendors or brokers. Vendors' and brokers' valuations may be based on a variety of inputs ranging from observed prices to proprietary valuation models.

The following section describes the valuation methodologies used by the Company to measure various financial instruments at fair value, including an indication of the level in the fair value hierarchy in which each instrument is generally classified. Where appropriate, the description includes details of the valuation models, the key inputs to those models and any significant assumptions.

Market Valuation Adjustments

Generally, the unit of account for a financial instrument is the individual financial instrument. The Company applies market valuation adjustments that are consistent with the unit of account, which does not include adjustment due to the size of the Company's position, except as follows. ASC 820-10 permits an exception, through an accounting policy election, to measure the fair value of a portfolio of financial assets and financial liabilities on the basis of the net open risk position when certain criteria are met. Citi has elected to measure certain portfolios of financial instruments, such as derivatives, that meet those criteria on the basis of the net open risk position. The Company applies market valuation adjustments, including adjustments to account for the size of the net open risk position, consistent with market participant assumptions and in accordance with the unit of account.

Liquidity adjustments are applied to items in Level 2 or Level 3 of the fair-value hierarchy in an effort to ensure that the fair value reflects the price at which the net open risk position could be liquidated. The liquidity adjustment is based on the bid/offer spread for an instrument. When Citi has elected to measure certain portfolios of financial investments, such as derivatives, on the basis of the net open risk position, the liquidity adjustment may be adjusted to take into account the size of the position.

Credit valuation adjustments (CVA) and funding valuation adjustments (FVA) are applied to over-the-counter (OTC) derivative instruments in which the base valuation generally discounts expected cash flows using the relevant base interest rate curve for the currency of the derivative (e.g., LIBOR for uncollateralized U.S.-dollar derivatives). As not all counterparties have the same credit risk as that implied by the relevant base curve, a CVA is necessary to incorporate the market view of both counterparty credit risk and Citi's own credit risk in the valuation. FVA reflects a market funding risk premium inherent in the uncollateralized portion of derivative portfolios and in collateralized derivatives where the terms of the agreement do not permit the reuse of the collateral received.

Citi's CVA and FVA methodology consists of two steps.

- First, the exposure profile for each counterparty is determined using the terms of all individual derivative positions and a Monte Carlo simulation or other quantitative analysis to generate a series of expected cash flows at future points in time. The calculation of this exposure profile considers the effect of credit risk mitigants and sources of funding, including pledged cash or other collateral and any legal right of offset that exists with a counterparty through arrangements such as netting agreements. Individual derivative contracts that are subject to an enforceable master netting agreement with a counterparty are aggregated as a netting set for this purpose, since it is those aggregate net cash flows that are subject to nonperformance risk. This process identifies specific, point-in-time future cash flows that are subject to nonperformance risk and unsecured funding, rather than using the current recognized net asset or liability as a basis to measure the CVA and FVA.
- Second, for CVA, market-based views of default probabilities derived from observed credit spreads in the credit default swap (CDS) market are applied to the expected future cash flows determined in step one. Citi's own-credit CVA is determined using Citi-specific CDS spreads for the relevant tenor. Generally, counterparty CVA is determined using CDS spread indices for each credit rating and tenor. For certain identified netting sets where individual analysis is practicable (e.g., exposures to counterparties with liquid CDSs), counterparty-specific CDS spreads are used. For FVA, a term structure of future liquidity spreads is applied to the expected future funding requirement.

The CVA and FVA are designed to incorporate a market view of the credit and funding risk, respectively, inherent in

the derivative portfolio. However, most unsecured derivative instruments are negotiated bilateral contracts and are not commonly transferred to third parties. Derivative instruments are normally settled contractually or, if terminated early, are terminated at a value negotiated bilaterally between the counterparties. Thus, the CVA and FVA may not be realized upon a settlement or termination in the normal course of business. In addition, all or a portion of these adjustments may be reversed or otherwise adjusted in future periods in the event of changes in the credit or funding risk associated with the derivative instruments.

The table below summarizes the CVA and FVA applied to the fair value of derivative instruments at December 31, 2016 and 2015:

<i>In millions of dollars</i>	Credit and funding valuation adjustments contra-liability (contra-asset)	
	December 31,	December 31,
	2016	2015
Counterparty CVA	\$ (1,488)	\$ (1,470)
Asset FVA	(536)	(584)
Citigroup (own-credit) CVA	459	471
Liability FVA	62	106
Total CVA—derivative instruments⁽¹⁾	\$ (1,503)	\$ (1,477)

(1) FVA is included with CVA for presentation purposes.

The table below summarizes pretax gains (losses) related to changes in CVA on derivative instruments, net of hedges, FVA on derivatives and debt valuation adjustments (DVA) on Citi's own fair value option (FVO) liabilities for the years indicated:

<i>In millions of dollars</i>	Credit/funding/debt valuation adjustments gain (loss)		
	2016	2015	2014
Counterparty CVA	\$ 157	\$ (115)	\$ (43)
Asset FVA	47	(66)	(518)
Own-credit CVA	17	(28)	(65)
Liability FVA	(44)	97	19
Total CVA—derivative instruments	\$ 177	\$ (112)	\$ (607)
DVA related to own FVO liabilities ⁽¹⁾	\$ (538)	\$ 367	\$ 217
Total CVA and DVA⁽²⁾	\$ (361)	\$ 255	\$ (390)

(1) Effective January 1, 2016, Citigroup early adopted on a prospective basis only the provisions of ASU No. 2016-01, *Financial Instruments—Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*, related to the presentation of DVA on fair value option liabilities. Accordingly, beginning in the first quarter 2016, the portion of the change in fair value of these liabilities related to changes in Citigroup's own credit spreads (DVA) is reflected as a component of AOCI; previously these amounts were recognized in Citigroup's revenues and net income. DVA amounts in AOCI will be recognized in revenue and net income if realized upon the settlement of the related liability

(2) FVA is included with CVA for presentation purposes.

Valuation Process for Fair Value Measurements

Price verification procedures and related internal control procedures are governed by the Citigroup *Pricing and Price Verification Policy and Standards*, which is jointly owned by Finance and Risk Management.

For fair value measurements of substantially all assets and liabilities held by the Company, individual business units are responsible for valuing the trading account assets and liabilities, and Product Control within Finance performs independent price verification procedures to evaluate those fair value measurements. Product Control is independent of the individual business units and reports to the Global Head of Product Control. It has authority over the valuation of financial assets and liabilities. Fair value measurements of assets and liabilities are determined using various techniques, including, but not limited to, discounted cash flows and internal models, such as option and correlation models.

Based on the observability of inputs used, Product Control classifies the inventory as Level 1, Level 2 or Level 3 of the fair value hierarchy. When a position involves one or more significant inputs that are not directly observable, price verification procedures are performed that may include reviewing relevant historical data, analyzing profit and loss, valuing each component of a structured trade individually, and benchmarking, among others.

Reports of inventory that is classified within Level 3 of the fair value hierarchy are distributed to senior management in Finance, Risk and the business. This inventory is also discussed in Risk Committees and in monthly meetings with senior trading management. As deemed necessary, reports may go to the Audit Committee of the Board of Directors or to the full Board of Directors. Whenever an adjustment is needed to bring the price of an asset or liability to its exit price, Product Control reports it to management along with other price verification results.

In addition, the pricing models used in measuring fair value are governed by an independent control framework. Although the models are developed and tested by the individual business units, they are independently validated by the Model Validation Group within Risk Management and reviewed by Finance with respect to their impact on the price verification procedures. The purpose of this independent control framework is to assess model risk arising from models' theoretical soundness, calibration techniques where needed, and the appropriateness of the model for a specific product in a defined market. To ensure their continued applicability, models are independently reviewed annually. In addition, Risk Management approves and maintains a list of products permitted to be valued under each approved model for a given business.

Securities Purchased Under Agreements to Resell and Securities Sold Under Agreements to Repurchase

No quoted prices exist for these instruments, so fair value is determined using a discounted cash-flow technique. Cash flows are estimated based on the terms of the contract, taking into account any embedded derivative or other features. These cash flows are discounted using interest rates appropriate to the maturity of the instrument as well as the nature of the underlying collateral. Generally, when such instruments are recorded at fair value, they are classified within Level 2 of the fair value hierarchy, as the inputs used in the valuation are readily observable. However, certain long-dated positions are classified within Level 3 of the fair value hierarchy.

Trading Account Assets and Liabilities—Trading Securities and Trading Loans

When available, the Company uses quoted market prices in active markets to determine the fair value of trading securities; such items are classified as Level 1 of the fair value hierarchy. Examples include government securities and exchange-traded equity securities.

For bonds and secondary market loans traded over the counter, the Company generally determines fair value utilizing valuation techniques, including discounted cash flows, price-based and internal models, such as Black-Scholes and Monte Carlo simulation. Fair value estimates from these internal valuation techniques are verified, where possible, to prices obtained from independent sources, including third-party vendors. Vendors compile prices from various sources and may apply matrix pricing for similar bonds or loans where no price is observable. A price-based methodology utilizes, where available, quoted prices or other market information obtained from recent trading activity of assets with similar characteristics to the bond or loan being valued. The yields used in discounted cash flow models are derived from the same price information. Trading securities and loans priced using such methods are generally classified as Level 2. However, when less liquidity exists for a security or loan, a quoted price is stale, a significant adjustment to the price of a similar security or loan is necessary to reflect differences in the terms of the actual security or loan being valued, or prices from independent sources are insufficient to corroborate valuation, a loan or security is generally classified as Level 3. The price input used in a price-based methodology may be zero for a security, such as a subprime CDO, that is not receiving any principal or interest and is currently written down to zero.

When the Company's principal market for a portfolio of loans is the securitization market, the Company uses the securitization price to determine the fair value of the portfolio. The securitization price is determined from the assumed proceeds of a hypothetical securitization in the current market, adjusted for transformation costs (i.e., direct costs other than transaction costs) and securitization uncertainties such as market conditions and liquidity. As a result of the severe reduction in the level of activity in certain securitization markets since the second half of 2007, observable securitization prices for certain directly

comparable portfolios of loans have not been readily available. Therefore, such portfolios of loans are generally classified as Level 3 of the fair value hierarchy. However, for other loan securitization markets, such as commercial real estate loans, price verification of the hypothetical securitizations has been possible, since these markets have remained active. Accordingly, this loan portfolio is classified as Level 2 of the fair value hierarchy.

For most of the lending and structured direct subprime exposures, fair value is determined utilizing observable transactions where available, other market data for similar assets in markets that are not active and other internal valuation techniques. The valuation of certain asset-backed security (ABS) CDO positions utilizes prices based on the underlying assets of the ABS CDO.

Trading Account Assets and Liabilities—Derivatives

Exchange-traded derivatives, measured at fair value using quoted (i.e., exchange) prices in active markets, where available, are classified as Level 1 of the fair value hierarchy.

Derivatives without a quoted price in an active market and derivatives executed over the counter are valued using internal valuation techniques. These derivative instruments are classified as either Level 2 or Level 3 depending upon the observability of the significant inputs to the model.

The valuation techniques and inputs depend on the type of derivative and the nature of the underlying instrument. The principal techniques used to value these instruments are discounted cash flows and internal models, including Black-Scholes and Monte Carlo simulation.

The key inputs depend upon the type of derivative and the nature of the underlying instrument and include interest rate yield curves, foreign exchange rates, volatilities and correlation. The Company uses overnight indexed swap (OIS) curves as fair value measurement inputs for the valuation of certain collateralized derivatives. Citi uses the relevant benchmark curve for the currency of the derivative (e.g., the London Interbank Offered Rate for U.S. dollar derivatives) as the discount rate for uncollateralized derivatives.

As referenced above, during the third quarter of 2015, Citi incorporated FVA into the fair value measurements due to what it believes to be an industry migration toward incorporating the market's view of funding risk premium in OTC derivatives. The charge incurred in connection with the implementation of FVA was reflected in *Principal transactions* as a change in accounting estimate. Citi's FVA methodology leverages the existing CVA methodology to estimate a funding exposure profile. The calculation of this exposure profile considers collateral agreements where the terms do not permit the Company to reuse the collateral received, including where counterparties post collateral to third-party custodians.

Investments

The investments category includes available-for-sale debt and marketable equity securities whose fair values are generally determined by utilizing similar procedures described for trading securities above or, in some cases, using vendor pricing as the primary source.

Also included in investments are nonpublic investments in private equity and real estate entities. Determining the fair value of nonpublic securities involves a significant degree of management judgment, as no quoted prices exist and such securities are generally thinly traded. In addition, there may be transfer restrictions on private equity securities. The Company's process for determining the fair value of such securities utilizes commonly accepted valuation techniques, including comparables analysis. In determining the fair value of nonpublic securities, the Company also considers events such as a proposed sale of the investee company, initial public offerings, equity issuances or other observable transactions.

Private equity securities are generally classified as Level 3 of the fair value hierarchy.

In addition, the Company holds investments in certain alternative investment funds that calculate NAV per share, including hedge funds, private equity funds and real estate funds. Investments in funds are generally classified as non-marketable equity securities carried at fair value. The fair values of these investments are estimated using the NAV per share of the Company's ownership interest in the funds where it is not probable that the investment will be realized at a price other than the NAV. Consistent with the provisions of ASU No. 2015-07 these investments have not been categorized within the fair value hierarchy and are not included in the tables below. See Note 13 to the Consolidated Financial Statements for additional information.

Short-Term Borrowings and Long-Term Debt

Where fair value accounting has been elected, the fair value of non-structured liabilities is determined by utilizing internal models using the appropriate discount rate for the applicable maturity. Such instruments are generally classified as Level 2 of the fair value hierarchy when all significant inputs are readily observable.

The Company determines the fair value of hybrid financial instruments, including structured liabilities, using the appropriate derivative valuation methodology (described above in "Trading Account Assets and Liabilities—Derivatives") given the nature of the embedded risk profile. Such instruments are classified as Level 2 or Level 3 depending on the observability of significant inputs to the model.

Items Measured at Fair Value on a Recurring Basis

The following tables present for each of the fair value hierarchy levels the Company's assets and liabilities that are measured at fair value on a recurring basis at December 31, 2016 and December 31, 2015. The Company may hedge positions that have been classified in the Level 3 category with other financial instruments (hedging instruments) that may be

classified as Level 3, but also with financial instruments classified as Level 1 or Level 2 of the fair value hierarchy. The effects of these hedges are presented gross in the following tables:

Fair Value Levels

<i>In millions of dollars at December 31, 2016</i>	Level 1 ⁽¹⁾	Level 2 ⁽¹⁾	Level 3	Gross inventory	Netting ⁽²⁾	Net balance
Assets						
Federal funds sold and securities borrowed or purchased under agreements to resell	\$ —	\$ 172,394	\$ 1,496	\$ 173,890	\$ (40,686)	\$ 133,204
Trading non-derivative assets						
Trading mortgage-backed securities						
U.S. government-sponsored agency guaranteed	—	22,718	176	22,894	—	22,894
Residential	—	291	399	690	—	690
Commercial	—	1,000	206	1,206	—	1,206
Total trading mortgage-backed securities	\$ —	\$ 24,009	\$ 781	\$ 24,790	\$ —	\$ 24,790
U.S. Treasury and federal agency securities	\$ 17,756	\$ 3,423	\$ 1	\$ 21,180	\$ —	\$ 21,180
State and municipal	—	3,780	296	4,076	—	4,076
Foreign government	36,852	12,804	40	49,696	—	49,696
Corporate	424	14,199	324	14,947	—	14,947
Equity securities	45,331	4,985	127	50,443	—	50,443
Asset-backed securities	—	892	1,868	2,760	—	2,760
Other trading assets⁽³⁾	2	9,464	2,814	12,280	—	12,280
Total trading non-derivative assets	\$ 100,365	\$ 73,556	\$ 6,251	\$ 180,172	\$ —	\$ 180,172
Trading derivatives						
Interest rate contracts	\$ 105	\$ 366,995	\$ 2,225	\$ 369,325		
Foreign exchange contracts	53	184,776	833	185,662		
Equity contracts	2,306	21,209	595	24,110		
Commodity contracts	261	12,999	505	13,765		
Credit derivatives	—	23,021	1,594	24,615		
Total trading derivatives	\$ 2,725	\$ 609,000	\$ 5,752	\$ 617,477		
Cash collateral paid⁽⁴⁾				\$ 11,188		
Netting agreements					\$ (519,000)	
Netting of cash collateral received					(45,912)	
Total trading derivatives	\$ 2,725	\$ 609,000	\$ 5,752	\$ 628,665	\$ (564,912)	\$ 63,753
Investments						
Mortgage-backed securities						
U.S. government-sponsored agency guaranteed	\$ —	\$ 38,304	\$ 101	\$ 38,405	\$ —	\$ 38,405
Residential	—	3,860	50	3,910	—	3,910
Commercial	—	358	—	358	—	358
Total investment mortgage-backed securities	\$ —	\$ 42,522	\$ 151	\$ 42,673	\$ —	\$ 42,673
U.S. Treasury and federal agency securities	\$ 112,916	\$ 10,753	\$ 2	\$ 123,671	\$ —	\$ 123,671
State and municipal	—	8,909	1,211	10,120	—	10,120
Foreign government	54,028	43,934	186	98,148	—	98,148
Corporate	3,215	13,598	311	17,124	—	17,124
Equity securities	336	46	9	391	—	391
Asset-backed securities	—	6,134	660	6,794	—	6,794
Other debt securities	—	503	—	503	—	503
Non-marketable equity securities⁽⁵⁾	—	35	1,331	1,366	—	1,366
Total investments	\$ 170,495	\$ 126,434	\$ 3,861	\$ 300,790	\$ —	\$ 300,790

<i>In millions of dollars at December 31, 2016</i>	Level 1 ⁽¹⁾	Level 2 ⁽¹⁾	Level 3	Gross inventory	Netting ⁽²⁾	Net balance
Loans	\$ —	\$ 2,918	\$ 568	\$ 3,486	\$ —	\$ 3,486
Mortgage servicing rights	—	—	1,564	1,564	—	1,564
Non-trading derivatives and other financial assets measured on a recurring basis, gross	\$ 9,300	\$ 7,732	\$ 34	\$ 17,066		
Cash collateral paid⁽⁶⁾				8		
Netting of cash collateral received					\$ (1,345)	
Non-trading derivatives and other financial assets measured on a recurring basis	\$ 9,300	\$ 7,732	\$ 34	\$ 17,074	\$ (1,345)	\$ 15,729
Total assets	\$ 282,885	\$ 992,034	\$ 19,526	\$ 1,305,641	\$ (606,943)	\$ 698,698
Total as a percentage of gross assets⁽⁷⁾	21.9%	76.6%	1.5%			
Liabilities						
Interest-bearing deposits	\$ —	\$ 919	\$ 293	\$ 1,212	\$ —	\$ 1,212
Federal funds purchased and securities loaned or sold under agreements to repurchase	—	73,500	849	74,349	(40,686)	33,663
Trading account liabilities						
Securities sold, not yet purchased	\$ 73,782	\$ 5,831	\$ 1,177	\$ 80,790	\$ —	\$ 80,790
Other trading liabilities	—	1,827	1	1,828	—	1,828
Total trading liabilities	\$ 73,782	\$ 7,658	\$ 1,178	\$ 82,618	\$ —	\$ 82,618
Trading derivatives						
Interest rate contracts	\$ 107	\$ 351,766	\$ 2,888	\$ 354,761		
Foreign exchange contracts	13	187,328	420	187,761		
Equity contracts	2,245	22,119	2,152	26,516		
Commodity contracts	196	12,386	2,450	15,032		
Credit derivatives	—	22,842	2,595	25,437		
Total trading derivatives	\$ 2,561	\$ 596,441	\$ 10,505	\$ 609,507		
Cash collateral received⁽⁸⁾				\$ 15,731		
Netting agreements					\$ (519,000)	
Netting of cash collateral paid					(49,811)	
Total trading derivatives	\$ 2,561	\$ 596,441	\$ 10,505	\$ 625,238	\$ (568,811)	\$ 56,427
Short-term borrowings	\$ —	\$ 2,658	\$ 42	\$ 2,700	\$ —	\$ 2,700
Long-term debt	—	16,510	9,744	26,254	—	26,254
Non-trading derivatives and other financial liabilities measured on a recurring basis, gross	\$ 9,300	\$ 1,540	\$ 8	\$ 10,848		
Cash collateral received⁽⁹⁾				1		
Netting of cash collateral paid					\$ (53)	
Total non-trading derivatives and other financial liabilities measured on a recurring basis	\$ 9,300	\$ 1,540	\$ 8	\$ 10,849	\$ (53)	\$ 10,796
Total liabilities	\$ 85,643	\$ 699,226	\$ 22,619	\$ 823,220	\$ (609,550)	\$ 213,670
Total as a percentage of gross liabilities⁽⁷⁾	10.6%	86.6%	2.8%			

- (1) In 2016, the Company transferred assets of approximately \$2.6 billion from Level 1 to Level 2, respectively, primarily related to foreign government securities and equity securities not traded in active markets. In 2016, the Company transferred assets of approximately \$4.0 billion from Level 2 to Level 1, respectively, primarily related to foreign government bonds and equity securities traded with sufficient frequency to constitute a liquid market. In 2016, the Company transferred liabilities of approximately \$0.4 billion from Level 2 to Level 1. In 2016, the Company transferred liabilities of approximately \$0.3 billion from Level 1 to Level 2.
- (2) Represents netting of (i) the amounts due under securities purchased under agreements to resell and the amounts owed under securities sold under agreements to repurchase; and (ii) derivative exposures covered by a qualifying master netting agreement and cash collateral offsetting.
- (3) Includes positions related to investments in unallocated precious metals, as discussed in Note 25 to the Consolidated Financial Statements. Also includes physical commodities accounted for at the lower of cost or fair value and unfunded credit products.
- (4) Reflects the net amount of \$60,999 million of gross cash collateral paid, of which \$49,811 million was used to offset trading derivative liabilities.
- (5) Amounts exclude \$0.4 billion investments measured at Net Asset Value (NAV) in accordance with ASU No. 2015-07, *Fair Value Measurement (Topic 820): Disclosures for Investments in Certain Entities That Calculate Net Asset Value per Share (or Its Equivalent)*.
- (6) Reflects the net amount of \$61 million of gross cash collateral paid, of which \$53 million was used to offset non-trading derivative liabilities.
- (7) Because the amount of the cash collateral paid/received has not been allocated to the Level 1, 2 and 3 subtotals, these percentages are calculated based on total assets and liabilities measured at fair value on a recurring basis, excluding the cash collateral paid/received on derivatives.
- (8) Reflects the net amount of \$61,643 million of gross cash collateral received, of which \$45,912 million was used to offset trading derivative assets.

(9) Reflects the net amount of \$1,346 million of gross cash collateral received, of which \$1,345 million was used to offset non-trading derivatives.

Fair Value Levels

<i>In millions of dollars at December 31, 2015</i>	Level 1 ⁽¹⁾	Level 2 ⁽¹⁾	Level 3	Gross inventory	Netting ⁽²⁾	Net balance
Assets						
Federal funds sold and securities borrowed or purchased under agreements to resell	\$ —	\$ 177,538	\$ 1,337	\$ 178,875	\$ (40,911)	\$137,964
Trading non-derivative assets						
Trading mortgage-backed securities						
U.S. government-sponsored agency guaranteed	—	24,023	744	24,767	—	24,767
Residential	—	1,059	1,326	2,385	—	2,385
Commercial	—	2,338	517	2,855	—	2,855
Total trading mortgage-backed securities	\$ —	\$ 27,420	\$ 2,587	\$ 30,007	\$ —	\$ 30,007
U.S. Treasury and federal agency securities	\$ 14,208	\$ 3,587	\$ 1	\$ 17,796	\$ —	\$ 17,796
State and municipal	—	2,345	351	2,696	—	2,696
Foreign government	35,715	20,555	197	56,467	—	56,467
Corporate	302	13,901	376	14,579	—	14,579
Equity securities	41,688	2,382	3,684	47,754	—	47,754
Asset-backed securities	—	1,217	2,739	3,956	—	3,956
Other trading assets⁽⁹⁾	—	9,293	2,483	11,776	—	11,776
Total trading non-derivative assets	\$ 91,913	\$ 80,700	\$ 12,418	\$ 185,031	\$ —	\$185,031
Trading derivatives						
Interest rate contracts	\$ 9	\$ 412,802	\$ 2,083	\$ 414,894		
Foreign exchange contracts	5	128,189	1,123	129,317		
Equity contracts	2,422	17,866	1,597	21,885		
Commodity contracts	204	16,706	1,100	18,010		
Credit derivatives	—	31,082	3,793	34,875		
Total trading derivatives	\$ 2,640	\$ 606,645	\$ 9,696	\$ 618,981		
Cash collateral paid⁽³⁾				\$ 4,911		
Netting agreements					\$ (524,481)	
Netting of cash collateral received					(43,227)	
Total trading derivatives	\$ 2,640	\$ 606,645	\$ 9,696	\$ 623,892	\$ (567,708)	\$ 56,184
Investments						
Mortgage-backed securities						
U.S. government-sponsored agency guaranteed	\$ —	\$ 39,575	\$ 139	\$ 39,714	\$ —	\$ 39,714
Residential	—	5,982	4	5,986	—	5,986
Commercial	—	569	2	571	—	571
Total investment mortgage-backed securities	\$ —	\$ 46,126	\$ 145	\$ 46,271	\$ —	\$ 46,271
U.S. Treasury and federal agency securities	\$ 111,536	\$ 11,375	\$ 4	\$ 122,915	\$ —	\$122,915
State and municipal	—	9,267	2,192	11,459	—	11,459
Foreign government	42,073	46,341	260	88,674	—	88,674
Corporate	3,605	15,122	603	19,330	—	19,330
Equity securities	430	71	124	625	—	625
Asset-backed securities	—	8,578	596	9,174	—	9,174
Other debt securities	—	688	—	688	—	688
Non-marketable equity securities⁽⁴⁾	—	58	1,135	1,193	—	1,193
Total investments	\$ 157,644	\$ 137,626	\$ 5,059	\$ 300,329	\$ —	\$300,329

<i>In millions of dollars at December 31, 2015</i>	Level 1 ⁽¹⁾	Level 2 ⁽¹⁾	Level 3	Gross inventory	Netting ⁽²⁾	Net balance
Loans	\$ —	\$ 2,839	\$ 2,166	\$ 5,005	\$ —	\$ 5,005
Mortgage servicing rights	—	—	1,781	1,781	—	1,781
Non-trading derivatives and other financial assets measured on a recurring basis, gross	\$ 8,741	\$ 7,882	\$ 180	\$ 16,803		
Cash collateral paid⁽⁵⁾				8		
Netting of cash collateral received					\$ (1,949)	
Non-trading derivatives and other financial assets measured on a recurring basis	\$ 8,741	\$ 7,882	\$ 180	\$ 16,811	\$ (1,949)	\$ 14,862
Total assets	\$ 260,938	\$ 1,013,230	\$ 32,637	\$ 1,311,724	\$ (610,568)	\$ 701,156
Total as a percentage of gross assets⁽⁶⁾	20.0%	77.5%	2.5%			
Liabilities						
Interest-bearing deposits	\$ —	\$ 1,156	\$ 434	\$ 1,590	\$ —	\$ 1,590
Federal funds purchased and securities loaned or sold under agreements to repurchase	—	76,507	1,247	77,754	(40,911)	36,843
Trading account liabilities						
Securities sold, not yet purchased	48,452	9,176	199	57,827	—	57,827
Other trading liabilities	—	2,093	—	2,093	—	2,093
Total trading liabilities	\$ 48,452	\$ 11,269	\$ 199	\$ 59,920	\$ —	\$ 59,920
Trading account derivatives						
Interest rate contracts	\$ 5	\$ 393,321	\$ 2,578	\$ 395,904		
Foreign exchange contracts	6	133,404	503	133,913		
Equity contracts	2,244	21,875	2,397	26,516		
Commodity contracts	263	17,329	2,961	20,553		
Credit derivatives	—	30,682	3,486	34,168		
Total trading derivatives	\$ 2,518	\$ 596,611	\$ 11,925	\$ 611,054		
Cash collateral received⁽⁷⁾				\$ 13,628		
Netting agreements					\$ (524,481)	
Netting of cash collateral paid					(42,609)	
Total trading derivatives	\$ 2,518	\$ 596,611	\$ 11,925	\$ 624,682	\$ (567,090)	\$ 57,592
Short-term borrowings	\$ —	\$ 1,198	\$ 9	\$ 1,207	\$ —	\$ 1,207
Long-term debt	—	17,750	7,543	25,293	—	25,293
Non-trading derivatives and other financial liabilities measured on a recurring basis, gross	\$ 8,741	\$ 1,626	\$ 14	\$ 10,381		
Cash collateral received⁽⁸⁾				37		
Netting of cash collateral paid					\$ (53)	
Non-trading derivatives and other financial liabilities measured on a recurring basis	\$ 8,741	\$ 1,626	\$ 14	\$ 10,418	\$ (53)	\$ 10,365
Total liabilities	\$ 59,711	\$ 706,117	\$ 21,371	\$ 800,864	\$ (608,054)	\$ 192,810
Total as a percentage of gross liabilities⁽⁶⁾	7.6%	89.7%	2.7%			

- (1) In 2015, the Company transferred assets of approximately \$3.3 billion from Level 1 to Level 2, respectively, primarily related to foreign government securities and equity securities not traded in active markets. In 2015, the Company transferred assets of approximately \$4.4 billion from Level 2 to Level 1, respectively, primarily related to foreign government bonds and equity securities traded with sufficient frequency to constitute a liquid market. In 2015, the Company transferred liabilities of approximately \$0.6 billion from Level 2 to Level 1. In 2015, the Company transferred liabilities of approximately \$0.4 billion from Level 1 to Level 2.
- (2) Represents netting of (i) the amounts due under securities purchased under agreements to resell and the amounts owed under securities sold under agreements to repurchase; and (ii) derivative exposures covered by a qualifying master netting agreement and cash collateral offsetting.
- (3) Reflects the net amount of \$47,520 million of gross cash collateral paid, of which \$42,609 million was used to offset trading derivative liabilities.
- (4) Amounts exclude \$0.9 billion investments measured at Net Asset Value (NAV) in accordance with ASU No. 2015-07, *Fair Value Measurement (Topic 820): Disclosures for Investments in Certain Entities That Calculate Net Asset Value per Share (or Its Equivalent)*.
- (5) Reflects the net amount of \$61 million of gross cash collateral paid, of which \$53 million was used to offset non-trading derivative liabilities.
- (6) Because the amount of the cash collateral paid/received has not been allocated to the Level 1, 2 and 3 subtotals, these percentages are calculated based on total assets and liabilities measured at fair value on a recurring basis, excluding the cash collateral paid/received on derivatives.
- (7) Reflects the net amount of \$56,855 million of gross cash collateral received, of which \$43,227 million was used to offset trading derivative assets.
- (8) Reflects the net amount of \$1,986 million of gross cash collateral received, of which \$1,949 million was used to offset non-trading derivative assets.
- (9) Includes positions related to investments in unallocated precious metals, as discussed in Note 25 to the Consolidated Financial Statements. Also includes physical commodities accounted for at the lower of cost or fair value and unfunded credit products.

Changes in Level 3 Fair Value Category

The following tables present the changes in the Level 3 fair value category for the years ended December 31, 2016 and 2015. The gains and losses presented below include changes in the fair value related to both observable and unobservable inputs.

The Company often hedges positions with offsetting positions that are classified in a different level. For example, the gains and losses for assets and liabilities in the Level 3

category presented in the tables below do not reflect the effect of offsetting losses and gains on hedging instruments that may be classified in the Level 1 and Level 2 categories. In addition, the Company hedges items classified in the Level 3 category with instruments also classified in Level 3 of the fair value hierarchy. The hedged items and related hedges are presented gross in the following tables:

Level 3 Fair Value Rollforward

<i>In millions of dollars</i>	Dec. 31, 2015	Net realized/unrealized gains (losses) included in		Transfers		Purchases	Issuances	Sales	Settlements	Dec. 31, 2016	Unrealized gains (losses) still held ⁽³⁾
		Principal transactions	Other ⁽¹⁾⁽²⁾	into Level 3	out of Level 3						
Assets											
Federal funds sold and securities borrowed or purchased under agreements to resell	\$ 1,337	\$ (20)	\$ —	\$ —	\$ (28)	\$ 758	\$ —	\$ —	\$ (551)	\$ 1,496	\$ (16)
Trading non-derivative assets											
Trading mortgage-backed securities											
U.S. government-sponsored agency guaranteed	744	6	—	510	(1,087)	941	—	(961)	23	176	(7)
Residential	1,326	104	—	189	(162)	324	—	(1,376)	(6)	399	26
Commercial	517	(1)	—	193	(234)	759	—	(1,028)	—	206	(27)
Total trading mortgage-backed securities	\$ 2,587	\$ 109	\$ —	\$ 892	\$ (1,483)	\$ 2,024	\$ —	\$ (3,365)	\$ 17	\$ 781	\$ (8)
U.S. Treasury and federal agency securities	\$ 1	\$ —	\$ —	\$ 2	\$ —	\$ —	\$ —	\$ (2)	\$ —	\$ 1	\$ —
State and municipal	351	23	—	195	(256)	322	—	(339)	—	296	(88)
Foreign government	197	(9)	—	21	(49)	115	—	(235)	—	40	(16)
Corporate	376	330	—	171	(132)	867	—	(1,295)	7	324	69
Equity securities	3,684	(527)	—	279	(4,057)	955	(11)	(196)	—	127	(457)
Asset-backed securities	2,739	53	—	205	(360)	2,199	—	(2,965)	(3)	1,868	(46)
Other trading assets	2,483	(58)	—	2,070	(2,708)	2,894	19	(1,838)	(48)	2,814	(101)
Total trading non-derivative assets	\$ 12,418	\$ (79)	\$ —	\$ 3,835	\$ (9,045)	\$ 9,376	\$ 8	\$ (10,235)	\$ (27)	\$ 6,251	\$ (647)
Trading derivatives, net⁽⁴⁾											
Interest rate contracts	\$ (495)	\$ (146)	\$ —	\$ 301	\$ (239)	\$ 163	\$ (18)	\$ (142)	\$ (87)	\$ (663)	\$ 26
Foreign exchange contracts	620	(276)	—	75	(106)	200	—	(181)	81	413	23
Equity contracts	(800)	(89)	—	63	(772)	92	38	(128)	39	(1,557)	(33)
Commodity contracts	(1,861)	(352)	—	(425)	(39)	357	—	(347)	722	(1,945)	(164)
Credit derivatives	307	(1,970)	—	8	(29)	37	—	(34)	680	(1,001)	(1,854)
Total trading derivatives, net⁽⁴⁾	\$ (2,229)	\$ (2,833)	\$ —	\$ 22	\$ (1,185)	\$ 849	\$ 20	\$ (832)	\$ 1,435	\$ (4,753)	\$ (2,002)

In millions of dollars	Dec. 31, 2015	Net realized/unrealized gains (losses) included in		Transfers		Purchases	Issuances	Sales	Settlements	Dec. 31, 2016	Unrealized gains (losses) still held ⁽³⁾	
		Principal transactions	Other ⁽¹⁾⁽²⁾	into Level 3	out of Level 3							
Investments												
Mortgage-backed securities												
U.S. government-sponsored agency guaranteed	\$ 139	\$ —	\$ (26)	\$ 25	\$ (72)	\$ 45	\$ —	\$ (9)	\$ (1)	\$ 101	\$ 54	
Residential	4	—	3	49	—	26	—	(32)	—	50	2	
Commercial	2	—	(1)	6	(7)	—	—	—	—	—	—	
Total investment mortgage-backed securities	\$ 145	\$ —	\$ (24)	\$ 80	\$ (79)	\$ 71	\$ —	\$ (41)	\$ (1)	\$ 151	\$ 56	
U.S. Treasury and federal agency securities												
U.S. Treasury and federal agency securities	\$ 4	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ (2)	\$ —	\$ 2	\$ —	
State and municipal	2,192	—	39	467	(1,598)	351	—	(240)	—	1,211	23	
Foreign government	260	—	10	38	(39)	259	—	(339)	(3)	186	(104)	
Corporate	603	—	77	11	(240)	693	—	(468)	(365)	311	—	
Equity securities	124	—	10	5	(5)	1	—	(131)	5	9	—	
Asset-backed securities	596	—	(92)	7	(61)	435	—	(306)	81	660	(102)	
Other debt securities	—	—	—	10	—	6	—	(16)	—	—	—	
Non-marketable equity securities	1,135	—	79	336	(32)	26	—	(14)	(199)	1,331	18	
Total investments	\$ 5,059	\$ —	\$ 99	\$ 954	\$ (2,054)	\$ 1,842	\$ —	\$ (1,557)	\$ (482)	\$ 3,861	\$ (109)	
Loans												
Loans	\$ 2,166	\$ —	\$ (61)	\$ 89	\$ (1,074)	\$ 708	\$ 219	\$ (813)	\$ (666)	\$ 568	\$ 26	
Mortgage servicing rights	1,781	—	(36)	—	—	—	152	(20)	(313)	1,564	(21)	
Other financial assets measured on a recurring basis	180	—	80	55	(47)	1	236	(133)	(338)	34	39	
Liabilities												
Interest-bearing deposits	\$ 434	\$ —	\$ 43	\$ 322	\$ (309)	\$ —	\$ 5	\$ —	\$ (116)	\$ 293	\$ 46	
Federal funds purchased and securities loaned or sold under agreements to repurchase	1,247	(6)	—	—	(150)	—	—	27	(281)	849	(12)	
Trading account liabilities												
Securities sold, not yet purchased	199	17	—	1,185	(109)	(70)	(41)	367	(337)	1,177	(43)	
Other trading liabilities	—	—	—	1	—	—	—	—	—	1	—	
Short-term borrowings	9	(16)	—	19	(37)	—	87	—	(52)	42	—	
Long-term debt	7,543	(282)	—	3,792	(4,350)	—	4,845	(3)	(2,365)	9,744	(419)	
Other financial liabilities measured on a recurring basis	14	—	(11)	2	(12)	(8)	12	—	(11)	8	(13)	

- (1) Changes in fair value for available-for-sale investments are recorded in AOCI, unless related to other-than-temporary impairment, while gains and losses from sales are recorded in *Realized gains (losses) from sales of investments* on the Consolidated Statement of Income.
- (2) Unrealized gains (losses) on MSR are recorded in *Other revenue* on the Consolidated Statement of Income.
- (3) Represents the amount of total gains or losses for the period, included in earnings (and AOCI for changes in fair value of available-for-sale investments), attributable to the change in fair value relating to assets and liabilities classified as Level 3 that are still held at December 31, 2016.
- (4) Total Level 3 trading derivative assets and liabilities have been netted in these tables for presentation purposes only.

<i>In millions of dollars</i>	Dec. 31, 2014	Net realized/unrealized gains (losses) included in		Transfers		Purchases	Issuances	Sales	Settlements	Dec. 31, 2015	Unrealized gains (losses) still held ⁽³⁾
		Principal transactions	Other ⁽¹⁾⁽²⁾	into Level 3	out of Level 3						
Assets											
Federal funds sold and securities borrowed or purchased under agreements to resell	\$ 3,398	\$ (147)	\$ —	\$ 279	\$ (2,856)	\$ 784	\$ —	\$ —	\$ (121)	\$ 1,337	\$ (5)
Trading non-derivative assets											
Trading mortgage-backed securities											
U.S. government-sponsored agency guaranteed	1,085	24	—	872	(1,277)	796	—	(756)	—	744	(4)
Residential	2,680	254	—	370	(480)	1,574	—	(3,072)	—	1,326	(101)
Commercial	440	18	—	252	(157)	697	—	(733)	—	517	(7)
Total trading mortgage-backed securities	\$ 4,205	\$ 296	\$ —	\$ 1,494	\$ (1,914)	\$ 3,067	\$ —	\$ (4,561)	\$ —	\$ 2,587	\$ (112)
U.S. Treasury and federal agency securities	\$ —	\$ —	\$ —	\$ 2	\$ (1)	\$ 1	\$ —	\$ (1)	\$ —	\$ 1	\$ —
State and municipal	241	—	—	67	(35)	183	—	(105)	—	351	(7)
Foreign government	206	(10)	—	53	(100)	271	—	(169)	(54)	197	6
Corporate	820	111	—	186	(288)	802	—	(1,244)	(11)	376	(29)
Equity securities	2,219	547	—	344	(371)	1,377	—	(432)	—	3,684	464
Asset-backed securities	3,294	141	—	663	(282)	4,426	—	(5,503)	—	2,739	(174)
Other trading assets	4,372	180	—	968	(3,290)	2,504	51	(2,110)	(192)	2,483	(45)
Total trading non-derivative assets	\$ 15,357	\$ 1,265	\$ —	\$ 3,777	\$ (6,281)	\$ 12,631	\$ 51	\$ (14,125)	\$ (257)	\$ 12,418	\$ 103
Trading derivatives, net⁽⁴⁾											
Interest rate contracts	\$ (211)	\$ (492)	\$ —	\$ (124)	\$ 15	\$ 24	\$ —	\$ 141	\$ 152	\$ (495)	\$ 553
Foreign exchange contracts	778	(245)	—	(11)	27	393	—	(381)	59	620	(12)
Equity contracts	(863)	148	—	(126)	66	496	—	(334)	(187)	(800)	41
Commodity contracts	(1,622)	(753)	—	214	(28)	—	—	—	328	(1,861)	(257)
Credit derivatives	(743)	555	—	9	61	1	—	(3)	427	307	442
Total trading derivatives, net⁽⁴⁾	\$ (2,661)	\$ (787)	\$ —	\$ (38)	\$ 141	\$ 914	\$ —	\$ (577)	\$ 779	\$ (2,229)	\$ 767
Investments											
Mortgage-backed securities											
U.S. government-sponsored agency guaranteed	\$ 38	\$ —	\$ 29	\$ 171	\$ (118)	\$ 62	\$ —	\$ (43)	\$ —	\$ 139	\$ (2)
Residential	8	—	(1)	4	—	11	—	(18)	—	4	—
Commercial	1	—	—	4	(3)	—	—	—	—	2	—
Total investment mortgage-backed securities	\$ 47	\$ —	\$ 28	\$ 179	\$ (121)	\$ 73	\$ —	\$ (61)	\$ —	\$ 145	\$ (2)
U.S. Treasury and federal agency securities	\$ 6	\$ —	\$ —	\$ —	\$ —	\$ 6	\$ —	\$ (8)	\$ —	\$ 4	\$ —
State and municipal	2,180	—	(23)	834	(721)	842	—	(671)	(249)	2,192	9
Foreign government	678	—	45	(5)	(270)	601	—	(519)	(270)	260	(1)
Corporate	672	—	(7)	15	(52)	144	—	(134)	(35)	603	(4)
Equity securities	681	—	(22)	12	(14)	7	—	(540)	—	124	(120)
Asset-backed securities	549	—	(17)	45	(58)	202	—	(125)	—	596	14
Other debt securities	—	—	—	—	—	10	—	(10)	—	—	—
Non-marketable equity securities	1,460	—	(50)	76	6	5	—	(58)	(304)	1,135	26
Total investments	\$ 6,273	\$ —	\$ (46)	\$ 1,156	\$ (1,230)	\$ 1,890	\$ —	\$ (2,126)	\$ (858)	\$ 5,059	\$ (78)

In millions of dollars	Dec. 31, 2014	Net realized/unrealized gains (losses) included in		Transfers		Purchases	Issuances	Sales	Settlements	Dec. 31, 2015	Unrealized gains (losses) still held ⁽³⁾
		Principal transactions	Other ⁽¹⁾⁽²⁾	into Level 3	out of Level 3						
Loans	\$ 3,108	\$ —	\$ (303)	\$ 689	\$ (805)	\$ 1,190	\$ 461	\$ (807)	\$ (1,367)	\$ 2,166	\$ 24
Mortgage servicing rights	1,845	—	110	—	—	—	214	(38)	(350)	1,781	(390)
Other financial assets measured on a recurring basis	78	—	100	201	(66)	6	208	(85)	(262)	180	582
Liabilities											
Interest-bearing deposits	\$ 486	\$ —	\$ 10	\$ 1	\$ (1)	\$ —	\$ 36	\$ —	\$ (78)	\$ 434	\$ (154)
Federal funds purchased and securities loaned or sold under agreements to repurchase	1,043	(23)	—	—	—	—	—	302	(121)	1,247	134
Trading account liabilities											
Securities sold, not yet purchased	424	88	—	311	(231)	—	—	385	(602)	199	(25)
Other trading liabilities	—	—	—	—	—	—	—	—	—	—	—
Short-term borrowings	344	11	—	23	(30)	—	1	—	(318)	9	(4)
Long-term debt	7,290	539	—	2,903	(3,958)	—	3,407	—	(1,560)	7,543	(347)
Other financial liabilities measured on a recurring basis	7	—	(11)	10	(4)	(5)	5	2	(12)	14	(4)

- (1) Changes in fair value of available-for-sale investments are recorded in AOCI, unless related to other-than-temporary impairment, while gains and losses from sales are recorded in *Realized gains (losses) from sales of investments* on the Consolidated Statement of Income.
- (2) Unrealized gains (losses) on MSRs are recorded in *Other revenue* on the Consolidated Statement of Income.
- (3) Represents the amount of total gains or losses for the period, included in earnings (and AOCI for changes in fair value of available-for-sale investments), attributable to the change in fair value relating to assets and liabilities classified as Level 3 that are still held at December 31, 2015.
- (4) Total Level 3 derivative assets and liabilities have been netted in these tables for presentation purposes only.

Level 3 Fair Value Rollforward

The following were the significant Level 3 transfers for the period December 31, 2015 to December 31, 2016:

- Transfers of Equity securities of \$4.0 billion from Level 3 to Level 2 included \$3.2 billion of non-marketable equity securities and \$0.5 billion of related partial economic hedging derivatives for which the portfolio valuation measurement exception under ASC 820-35-18D has been applied. After application of the portfolio exception, the Company considers these items to be one valuation unit and measures the fair value of the net open risk position primarily based on recent market transactions where these instruments are traded concurrently. Because the derivatives offset the significant unobservable exposure within the non-marketable equity securities, there were no remaining unobservable inputs deemed to be significant.
- Transfers of U.S. government-sponsored agency guaranteed MBS in *Trading account assets* of \$0.5 billion from Level 2 to Level 3, and of \$1.1 billion from Level 3 to Level 2 primarily related to Agency Guaranteed MBS securities for which there were changes in volume of market quotations.
- Transfers of other trading assets of \$2.1 billion from Level 2 to Level 3, and of \$2.7 billion from Level 3 to Level 2 primarily related to trading loans for which there were changes in volume of market quotations.
- Transfers of *Long-term debt* of \$3.8 billion from Level 2 to Level 3, and of \$4.4 billion from Level 3 to Level 2, mainly related to structured debt, reflecting changes in the significance of unobservable inputs as well as certain

underlying market inputs becoming less or more observable.

The following were the significant Level 3 transfers for the period December 31, 2014 to December 31, 2015:

- Transfers of *Federal funds sold and securities borrowed or purchased under agreements to resell* of \$2.9 billion from Level 3 to Level 2 related to shortening of the remaining tenor of certain reverse repos. There is more transparency and observability for repo curves used in the valuation of structured reverse repos with tenors up to five years; thus, these positions are generally classified as Level 2.
- Transfers of U.S. government-sponsored agency guaranteed MBS in *Trading account assets* of \$0.9 billion from Level 2 to Level 3, and of \$1.3 billion from Level 3 to Level 2 primarily related to changes in observability due to market trading activity.
- Transfers of other trading assets of \$1.0 billion from Level 2 to Level 3, and of \$3.3 billion from Level 3 to Level 2 primarily related to trading loans for which there were changes in volume of and transparency into market quotations.
- Transfers of *Long-term debt* of \$2.9 billion from Level 2 to Level 3, and of \$4.0 billion from Level 3 to Level 2, mainly related to structured debt, reflecting certain unobservable inputs becoming less significant and certain underlying market inputs being more observable.

Valuation Techniques and Inputs for Level 3 Fair Value Measurements

The Company's Level 3 inventory consists of both cash instruments and derivatives of varying complexity. The valuation methodologies used to measure the fair value of these positions include discounted cash flow analysis, internal models and comparative analysis. A position is classified within Level 3 of the fair value hierarchy when at least one input is unobservable and is considered significant to its valuation. The specific reason an input is deemed unobservable varies. For example, at least one significant input to the pricing model is not observable in the market, at

least one significant input has been adjusted to make it more representative of the position being valued, or the price quote available does not reflect sufficient trading activities.

The following tables present the valuation techniques covering the majority of Level 3 inventory and the most significant unobservable inputs used in Level 3 fair value measurements. Differences between this table and amounts presented in the Level 3 Fair Value Rollforward table represent individually immaterial items that have been measured using a variety of valuation techniques other than those listed.

Valuation Techniques and Inputs for Level 3 Fair Value Measurements

<i>As of December 31, 2016</i>	Fair value⁽¹⁾ <i>(in millions)</i>	Methodology	Input	Low⁽²⁾⁽³⁾	High⁽²⁾⁽³⁾	Weighted average⁽⁴⁾
Assets						
Federal funds sold and securities borrowed or purchased under agreements to resell	\$ 1,496	Model-based	IR log-normal volatility	12.86 %	75.50 %	61.73 %
			Interest rate	(0.51)%	5.76 %	2.80 %
Mortgage-backed securities	\$ 509	Price-based	Price	\$ 5.50	\$ 113.48	\$ 61.74
	368	Yield analysis	Yield	1.90 %	14.54 %	4.34 %
State and municipal, foreign government, corporate and other debt securities	\$ 3,308	Price-based	Price	\$ 15.00	\$ 103.60	\$ 89.93
	1,513	Cash flow	Credit spread	35 bps	600 bps	230 bps
Equity securities⁽⁵⁾	\$ 69	Model-based	Price	\$ 0.48	\$ 104.00	\$ 22.19
	58	Price-based				
Asset-backed securities	\$ 2,454	Price-based	Price	\$ 4.00	\$ 100.00	\$ 71.51
Non-marketable equity	\$ 726	Price-based	Discount to price	— %	90.00 %	13.36 %
	565	Comparables analysis	EBITDA multiples	6.80x	10.10x	8.62x
			Price-to-book ratio	0.32 %	1.03 %	0.87 %
			Price	\$ —	\$ 113.23	\$ 54.40
Derivatives—gross⁽⁶⁾						
Interest rate contracts (gross)	\$ 4,897	Model-based	IR log-normal volatility	1.00 %	93.97 %	62.72 %
			Mean reversion	1.00 %	20.00 %	10.50 %
Foreign exchange contracts (gross)	\$ 1,110	Model-based	Foreign exchange (FX) volatility	1.39 %	26.85 %	15.18 %
	134	Cash flow	Interest rate	(0.85)%	(0.49)%	(0.84)%
			Credit spread	4 bps	657 bps	266 bps
			IR-IR correlation	40.00 %	50.00 %	41.27 %
			IR-FX correlation	16.41 %	60.00 %	49.52 %
Equity contracts (gross) ⁽⁷⁾	\$ 2,701	Model-based	Equity volatility	3.00 %	97.78 %	29.52 %
			Forward Price	69.05 %	144.61 %	94.28 %
			Equity-FX correlation	(60.70)%	28.20 %	(26.28)%
			Equity-IR correlation	(35.00)%	41.00 %	(15.65)%
			Yield Volatility	3.55 %	14.77 %	9.29 %
			Equity-equity correlation	(87.70)%	96.50 %	67.45 %
Commodity contracts (gross)	\$ 2,955	Model-based	Forward price	35.74 %	235.35 %	119.99 %
			Commodity volatility	2.00 %	32.19 %	17.07 %
			Commodity correlation	(41.61)%	90.42 %	52.85 %

<i>As of December 31, 2016</i>	Fair value ⁽¹⁾ <i>(in millions)</i>	Methodology	Input	Low ⁽²⁾⁽³⁾	High ⁽²⁾⁽³⁾	Weighted average ⁽⁴⁾		
Credit derivatives (gross)	\$ 2,786	Model-based	Recovery rate	20.00 %	75.00 %	39.75 %		
			1,403	Price-based	Credit correlation	5.00 %	90.00 %	34.27 %
					Upfront Points	6.00 %	99.90 %	72.89 %
					Price	\$ 1.00	\$ 167.00	\$ 77.35
					Credit spread	3 bps	1,515 bps	256 bps
Nontrading derivatives and other financial assets and liabilities measured on a recurring basis (gross) ⁽⁶⁾	\$ 42	Model-based	Recovery rate	40.00 %	40.00 %	40.00 %		
					Redemption rate	3.92 %	99.58 %	74.69 %
					Upfront Points	16.00 %	20.50 %	18.78 %
Loans	\$ 258	Price-based	Price	\$31.55	\$105.74	\$56.46		
		221	Yield Analysis	Yield	2.75 %	20.00 %	11.09 %	
	79	Model-based						
Mortgage servicing rights	\$ 1,473	Cash flow	Yield	4.20 %	20.56 %	9.32 %		
					WAL	3.53 years	7.24 years	5.83 years
Liabilities								
Interest-bearing deposits	\$ 293	Model-based	Mean Reversion	1.00 %	20.00 %	10.50 %		
					Forward price	98.79 %	104.07 %	100.19 %
Federal funds purchased and securities loaned or sold under agreements to repurchase	\$ 849	Model-based	Interest rate	0.62 %	2.19 %	1.99 %		
Trading account liabilities								
Securities sold, not yet purchased	\$ 1,056	Model-based	IR Normal Volatility	12.86 %	75.50 %	61.73 %		
Short-term borrowings and long-term debt	\$ 9,774	Model-based	Mean reversion	1.00 %	20.00 %	10.50 %		
					Commodity Correlation	(41.61)%	90.42 %	52.85 %
					Commodity Volatility	2.00 %	32.19 %	17.07 %
					Forward price	69.05 %	235.35 %	103.28 %

<i>As of December 31, 2015</i>	Fair value ⁽¹⁾ <i>(in millions)</i>	Methodology	Input	Low ⁽²⁾⁽³⁾	High ⁽²⁾⁽³⁾	Weighted average ⁽⁴⁾	
Assets							
Federal funds sold and securities borrowed or purchased under agreements to resell	\$ 1,337	Model-based	IR log-normal volatility	29.02 %	137.02 %	37.90 %	
					Interest rate	— %	2.03 %
Mortgage-backed securities	\$ 1,287	Price-based	Price	\$ 3.45	\$ 109.21	\$ 78.25	
	1,377	Yield analysis	Yield	0.50 %	14.07 %	4.83 %	
State and municipal, foreign government, corporate and other debt securities	\$ 3,761	Price-based	Price	\$ —	\$ 217.00	\$ 79.41	
	1,719	Cash flow	Credit spread	20 bps	600 bps	251 bps	
Equity securities ⁽⁵⁾	\$ 3,499	Model-based	WAL	1.5 years	1.5 years	1.5 years	
					Redemption rate	41.21 %	41.21 %
Asset-backed securities	\$ 3,075	Price-based	Price	\$ 5.55	\$ 100.21	\$ 71.57	
Non-marketable equity	\$ 633	Comparables analysis	EBITDA multiples	6.80x	10.80x	9.05x	
		473	Price-based	Discount to price	— %	90.00 %	10.89 %
				Price-to-book ratio	0.19x	1.09x	0.60x
			Price	\$ —	\$ 132.78	\$ 46.66	
Derivatives—gross⁽⁶⁾							
Interest rate contracts (gross)	\$ 4,553	Model-based	IR log-normal volatility	17.41 %	137.02 %	37.60 %	
					Mean reversion	(5.52) %	20.00 %

<i>As of December 31, 2015</i>	Fair value ⁽¹⁾ (in millions)	Methodology	Input	Low ⁽²⁾⁽³⁾	High ⁽²⁾⁽³⁾	Weighted average ⁽⁴⁾		
Foreign exchange contracts (gross)	\$ 1,326	Model-based	Foreign exchange (FX) volatility	0.38 %	25.73 %	11.63 %		
			Cash flow	Interest rate	7.50 %	7.50 %	7.50 %	
			Forward price	1.48 %	138.09 %	56.80 %		
			Credit spread	3 bps	515 bps	235 bps		
			IR-IR correlation	(51.00)%	77.94 %	32.91 %		
			IR-FX correlation	(20.30)%	60.00 %	48.85 %		
Equity contracts (gross) ⁽⁷⁾	\$ 3,976	Model-based	Equity volatility	11.87 %	49.57 %	27.33 %		
			Equity-FX correlation	(88.17)%	65.00 %	(21.09)%		
			Equity forward	82.72 %	100.53 %	95.20 %		
			Equity-equity correlation	(80.54)%	100.00 %	49.54 %		
Commodity contracts (gross)	\$ 4,061	Model-based	Forward price	35.09 %	299.32 %	112.98 %		
			Commodity volatility	5.00 %	83.00 %	24.00 %		
			Commodity correlation	(57.00)%	91.00 %	30.00 %		
Credit derivatives (gross)	\$ 5,849	Model-based	Recovery rate	1.00 %	75.00 %	32.49 %		
			1,424	Price-based	Credit correlation	5.00 %	90.00 %	43.48 %
					Price	\$ 0.33	\$ 101.00	\$ 61.52
			Credit spread	1 bps	967 bps	133 bps		
Upfront points	7.00 %	99.92 %	66.75 %					
Nontrading derivatives and other financial assets and liabilities measured on a recurring basis (gross) ⁽⁶⁾	\$ 194	Model-based	Recovery rate	7.00 %	40.00 %	10.72 %		
			Redemption rate	27.00 %	99.50 %	74.80 %		
			Interest rate	5.26 %	5.28 %	5.27 %		
Loans	\$ 750	Price-based	Yield	1.50 %	4.50 %	2.52 %		
			892	Model-based	Price	\$ —	\$ 106.98	\$ 40.69
					Cash flow	Credit spread	29 bps	500 bps
Mortgage servicing rights	\$ 1,690	Cash flow	Yield	— %	23.32 %	6.83 %		
			WAL	3.38 years	7.48 years	5.50 years		
Liabilities								
Interest-bearing deposits	\$ 434	Model-based	Equity-IR correlation	23.00 %	39.00 %	34.51 %		
			Forward price	35.09 %	299.32 %	112.72 %		
			Commodity correlation	(57.00)%	91.00 %	30.00 %		
			Commodity volatility	5.00 %	83.00 %	24.00 %		
Federal funds purchased and securities loaned or sold under agreements to repurchase	\$ 1,245	Model-based	Interest rate	1.27 %	2.02 %	1.92 %		
Trading account liabilities								
Securities sold, not yet purchased	\$ 152	Price-based	Price	\$ —	\$ 217.00	\$ 87.78		
Short-term borrowings and long-term debt	\$ 7,004	Model-based	Mean reversion	(5.52)%	20.00 %	7.80 %		
			Equity volatility	9.55 %	42.56 %	22.26 %		
			Equity forward	82.72 %	100.80 %	94.48 %		
			Equity-equity correlation	(80.54)%	100.00 %	49.16 %		
			Forward price	35.09 %	299.32 %	106.32 %		
			Equity-FX correlation	(88.20)%	56.85 %	(31.76)%		

(1) The fair value amounts presented in these tables represent the primary valuation technique or techniques for each class of assets or liabilities.

(2) Some inputs are shown as zero due to rounding.

(3) When the low and high inputs are the same, there is either a constant input applied to all positions, or the methodology involving the input applies to only one large position.

(4) Weighted averages are calculated based on the fair values of the instruments.

(5) For equity securities, the price and fund NAV inputs are expressed on an absolute basis, not as a percentage of the notional amount.

(6) Both trading and nontrading account derivatives—assets and liabilities—are presented on a gross absolute value basis.

(7) Includes hybrid products.

Sensitivity to Unobservable Inputs and Interrelationships between Unobservable Inputs

The impact of key unobservable inputs on the Level 3 fair value measurements may not be independent of one another. In addition, the amount and direction of the impact on a fair value measurement for a given change in an unobservable input depends on the nature of the instrument as well as whether the Company holds the instrument as an asset or a liability. For certain instruments, the pricing, hedging and risk management are sensitive to the correlation between various inputs rather than on the analysis and aggregation of the individual inputs.

The following section describes the sensitivities and interrelationships of the most significant unobservable inputs used by the Company in Level 3 fair value measurements.

Correlation

Correlation is a measure of the extent to which two or more variables change in relation to each other. A variety of correlation-related assumptions are required for a wide range of instruments, including equity and credit baskets, foreign-exchange options, CDOs backed by loans or bonds, mortgages, subprime mortgages and many other instruments. For almost all of these instruments, correlations are not observable in the market and must be calculated using historical information. Estimating correlation can be especially difficult where it may vary over time. Calculating correlation information from market data requires significant assumptions regarding the informational efficiency of the market (for example, swaption markets). Changes in correlation levels can have a major impact, favorable or unfavorable, on the value of an instrument, depending on its nature. A change in the default correlation of the fair value of the underlying bonds comprising a CDO structure would affect the fair value of the senior tranche. For example, an increase in the default correlation of the underlying bonds would reduce the fair value of the senior tranche, because highly correlated instruments produce larger losses in the event of default and a part of these losses would become attributable to the senior tranche. That same change in default correlation would have a different impact on junior tranches of the same structure.

Volatility

Volatility represents the speed and severity of market price changes and is a key factor in pricing options. Typically, instruments can become more expensive if volatility increases. For example, as an index becomes more volatile, the cost to Citi of maintaining a given level of exposure increases because more frequent rebalancing of the portfolio is required. Volatility generally depends on the tenor of the underlying instrument and the strike price or level defined in the contract. Volatilities for certain combinations of tenor and strike are not observable. The general relationship between changes in the value of a portfolio to changes in volatility also depends on changes in interest rates and the level of the underlying index. Generally, long option positions (assets) benefit from increases in volatility, whereas short option positions (liabilities) will suffer losses. Some instruments are more sensitive to changes in volatility than others. For example, an

at-the-money option would experience a larger percentage change in its fair value than a deep-in-the-money option. In addition, the fair value of an option with more than one underlying security (for example, an option on a basket of bonds) depends on the volatility of the individual underlying securities as well as their correlations.

Yield

In some circumstances, the yield of an instrument is not observable in the market and must be estimated from historical data or from yields of similar securities. This estimated yield may need to be adjusted to capture the characteristics of the security being valued. In other situations, the estimated yield may not represent sufficient market liquidity and must be adjusted as well. Whenever the amount of the adjustment is significant to the value of the security, the fair value measurement is classified as Level 3.

Adjusted yield is generally used to discount the projected future principal and interest cash flows on instruments, such as asset-backed securities. Adjusted yield is impacted by changes in the interest rate environment and relevant credit spreads.

Prepayment

Voluntary unscheduled payments (prepayments) change the future cash flows for the investor and thereby change the fair value of the security. The effect of prepayments is more pronounced for residential mortgage-backed securities. An increase in prepayments—in speed or magnitude—generally creates losses for the holder of these securities. Prepayment is generally negatively correlated with delinquency and interest rate. A combination of low prepayment and high delinquencies amplify each input's negative impact on mortgage securities' valuation. As prepayment speeds change, the weighted average life of the security changes, which impacts the valuation either positively or negatively, depending upon the nature of the security and the direction of the change in the weighted average life.

Recovery

Recovery is the proportion of the total outstanding balance of a bond or loan that is expected to be collected in a liquidation scenario. For many credit securities (such as asset-backed securities), there is no directly observable market input for recovery, but indications of recovery levels are available from pricing services. The assumed recovery of a security may differ from its actual recovery that will be observable in the future. The recovery rate impacts the valuation of credit securities. Generally, an increase in the recovery rate assumption increases the fair value of the security. An increase in loss severity, the inverse of the recovery rate, reduces the amount of principal available for distribution and, as a result, decreases the fair value of the security.

Credit Spread

Credit spread is a component of the security representing its credit quality. Credit spread reflects the market perception of changes in prepayment, delinquency and recovery rates, therefore capturing the impact of other variables on the fair value. Changes in credit spread affect the fair value of

securities differently depending on the characteristics and maturity profile of the security. For example, credit spread is a more significant driver of the fair value measurement of a high yield bond as compared to an investment grade bond. Generally, the credit spread for an investment grade bond is also more observable and less volatile than its high yield counterpart.

Qualitative Discussion of the Ranges of Significant Unobservable Inputs

The following section describes the ranges of the most significant unobservable inputs used by the Company in Level 3 fair value measurements. The level of aggregation and the diversity of instruments held by the Company lead to a wide range of unobservable inputs that may not be evenly distributed across the Level 3 inventory.

Correlation

There are many different types of correlation inputs, including credit correlation, cross-asset correlation (such as equity-interest rate correlation), and same-asset correlation (such as interest rate-interest rate correlation). Correlation inputs are generally used to value hybrid and exotic instruments. Generally, same-asset correlation inputs have a narrower range than cross-asset correlation inputs. However, due to the complex and unique nature of these instruments, the ranges for correlation inputs can vary widely across portfolios.

Volatility

Similar to correlation, asset-specific volatility inputs vary widely by asset type. For example, ranges for foreign exchange volatility are generally lower and narrower than equity volatility. Equity volatilities are wider due to the nature of the equities market and the terms of certain exotic instruments. For most instruments, the interest rate volatility input is on the lower end of the range; however, for certain structured or exotic instruments (such as market-linked deposits or exotic interest rate derivatives), the range is much wider.

Yield

Ranges for the yield inputs vary significantly depending upon the type of security. For example, securities that typically have lower yields, such as municipal bonds, will fall on the lower end of the range, while more illiquid securities or securities with lower credit quality, such as certain residual tranche asset-backed securities, will have much higher yield inputs.

Credit Spread

Credit spread is relevant primarily for fixed income and credit instruments; however, the ranges for the credit spread input can vary across instruments. For example, certain fixed income instruments, such as certificates of deposit, typically have lower credit spreads, whereas certain derivative instruments with high-risk counterparties are typically subject to higher credit spreads when they are uncollateralized or have a longer tenor. Other instruments, such as credit default swaps, also have credit spreads that vary with the attributes of the

underlying obligor. Stronger companies have tighter credit spreads, and weaker companies have wider credit spreads.

Price

The price input is a significant unobservable input for certain fixed income instruments. For these instruments, the price input is expressed as a percentage of the notional amount, with a price of \$100 meaning that the instrument is valued at par. For most of these instruments, the price varies between zero to \$100, or slightly above \$100. Relatively illiquid assets that have experienced significant losses since issuance, such as certain asset-backed securities, are at the lower end of the range, whereas most investment grade corporate bonds will fall in the middle to the higher end of the range. For certain structured debt instruments with embedded derivatives, the price input may be above \$100 to reflect the embedded features of the instrument (for example, a step-up coupon or a conversion option).

The price input is also a significant unobservable input for certain equity securities; however, the range of price inputs varies depending on the nature of the position, the number of shares outstanding and other factors.

Mean Reversion

A number of financial instruments require an estimate of the rate at which the interest rate reverts to its long-term average. Changes in this estimate can significantly affect the fair value of these instruments. However, sometimes there are insufficient external market data to calibrate this parameter, especially when pricing more complex instruments. The level of mean reversion affects the correlation between short- and long-term interest rates. The fair values of more complex instruments, such as Bermudan swaptions (options with multiple exercise dates) and constant maturity spread options or structured debts with these embedded features, are more sensitive to the changes in this correlation as compared to less complex instruments, such as caps and floors.

Items Measured at Fair Value on a Nonrecurring Basis

Certain assets and liabilities are measured at fair value on a nonrecurring basis and therefore are not included in the tables above. These include assets measured at cost that have been written down to fair value during the periods as a result of an impairment. In addition, these assets include loans held-for-sale and other real estate owned that are measured at the lower of cost or market.

The following table presents the carrying amounts of all assets that were still held for which a nonrecurring fair value measurement was recorded:

<i>In millions of dollars</i>	Fair value	Level 2	Level 3
December 31, 2016			
Loans held-for-sale	\$ 5,802	\$ 3,389	\$ 2,413
Other real estate owned	75	15	60
Loans ⁽¹⁾	1,376	586	790
Total assets at fair value on a nonrecurring basis	\$ 7,253	\$ 3,990	\$ 3,263

<i>In millions of dollars</i>	Fair value	Level 2	Level 3
December 31, 2015			
Loans held-for-sale	\$ 10,326	\$ 6,752	\$ 3,574
Other real estate owned	107	15	92
Loans ⁽¹⁾	1,173	836	337
Total assets at fair value on a nonrecurring basis	\$ 11,606	\$ 7,603	\$ 4,003

(1) Represents impaired loans held for investment whose carrying amount is based on the fair value of the underlying collateral, primarily real estate secured loans.

The fair value of loans held-for-sale is determined where possible using quoted secondary-market prices. If no such quoted price exists, the fair value of a loan is determined using quoted prices for a similar asset or assets, adjusted for the specific attributes of that loan. Fair value for the other real estate owned is based on appraisals. For loans whose carrying amount is based on the fair value of the underlying collateral, the fair values depend on the type of collateral. Fair value of the collateral is typically estimated based on quoted market prices if available, appraisals or other internal valuation techniques.

Where the fair value of the related collateral is based on an unadjusted appraised value, the loan is generally classified as Level 2. Where significant adjustments are made to the appraised value, the loan is classified as Level 3. Additionally, for corporate loans, appraisals of the collateral are often based on sales of similar assets; however, because the prices of similar assets require significant adjustments to reflect the unique features of the underlying collateral, these fair value measurements are generally classified as Level 3.

Valuation Techniques and Inputs for Level 3 Nonrecurring Fair Value Measurements

The following tables present the valuation techniques covering the majority of Level 3 nonrecurring fair value measurements and the most significant unobservable inputs used in those measurements:

<i>As of December 31, 2016</i>	Fair value ⁽¹⁾ (in millions)	Methodology	Input	Low ⁽²⁾	High	Weighted average ⁽³⁾
Loans held-for-sale	\$ 2,413	Price-based	Price	\$ —	\$ 100.00	\$ 93.08
Other real estate owned	\$ 59	Price-based	Discount to price ⁽⁴⁾	0.34%	13.00%	3.10%
			Price	\$ 64.65	\$ 74.39	\$ 66.21
Loans⁽⁵⁾	\$ 431	Cashflow	Price	\$ 3.25	\$ 105.00	\$ 59.61
	197	Recovery Analysis	Forward Price	\$ 2.90	\$ 210.00	\$ 156.78
	135	Price-based	Discount to price ⁽⁴⁾	0.25%	13.00%	8.34%
			Appraised Value	\$ 25.80	\$ 26,400,000	\$ 6,462,735

<i>As of December 31, 2015</i>	Fair value ⁽¹⁾ (in millions)	Methodology	Input	Low ⁽²⁾	High	Weighted average ⁽³⁾
Loans held-for-sale	\$ 3,486	Price-based	Price	\$ —	\$ 100.00	\$ 81.05
Other real estate owned	90	Price-based	Discount to price ⁽⁴⁾	0.34%	13.00%	2.86%
	2		Appraised value	\$ —	\$ 8,518,230	\$ 3,813,045
Loans⁽⁵⁾	\$ 157	Recovery analysis	Recovery rate	11.79%	60.00%	23.49%
	87	Price-based	Discount to price ⁽⁴⁾	13.00%	34.00%	7.99%

(1) The fair value amounts presented in this table represent the primary valuation technique or techniques for each class of assets or liabilities.

(2) Some inputs are shown as zero due to rounding.

(3) Weighted averages are calculated based on the fair values of the instruments.

(4) Represents loans held for investment whose carrying amounts are based on the fair value of the underlying collateral.

(5) Includes estimated costs to sell.

Nonrecurring Fair Value Changes

The following table presents total nonrecurring fair value measurements for the period, included in earnings, attributable to the change in fair value relating to assets that were still held:

<i>In millions of dollars</i>	Year ended December 31, 2016
Loans held-for-sale	\$ (2)
Other real estate owned	(5)
Loans ⁽¹⁾	(105)
Total nonrecurring fair value gains (losses)	\$ (112)

<i>In millions of dollars</i>	Year ended December 31, 2015
Loans held-for-sale	\$ (79)
Other real estate owned	(17)
Loans ⁽¹⁾	(142)
Total nonrecurring fair value gains (losses)	\$ (238)

(1) Represents loans held for investment whose carrying amount is based on the fair value of the underlying collateral, primarily real estate loans.

Estimated Fair Value of Financial Instruments Not Carried at Fair Value

The following table presents the carrying value and fair value of Citigroup's financial instruments that are not carried at fair value. The table therefore excludes items measured at fair value on a recurring basis presented in the tables above.

The disclosure also excludes leases, affiliate investments, pension and benefit obligations, certain insurance contracts and tax-related items. Also, as required, the disclosure excludes the effect of taxes, any premium or discount that could result from offering for sale at one time the entire holdings of a particular instrument, excess fair value associated with deposits with no fixed maturity, and other expenses that would be incurred in a market transaction. In addition, the table excludes the values of non-financial assets and liabilities, as well as a wide range of franchise, relationship and intangible values, which are integral to a full assessment of Citigroup's financial position and the value of its net assets.

The fair value represents management's best estimates based on a range of methodologies and assumptions. The

carrying value of short-term financial instruments not accounted for at fair value, as well as receivables and payables arising in the ordinary course of business, approximates fair value because of the relatively short period of time between their origination and expected realization. Quoted market prices are used when available for investments and for liabilities, such as long-term debt not carried at fair value. For loans not accounted for at fair value, cash flows are discounted at quoted secondary market rates or estimated market rates if available. Otherwise, sales of comparable loan portfolios or current market origination rates for loans with similar terms and risk characteristics are used. Expected credit losses are either embedded in the estimated future cash flows or incorporated as an adjustment to the discount rate used. The value of collateral is also considered. For liabilities such as long-term debt not accounted for at fair value and without quoted market prices, market borrowing rates of interest are used to discount contractual cash flows.

<i>In billions of dollars</i>	December 31, 2016		Estimated fair value		
	Carrying value	Estimated fair value	Level 1	Level 2	Level 3
Assets					
Investments	\$ 52.1	\$ 52.0	\$ 0.8	\$ 48.6	\$ 2.6
Federal funds sold and securities borrowed or purchased under agreements to resell	103.6	103.6	—	98.5	5.1
Loans ⁽¹⁾⁽²⁾	607.0	604.5	—	7.0	597.5
Other financial assets ⁽²⁾⁽³⁾	215.2	215.9	8.2	153.6	54.1
Liabilities					
Deposits	\$ 928.2	\$ 927.6	\$ —	\$ 789.7	\$ 137.9
Federal funds purchased and securities loaned or sold under agreements to repurchase	108.2	108.2	—	107.8	0.4
Long-term debt ⁽⁴⁾	179.9	185.5	—	156.5	29.0
Other financial liabilities ⁽⁵⁾	115.3	115.3	—	16.2	99.1

<i>In billions of dollars</i>	December 31, 2015		Estimated fair value		
	Carrying value	Estimated fair value	Level 1	Level 2	Level 3
Assets					
Investments	\$ 41.7	\$ 42.0	\$ 3.5	\$ 36.4	\$ 2.1
Federal funds sold and securities borrowed or purchased under agreements to resell	81.7	81.7	—	77.4	4.3
Loans ⁽¹⁾⁽²⁾	597.5	599.4	—	6.0	593.4
Other financial assets ⁽²⁾⁽³⁾	186.5	187.2	6.9	126.2	54.1
Liabilities					
Deposits	\$ 906.3	\$ 896.7	\$ —	\$ 749.4	\$ 147.3
Federal funds purchased and securities loaned or sold under agreements to repurchase	109.7	109.7	—	109.4	0.3
Long-term debt ⁽⁴⁾	176.0	180.8	—	153.8	27.0
Other financial liabilities ⁽⁵⁾	97.6	97.6	—	18.0	79.6

(1) The carrying value of loans is net of the *Allowance for loan losses* of \$12.1 billion for December 31, 2016 and \$12.6 billion for December 31, 2015. In addition, the carrying values exclude \$1.9 billion and \$2.4 billion of lease finance receivables at December 31, 2016 and December 31, 2015, respectively.

- (2) Includes items measured at fair value on a nonrecurring basis.
- (3) Includes cash and due from banks, deposits with banks, brokerage receivables, reinsurance recoverable and other financial instruments included in *Other assets* on the Consolidated Balance Sheet, for all of which the carrying value is a reasonable estimate of fair value.
- (4) The carrying value includes long-term debt balances under qualifying fair value hedges.
- (5) Includes brokerage payables, short-term borrowings (carried at cost) and other financial instruments included in *Other liabilities* on the Consolidated Balance Sheet, for all of which the carrying value is a reasonable estimate of fair value.

Fair values vary from period to period based on changes in a wide range of factors, including interest rates, credit quality and market perceptions of value, and as existing assets and liabilities run off and new transactions are entered into. The estimated fair values of loans reflect changes in credit status since the loans were made, changes in interest rates in the case of fixed-rate loans, and premium values at origination of certain loans.

The estimated fair values of the Company's corporate unfunded lending commitments at December 31, 2016 and December 31, 2015 were liabilities of \$5.2 billion and \$7.0 billion, respectively, substantially all of which are classified as Level 3. The Company does not estimate the fair values of consumer unfunded lending commitments, which are generally cancelable by providing notice to the borrower.

25. FAIR VALUE ELECTIONS

Citi may elect to report most financial instruments and certain other items at fair value on an instrument-by-instrument basis with changes in fair value reported in earnings, other than DVA (see below). The election is made upon the initial recognition of an eligible financial asset, financial liability or firm commitment or when certain specified reconsideration events occur. The fair value election may not be revoked once an election is made. The changes in fair value are recorded in

current earnings, other than DVA, which from January 1, 2016 is reported in AOCI. Additional discussion regarding the applicable areas in which fair value elections were made is presented in Note 24 to the Consolidated Financial Statements.

The Company has elected fair value accounting for its mortgage servicing rights. See Note 21 to the Consolidated Financial Statements for further discussions regarding the accounting and reporting of MSRs.

The following table presents the changes in fair value of those items for which the fair value option has been elected:

<i>In millions of dollars</i>	Changes in fair value gains (losses) for the	
	years ended December 31,	
	2016	2015
Assets		
Federal funds sold and securities borrowed or purchased under agreements to resell selected portfolios of securities purchased under agreements to resell and securities borrowed	\$ (89)	\$ (153)
Trading account assets	404	(305)
Investments	(25)	57
Loans		
Certain corporate loans ⁽¹⁾	40	(192)
Certain consumer loans ⁽¹⁾	—	3
Total loans	\$ 40	\$ (189)
Other assets		
MSRs	\$ (36)	\$ 104
Certain mortgage loans held for sale ⁽²⁾	284	331
Other assets	376	—
Total other assets	\$ 624	\$ 435
Total assets	\$ 954	\$ (155)
Liabilities		
Interest-bearing deposits	\$ (50)	\$ (94)
Federal funds purchased and securities loaned or sold under agreements to repurchase selected portfolios of securities sold under agreements to repurchase and securities loaned	45	3
Trading account liabilities	105	(60)
Short-term borrowings	(61)	(59)
Long-term debt	(935)	343
Total liabilities	\$ (896)	\$ 133

(1) Includes mortgage loans held by mortgage loan securitization VIEs consolidated upon the adoption of ASC 810, *Consolidation* (SFAS 167), on January 1, 2010.

(2) Includes gains (losses) associated with interest rate lock-commitments for those loans that have been originated and elected under the fair value option.

Own Debt Valuation Adjustments (DVA)

Own debt valuation adjustments are recognized on Citi's liabilities for which the fair value option has been elected using Citi's credit spreads observed in the bond market. Among other variables, the fair value of liabilities for which the fair value option has been elected (other than non-recourse and similar liabilities) is impacted by the narrowing or widening of Citi's credit spreads. The estimated change in the fair value of these liabilities due to such changes in Citi's own credit spread (or instrument-specific credit risk) was a loss of \$538 million and a gain of \$367 million for the years ended December 31, 2016 and 2015, respectively. Changes in fair value resulting from changes in instrument-specific credit risk were estimated by incorporating Citi's current credit spreads observable in the bond market into the relevant valuation technique used to value each liability as described above. Effective January 1, 2016, changes in fair value of fair value option liabilities related to changes in Citi's own credit spreads (DVA) are reflected as a component of AOCI; previously these amounts were recognized in Citi's *Revenues* and *Net income* along with all other changes in fair value. See Note 1 to the Consolidated Financial Statements for additional information.

The Fair Value Option for Financial Assets and Financial Liabilities

Selected Portfolios of Securities Purchased Under Agreements to Resell, Securities Borrowed, Securities Sold Under Agreements to Repurchase, Securities Loaned and Certain Non-Collateralized Short-Term Borrowings

Citi elected the fair value option for certain portfolios of fixed-income securities purchased under agreements to resell and fixed-income securities sold under agreements to repurchase, securities borrowed, securities loaned, and certain non-collateralized short-term borrowings held primarily by broker-dealer entities in the United States, United Kingdom and Japan. In each case, the election was made because the related interest-rate risk is managed on a portfolio basis, primarily with offsetting derivative instruments that are accounted for at fair value through earnings.

The following table provides information about certain credit products carried at fair value:

<i>In millions of dollars</i>	December 31, 2016		December 31, 2015	
	Trading assets	Loans	Trading assets	Loans
Carrying amount reported on the Consolidated Balance Sheet	\$ 9,824	\$ 3,486	\$ 9,314	\$ 5,005
Aggregate unpaid principal balance in excess of fair value	758	18	980	280
Balance of non-accrual loans or loans more than 90 days past due	—	1	5	2
Aggregate unpaid principal balance in excess of fair value for non-accrual loans or loans more than 90 days past due	—	1	13	1

In addition to the amounts reported above, \$1,828 million and \$2,113 million of unfunded commitments related to certain credit products selected for fair value accounting were outstanding as of December 31, 2016 and 2015, respectively.

Changes in fair value for transactions in these portfolios are recorded in *Principal transactions*. The related interest revenue and interest expense are measured based on the contractual rates specified in the transactions and are reported as interest revenue and expense in the Consolidated Statement of Income.

Certain Loans and Other Credit Products

Citi has also elected the fair value option for certain other originated and purchased loans, including certain unfunded loan products, such as guarantees and letters of credit, executed by Citi's lending and trading businesses. None of these credit products are highly leveraged financing commitments. Significant groups of transactions include loans and unfunded loan products that are expected to be either sold or securitized in the near term, or transactions where the economic risks are hedged with derivative instruments, such as purchased credit default swaps or total return swaps where Citi pays the total return on the underlying loans to a third party. Citi has elected the fair value option to mitigate accounting mismatches in cases where hedge accounting is complex and to achieve operational simplifications. Fair value was not elected for most lending transactions across Citi.

Changes in the fair value of funded and unfunded credit products are classified in *Principal transactions* in Citi's Consolidated Statement of Income. Related interest revenue is measured based on the contractual interest rates and reported as *Interest revenue* on *Trading account assets* or loan interest depending on the balance sheet classifications of the credit products. The changes in fair value for the years ended

December 31, 2016 and 2015 due to instrument-specific credit risk totaled to a gain of \$76 million and a loss of \$221 million, respectively.

Certain Investments in Unallocated Precious Metals

Citi invests in unallocated precious metals accounts (gold, silver, platinum and palladium) as part of its commodity and foreign currency trading activities or to economically hedge certain exposures from issuing structured liabilities. Under ASC 815, the investment is bifurcated into a debt host contract and a commodity forward derivative instrument. Citi elects the fair value option for the debt host contract, and reports the debt host contract within *Trading account assets* on Citi's Consolidated Balance Sheet. The total carrying amount of debt host contracts across unallocated precious metals accounts was approximately \$0.6 billion and \$0.6 billion at December 31, 2016 and 2015, respectively. The amounts are expected to fluctuate based on trading activity in future periods.

As part of its commodity and foreign currency trading activities, Citi trades unallocated precious metals investments and executes forward purchase (and forward sale) derivative contracts with trading counterparties. When Citi sells an unallocated precious metals investment, Citi's receivable from its depository bank is repaid and Citi derecognizes its investment in the unallocated precious metal. The forward purchase (or sale) contract with the trading counterparty indexed to unallocated precious metals is accounted for as a derivative, at fair value through earnings. As of December 31, 2016, there were approximately \$17.2 billion and \$12.4 billion notional amounts of such forward purchase and forward sale derivative contracts outstanding, respectively.

Certain Investments in Private Equity and Real Estate Ventures and Certain Equity Method and Other Investments

Citi invests in private equity and real estate ventures for the purpose of earning investment returns and for capital appreciation. Citi has elected the fair value option for certain of these ventures, because such investments are considered similar to many private equity or hedge fund activities in Citi's investment companies, which are reported at fair value. The fair value option brings consistency in the accounting and evaluation of these investments. All investments (debt and equity) in such private equity and real estate entities are accounted for at fair value. These investments are classified as *Investments* on Citi's Consolidated Balance Sheet.

Changes in the fair values of these investments are classified in *Other revenue* in Citi's Consolidated Statement of Income.

Citi also elects the fair value option for certain non-marketable equity securities whose risk is managed with derivative instruments that are accounted for at fair value through earnings. These securities are classified as *Trading account assets* on Citi's Consolidated Balance Sheet. Changes in the fair value of these securities and the related derivative instruments are recorded in *Principal transactions*.

Certain Mortgage Loans Held for Sale (HFS)

Citi has elected the fair value option for certain purchased and originated prime fixed-rate and conforming adjustable-rate first mortgage loans HFS. These loans are intended for sale or securitization and are hedged with derivative instruments. Citi has elected the fair value option to mitigate accounting mismatches in cases where hedge accounting is complex and to achieve operational simplifications.

The following table provides information about certain mortgage loans HFS carried at fair value:

<i>In millions of dollars</i>	December 31, 2016	December 31, 2015
Carrying amount reported on the Consolidated Balance Sheet	\$ 915	\$ 745
Aggregate fair value in excess of unpaid principal balance	8	20
Balance of non-accrual loans or loans more than 90 days past due	—	—
Aggregate unpaid principal balance in excess of fair value for non-accrual loans or loans more than 90 days past due	—	—

The changes in the fair values of these mortgage loans are reported in *Other revenue* in Citi's Consolidated Statement of Income. There was no net change in fair value during the years ended December 31, 2016 and 2015 due to instrument-specific credit risk. Related interest income continues to be measured based on the contractual interest rates and reported as *Interest revenue* in the Consolidated Statement of Income.

Certain Structured Liabilities

Citi has elected the fair value option for certain structured liabilities whose performance is linked to structured interest rates, inflation, currency, equity, referenced credit or commodity risks. Citi elected the fair value option, because these exposures are considered to be trading-related positions and, therefore, are managed on a fair value basis. These positions will continue to be classified as debt, deposits or derivatives (*Trading account liabilities*) on Citi's Consolidated Balance Sheet according to their legal form.

The following table provides information about the carrying value of structured notes, disaggregated by type of embedded derivative instrument:

<i>In billions of dollars</i>	December 31, 2016	December 31, 2015
Interest rate linked	\$ 10.6	\$ 9.6
Foreign exchange linked	0.2	0.3
Equity linked	12.3	9.9
Commodity linked	0.3	1.4
Credit linked	0.9	1.6
Total	\$ 24.3	\$ 22.8

Prior to 2016, the total change in the fair value of these structured liabilities was reported in *Principal transactions* in Citi's Consolidated Statement of Income. Beginning in the first quarter of 2016, the portion of the changes in fair value attributable to changes in Citi's own credit spreads (DVA) are reflected as a component of AOCI while all other changes in fair value will continue to be reported in *Principal transactions*. Changes in the fair value of these structured liabilities include accrued interest, which is also included in the change in fair value reported in *Principal transactions*.

Certain Non-Structured Liabilities

Citi has elected the fair value option for certain non-structured liabilities with fixed and floating interest rates. Citi has elected the fair value option where the interest-rate risk of such liabilities may be economically hedged with derivative contracts or the proceeds are used to purchase financial assets

that will also be accounted for at fair value through earnings. The elections have been made to mitigate accounting mismatches and to achieve operational simplifications. These positions are reported in *Short-term borrowings* and *Long-term debt* on Citi's Consolidated Balance Sheet. Prior to 2016, the total change in the fair value of these non-structured liabilities was reported in *Principal transactions* in Citi's Consolidated Statement of Income. Beginning in the first quarter of 2016, the portion of the changes in fair value attributable to changes in Citi's own credit spreads (DVA) are reflected as a component of AOCI while all other changes in fair value will continue to be reported in *Principal transactions*.

Interest expense on non-structured liabilities is measured based on the contractual interest rates and reported as *Interest expense* in the Consolidated Statement of Income.

The following table provides information about long-term debt carried at fair value:

<i>In millions of dollars</i>	December 31, 2016	December 31, 2015
Carrying amount reported on the Consolidated Balance Sheet	\$ 26,254	\$ 25,293
Aggregate unpaid principal balance in excess of (less than) fair value	(128)	1,569

The following table provides information about short-term borrowings carried at fair value:

<i>In millions of dollars</i>	December 31, 2016	December 31, 2015
Carrying amount reported on the Consolidated Balance Sheet	\$ 2,700	\$ 1,207
Aggregate unpaid principal balance in excess of (less than) fair value	(61)	130

26. PLEDGED ASSETS, COLLATERAL, GUARANTEES AND COMMITMENTS

Pledged Assets

In connection with Citi's financing and trading activities, Citi has pledged assets to collateralize its obligations under repurchase agreements, secured financing agreements, secured liabilities of consolidated VIEs and other borrowings. The approximate carrying values of the significant components of pledged assets recognized on Citi's Consolidated Balance Sheet included:

<i>In millions of dollars</i>	2016	2015
Investment securities	\$ 161,914	\$ 210,604
Loans	231,833	203,568
Trading account assets	84,371	88,463
Total	\$ 478,118	\$ 502,635

In addition, included in *Cash and due from banks* and *Deposits with banks* at December 31, 2016 and 2015 were \$6.8 billion and \$5.0 billion, respectively, of cash segregated under federal and other brokerage regulations or deposited with clearing organizations.

Collateral

At December 31, 2016 and 2015, the approximate fair value of collateral received by Citi that may be resold or repledged, excluding the impact of allowable netting, was \$378.1 billion and \$347.5 billion, respectively. This collateral was received in connection with resale agreements, securities borrowings and loans, derivative transactions and margined broker loans.

At December 31, 2016 and 2015, a substantial portion of the collateral received by Citi had been sold or repledged in connection with repurchase agreements, securities sold, not yet purchased, securities borrowings and loans, pledges to clearing organizations, segregation requirements under securities laws and regulations, derivative transactions and bank loans.

In addition, at December 31, 2016 and 2015, Citi had pledged \$388 billion and \$396 billion, respectively, of

collateral that may not be sold or repledged by the secured parties.

Lease Commitments

Rental expense (principally for offices and computer equipment) was \$1.1 billion, \$1.3 billion and \$1.4 billion for the years ended December 31, 2016, 2015 and 2014, respectively.

Future minimum annual rentals under non-cancelable leases, net of sublease income, are as follows:

<i>In millions of dollars</i>	
2017	\$ 1,151
2018	1,006
2019	854
2020	679
2021	531
Thereafter	2,655
Total	\$ 6,876

Guarantees

Citi provides a variety of guarantees and indemnifications to its customers to enhance their credit standing and enable them to complete a wide variety of business transactions. For certain contracts meeting the definition of a guarantee, the guarantor must recognize, at inception, a liability for the fair value of the obligation undertaken in issuing the guarantee.

In addition, the guarantor must disclose the maximum potential amount of future payments that the guarantor could be required to make under the guarantee, if there were a total default by the guaranteed parties. The determination of the maximum potential future payments is based on the notional amount of the guarantees without consideration of possible recoveries under recourse provisions or from collateral held or pledged. As such, Citi believes such amounts bear no relationship to the anticipated losses, if any, on these guarantees.

The following tables present information about Citi's guarantees:

Maximum potential amount of future payments

<i>In billions of dollars at December 31, 2016 except carrying value in millions</i>	Expire within 1 year	Expire after 1 year	Total amount outstanding	Carrying value <i>(in millions of dollars)</i>
Financial standby letters of credit	\$ 26.0	\$ 67.1	\$ 93.1	\$ 141
Performance guarantees	7.5	3.6	11.1	19
Derivative instruments considered to be guarantees	7.2	80.0	87.2	747
Loans sold with recourse	—	0.2	0.2	12
Securities lending indemnifications ⁽¹⁾	80.3	—	80.3	—
Credit card merchant processing ⁽¹⁾⁽²⁾	86.4	—	86.4	—
Credit card arrangements with partners	—	1.5	1.5	206
Custody indemnifications and other	—	45.4	45.4	58
Total	\$ 207.4	\$ 197.8	\$ 405.2	\$ 1,183

<i>In billions of dollars at December 31, 2015 except carrying value in millions</i>	Maximum potential amount of future payments			Carrying value <i>(in millions of dollars)</i>
	Expire within 1 year	Expire after 1 year	Total amount outstanding	
Financial standby letters of credit	\$ 23.8	\$ 73.0	\$ 96.8	\$ 152
Performance guarantees	7.4	4.1	11.5	23
Derivative instruments considered to be guarantees	3.6	74.9	78.5	1,779
Loans sold with recourse	—	0.2	0.2	17
Securities lending indemnifications ⁽¹⁾	79.0	—	79.0	—
Credit card merchant processing ⁽¹⁾⁽²⁾	84.2	—	84.2	—
Custody indemnifications and other	—	51.7	51.7	56
Total	\$ 198.0	\$ 203.9	\$ 401.9	\$ 2,027

- (1) The carrying values of securities lending indemnifications and credit card merchant processing were not material for either period presented, as the probability of potential liabilities arising from these guarantees is minimal.
- (2) At December 31, 2016 and December 31, 2015, this maximum potential exposure was estimated to be \$86 billion and \$84 billion, respectively. However, Citi believes that the maximum exposure is not representative of the actual potential loss exposure based on its historical experience. This contingent liability is unlikely to arise, as most products and services are delivered when purchased and amounts are refunded when items are returned to merchants.

Financial Standby Letters of Credit

Citi issues standby letters of credit, which substitute its own credit for that of the borrower. If a letter of credit is drawn down, the borrower is obligated to repay Citi. Standby letters of credit protect a third party from defaults on contractual obligations. Financial standby letters of credit include (i) guarantees of payment of insurance premiums and reinsurance risks that support industrial revenue bond underwriting; (ii) settlement of payment obligations to clearing houses, including futures and over-the-counter derivatives clearing (see further discussion below); (iii) support options and purchases of securities in lieu of escrow deposit accounts; and (iv) letters of credit that backstop loans, credit facilities, promissory notes and trade acceptances.

Performance Guarantees

Performance guarantees and letters of credit are issued to guarantee a customer's tender bid on a construction or systems-installation project or to guarantee completion of such projects in accordance with contract terms. They are also issued to support a customer's obligation to supply specified products, commodities, or maintenance or warranty services to a third party.

Derivative Instruments Considered to Be Guarantees

Derivatives are financial instruments whose cash flows are based on a notional amount and an underlying instrument, reference credit or index, where there is little or no initial investment, and whose terms require or permit net settlement. For a discussion of Citi's derivatives activities, see Note 22 to the Consolidated Financial Statements.

Derivative instruments considered to be guarantees include only those instruments that require Citi to make payments to the counterparty based on changes in an underlying instrument that is related to an asset, a liability or an equity security held by the guaranteed party. More specifically, derivative instruments considered to be guarantees include certain over-the-counter written put

options where the counterparty is not a bank, hedge fund or broker-dealer (such counterparties are considered to be dealers in these markets and may, therefore, not hold the underlying instruments). Credit derivatives sold by Citi are excluded from the tables above as they are disclosed separately in Note 22 to the Consolidated Financial Statements. In instances where Citi's maximum potential future payment is unlimited, the notional amount of the contract is disclosed.

Loans Sold with Recourse

Loans sold with recourse represent Citi's obligations to reimburse the buyers for loan losses under certain circumstances. Recourse refers to the clause in a sales agreement under which a seller/lender will fully reimburse the buyer/investor for any losses resulting from the purchased loans. This may be accomplished by the seller taking back any loans that become delinquent.

In addition to the amounts shown in the tables above, Citi has recorded a repurchase reserve for its potential repurchases or make-whole liability regarding residential mortgage representation and warranty claims related to its whole loan sales to the U.S. government-sponsored enterprises (GSEs) and, to a lesser extent, private investors. The repurchase reserve was approximately \$107 million and \$152 million at December 31, 2016 and 2015, respectively, and these amounts are included in *Other liabilities* on the Consolidated Balance Sheet.

Securities Lending Indemnifications

Owners of securities frequently lend those securities for a fee to other parties who may sell them short or deliver them to another party to satisfy some other obligation. Banks may administer such securities lending programs for their clients. Securities lending indemnifications are issued by the bank to guarantee that a securities lending customer will be made whole in the event that the security borrower does not return

the security subject to the lending agreement and collateral held is insufficient to cover the market value of the security.

Credit Card Merchant Processing

Credit card merchant processing guarantees represent the Company's indirect obligations in connection with (i) providing transaction processing services to various merchants with respect to its private-label cards; and (ii) potential liability for bank card transaction processing services. The nature of the liability in either case arises as a result of a billing dispute between a merchant and a cardholder that is ultimately resolved in the cardholder's favor. The merchant is liable to refund the amount to the cardholder. In general, if the credit card processing company is unable to collect this amount from the merchant, the credit card processing company bears the loss for the amount of the credit or refund paid to the cardholder.

With regard to (i) above, Citi has the primary contingent liability with respect to its portfolio of private-label merchants. The risk of loss is mitigated as the cash flows between Citi and the merchant are settled on a net basis, and Citi has the right to offset any payments with cash flows otherwise due to the merchant. To further mitigate this risk, Citi may delay settlement, require a merchant to make an escrow deposit, include event triggers to provide Citi with more financial and operational control in the event of the financial deterioration of the merchant or require various credit enhancements (including letters of credit and bank guarantees). In the unlikely event that a private-label merchant is unable to deliver products, services or a refund to its private-label cardholders, Citi is contingently liable to credit or refund cardholders.

With regard to (ii) above, Citi has a potential liability for bank card transactions where Citi provides the transaction processing services as well as those where a third party provides the services and Citi acts as a secondary guarantor, should that processor fail to perform.

Citi's maximum potential contingent liability related to both bank card and private-label merchant processing services is estimated to be the total volume of credit card transactions that meet the requirements to be valid charge-back transactions at any given time. At December 31, 2016 and 2015, this maximum potential exposure was estimated to be \$86 billion and \$84 billion, respectively.

However, Citi believes that the maximum exposure is not representative of the actual potential loss exposure based on its historical experience. This contingent liability is unlikely to arise, as most products and services are delivered when purchased and amounts are refunded when items are returned to merchants. Citi assesses the probability and amount of its contingent liability related to merchant processing based on the financial strength of the primary guarantor, the extent and nature of unresolved charge-backs and its historical loss experience. At December 31, 2016 and 2015, the losses incurred and the carrying amounts of Citi's contingent obligations related to merchant processing activities were immaterial.

Credit Card Arrangements with Partners

Citi, in certain of its credit card partner arrangements, provides guarantees to the partner regarding the volume of certain customer originations during the term of the agreement. To the extent such origination targets are not met, the guarantees serve to compensate the partner for certain payments that otherwise would have been generated in connection with such originations.

Custody Indemnifications

Custody indemnifications are issued to guarantee that custody clients will be made whole in the event that a third-party subcustodian or depository institution fails to safeguard clients' assets.

Other Guarantees and Indemnifications

Credit Card Protection Programs

Citi, through its credit card businesses, provides various cardholder protection programs on several of its card products, including programs that provide insurance coverage for rental cars, coverage for certain losses associated with purchased products, price protection for certain purchases and protection for lost luggage. These guarantees are not included in the table, since the total outstanding amount of the guarantees and Citi's maximum exposure to loss cannot be quantified. The protection is limited to certain types of purchases and losses, and it is not possible to quantify the purchases that would qualify for these benefits at any given time. Citi assesses the probability and amount of its potential liability related to these programs based on the extent and nature of its historical loss experience. At December 31, 2016 and 2015, the actual and estimated losses incurred and the carrying value of Citi's obligations related to these programs were immaterial.

Other Representation and Warranty Indemnifications

In the normal course of business, Citi provides standard representations and warranties to counterparties in contracts in connection with numerous transactions and also provides indemnifications, including indemnifications that protect the counterparties to the contracts in the event that additional taxes are owed, due either to a change in the tax law or an adverse interpretation of the tax law. Counterparties to these transactions provide Citi with comparable indemnifications. While such representations, warranties and indemnifications are essential components of many contractual relationships, they do not represent the underlying business purpose for the transactions. The indemnification clauses are often standard contractual terms related to Citi's own performance under the terms of a contract and are entered into in the normal course of business based on an assessment that the risk of loss is remote. Often these clauses are intended to ensure that terms of a contract are met at inception. No compensation is received for these standard representations and warranties, and it is not possible to determine their fair value because they rarely, if ever, result in a payment. In many cases, there are no stated or notional amounts included in the indemnification clauses, and the contingencies potentially

triggering the obligation to indemnify have not occurred and are not expected to occur. As a result, these indemnifications are not included in the tables above.

Value-Transfer Networks

Citi is a member of, or shareholder in, hundreds of value-transfer networks (VTNs) (payment, clearing and settlement systems as well as exchanges) around the world. As a condition of membership, many of these VTNs require that members stand ready to pay a pro rata share of the losses incurred by the organization due to another member's default on its obligations. Citi's potential obligations may be limited to its membership interests in the VTNs, contributions to the VTN's funds, or, in limited cases, the obligation may be unlimited. The maximum exposure cannot be estimated as this would require an assessment of future claims that have not yet occurred. Citi believes the risk of loss is remote given historical experience with the VTNs. Accordingly, Citi's participation in VTNs is not reported in the guarantees tables above, and there are no amounts reflected on the Consolidated Balance Sheet as of December 31, 2016 or 2015 for potential obligations that could arise from Citi's involvement with VTN associations.

Long-Term Care Insurance Indemnification

In connection with the 2005 sale of certain insurance and annuity subsidiaries to MetLife Inc. (MetLife), the Company provided an indemnification for policyholder claims and other liabilities relating to a book of long-term care (LTC) business (for the entire term of the LTC policies) that is fully reinsured by subsidiaries of Genworth Financial Inc. (Genworth). In turn, Genworth has offsetting reinsurance agreements with MetLife and the Union Fidelity Life Insurance Company (UFLIC), a subsidiary of the General Electric Company. Genworth has funded two trusts with securities whose fair value (approximately \$7.0 billion at December 31, 2016, compared to \$6.3 billion at December 31, 2015) is designed to cover Genworth's statutory liabilities for the LTC policies. The trusts serve as collateral for Genworth's reinsurance obligations related to the MetLife LTC policies and MetLife Insurance Company USA is the sole beneficiary of the trusts. The assets in these trusts are evaluated and adjusted periodically to ensure that the fair value of the assets continues to cover the estimated statutory liabilities related to the LTC policies, as those statutory liabilities change over time.

If Genworth fails to perform under the reinsurance agreement for any reason, including insolvency, and the assets in the two trusts are insufficient or unavailable to MetLife, then Citi must reimburse MetLife for any losses actually incurred in connection with the LTC policies. Since both events would have to occur before Citi would become responsible for any payment to MetLife pursuant to its indemnification obligation, and the likelihood of such events occurring is currently not probable, there is no liability reflected in the Consolidated Balance Sheet as of December 31, 2016 and 2015 related to this indemnification. Citi continues to closely monitor its potential exposure under this indemnification obligation.

In the fourth quarter of 2016, MetLife announced it was pursuing spinning off the entity involved in the long-term care reinsurance obligations as part of a broader separation of its retail and group/corporate insurance operations. Separately, Genworth announced that it had agreed to be purchased by China Oceanwide Holdings Co., Ltd, subject to a series of conditions and regulatory approvals. Citi is monitoring these developments.

Futures and Over-the-Counter Derivatives Clearing

Citi provides clearing services on central clearing counterparties (CCPs) for clients that need to clear exchange-traded and over-the-counter (OTC) derivatives contracts. Based on all relevant facts and circumstances, Citi has concluded that it acts as an agent for accounting purposes in its role as clearing member for these client transactions. As such, Citi does not reflect the underlying exchange-traded or OTC derivatives contracts in its Consolidated Financial Statements. See Note 22 for a discussion of Citi's derivatives activities that are reflected in its Consolidated Financial Statements.

As a clearing member, Citi collects and remits cash and securities collateral (margin) between its clients and the respective CCP. In certain circumstances, Citi collects a higher amount of cash (or securities) from its clients than it needs to remit to the CCPs. This excess cash is then held at depository institutions such as banks or carry brokers.

There are two types of margin: initial margin and variation margin. Where Citi obtains benefits from or controls cash initial margin (e.g., retains an interest spread), cash initial margin collected from clients and remitted to the CCP or depository institutions is reflected within *Brokerage payables* (payables to customers) and *Brokerage receivables* (receivables from brokers, dealers and clearing organizations) or *Cash and due from banks* respectively.

However, for exchange-traded and OTC-cleared derivatives contracts where Citi does not obtain benefits from or control the client cash balances, the client cash initial margin collected from clients and remitted to the CCP or depository institutions is not reflected on Citi's Consolidated Balance Sheet. These conditions are met when Citi has contractually agreed with the client that (i) Citi will pass through to the client all interest paid by the CCP or depository institutions on the cash initial margin; (ii) Citi will not utilize its right as a clearing member to transform cash margin into other assets; (iii) Citi does not guarantee and is not liable to the client for the performance of the CCP or the depository institution and (iv) the client cash balances are legally isolated from Citi's bankruptcy estate. The total amount of cash initial margin collected and remitted in this manner was approximately \$9.4 billion and \$4.3 billion as of December 31, 2016 and 2015, respectively.

Variation margin due from clients to the respective CCP, or from the CCP to clients, reflects changes in the value of the client's derivative contracts for each trading day. As a clearing member, Citi is exposed to the risk of non-performance by clients (e.g., failure of a client to post variation margin to the CCP for negative changes in the value of the client's derivative contracts). In the event of

non-performance by a client, Citi would move to close out the client's positions. The CCP would typically utilize initial margin posted by the client and held by the CCP, with any remaining shortfalls required to be paid by Citi as clearing member. Citi generally holds incremental cash or securities margin posted by the client, which would typically be expected to be sufficient to mitigate Citi's credit risk in the event the client fails to perform.

As required by ASC 860-30-25-5, securities collateral posted by clients is not recognized on Citi's Consolidated Balance Sheet.

Carrying Value—Guarantees and Indemnifications

At December 31, 2016 and 2015, the total carrying amounts of the liabilities related to the guarantees and indemnifications included in the tables above amounted to approximately \$1.2 billion and \$2.0 billion, respectively. The carrying value of financial and performance guarantees is included in *Other liabilities*. For loans sold with recourse, the carrying value of the liability is included in *Other liabilities*.

Collateral

Cash collateral available to Citi to reimburse losses realized under these guarantees and indemnifications amounted to \$45 billion and \$52 billion at December 31, 2016 and 2015, respectively. Securities and other marketable assets held as collateral amounted to \$38 billion and \$33 billion at December 31, 2016 and 2015, respectively. The majority of collateral is held to reimburse losses realized under securities lending indemnifications. Additionally, letters of credit in favor of Citi held as collateral amounted to \$5.4 billion and \$4.2 billion at December 31, 2016 and 2015, respectively. Other property may also be available to Citi to cover losses under certain guarantees and indemnifications; however, the value of such property has not been determined.

Performance Risk

Citi evaluates the performance risk of its guarantees based on the assigned referenced counterparty internal or external ratings. Where external ratings are used, investment-grade ratings are considered to be Baa/BBB and above, while anything below is considered non-investment grade. Citi's internal ratings are in line with the related external rating system. On certain underlying referenced assets or entities, ratings are not available. Such referenced assets are included in the "not rated" category. The maximum potential amount of the future payments related to the outstanding guarantees is determined to be the notional amount of these contracts, which is the par amount of the assets guaranteed.

Presented in the tables below are the maximum potential amounts of future payments that are classified based upon internal and external credit ratings. As previously mentioned, the determination of the maximum potential future payments is based on the notional amount of the guarantees without consideration of possible recoveries under recourse provisions or from collateral held or pledged. As such, Citi believes such amounts bear no relationship to the anticipated losses, if any, on these guarantees.

Maximum potential amount of future payments

	Investment grade	Non-investment grade	Not rated	Total
<i>In billions of dollars at December 31, 2016</i>				
Financial standby letters of credit	\$ 66.8	\$ 13.4	\$ 12.9	\$ 93.1
Performance guarantees	6.3	4.0	0.8	11.1
Derivative instruments deemed to be guarantees	—	—	87.2	87.2
Loans sold with recourse	—	—	0.2	0.2
Securities lending indemnifications	—	—	80.3	80.3
Credit card merchant processing	—	—	86.4	86.4
Credit card arrangements with partners	—	—	1.5	1.5
Custody indemnifications and other	45.3	0.1	—	45.4
Total	\$ 118.4	\$ 17.5	\$ 269.3	\$ 405.2

Maximum potential amount of future payments

<i>In billions of dollars at December 31, 2015</i>	Investment grade	Non- investment grade	Not rated	Total
Financial standby letters of credit	\$ 69.2	\$ 15.4	\$ 12.2	\$ 96.8
Performance guarantees	6.6	4.1	0.8	11.5
Derivative instruments deemed to be guarantees	—	—	78.5	78.5
Loans sold with recourse	—	—	0.2	0.2
Securities lending indemnifications	—	—	79.0	79.0
Credit card merchant processing	—	—	84.2	84.2
Custody indemnifications and other	51.6	0.1	—	51.7
Total	\$ 127.4	\$ 19.6	\$ 254.9	\$ 401.9

Credit Commitments and Lines of Credit

The table below summarizes Citigroup's credit commitments:

<i>In millions of dollars</i>	U.S.	Outside of U.S.	December 31, 2016	December 31, 2015
Commercial and similar letters of credit	\$ 1,103	\$ 4,633	\$ 5,736	\$ 6,102
One- to four-family residential mortgages	1,166	1,672	2,838	3,196
Revolving open-end loans secured by one- to four-family residential properties	11,912	1,493	13,405	14,726
Commercial real estate, construction and land development	9,281	1,500	10,781	10,522
Credit card lines	569,747	94,588	664,335	573,057
Commercial and other consumer loan commitments	166,433	93,501	259,934	271,076
Other commitments and contingencies	2,387	8,880	11,267	9,982
Total	\$ 762,029	\$ 206,267	\$ 968,296	\$ 888,661

The majority of unused commitments are contingent upon customers maintaining specific credit standards.

Commercial commitments generally have floating interest rates and fixed expiration dates and may require payment of fees. Such fees (net of certain direct costs) are deferred and, upon exercise of the commitment, amortized over the life of the loan or, if exercise is deemed remote, amortized over the commitment period.

Commercial and Similar Letters of Credit

A commercial letter of credit is an instrument by which Citigroup substitutes its credit for that of a customer to enable the customer to finance the purchase of goods or to incur other commitments. Citigroup issues a letter on behalf of its client to a supplier and agrees to pay the supplier upon presentation of documentary evidence that the supplier has performed in accordance with the terms of the letter of credit. When a letter of credit is drawn, the customer is then required to reimburse Citigroup.

One- to Four-Family Residential Mortgages

A one- to four-family residential mortgage commitment is a written confirmation from Citigroup to a seller of a property that the bank will advance the specified sums enabling the buyer to complete the purchase.

Revolving Open-End Loans Secured by One- to Four-Family Residential Properties

Revolving open-end loans secured by one- to four-family residential properties are essentially home equity lines of credit. A home equity line of credit is a loan secured by a primary residence or second home to the extent of the excess of fair market value over the debt outstanding for the first mortgage.

Commercial Real Estate, Construction and Land Development

Commercial real estate, construction and land development include unused portions of commitments to extend credit for the purpose of financing commercial and multifamily residential properties as well as land development projects.

Both secured-by-real-estate and unsecured commitments are included in this line, as well as undistributed loan proceeds, where there is an obligation to advance for construction progress payments. However, this line only includes those extensions of credit that, once funded, will be classified as *Total loans, net* on the Consolidated Balance Sheet.

Credit Card Lines

Citigroup provides credit to customers by issuing credit cards. The credit card lines are cancelable by providing notice to the cardholder or without such notice as permitted by local law.

Commercial and Other Consumer Loan Commitments

Commercial and other consumer loan commitments include overdraft and liquidity facilities as well as commercial commitments to make or purchase loans, purchase third-party receivables, provide note issuance or revolving underwriting facilities and invest in the form of equity.

Other Commitments and Contingencies

Other commitments and contingencies include committed or unsettled regular-way reverse repurchase agreements and all other transactions related to commitments and contingencies not reported on the lines above.

27. CONTINGENCIES

Accounting and Disclosure Framework

ASC 450 governs the disclosure and recognition of loss contingencies, including potential losses from litigation and regulatory matters. ASC 450 defines a “loss contingency” as “an existing condition, situation, or set of circumstances involving uncertainty as to possible loss to an entity that will ultimately be resolved when one or more future events occur or fail to occur.” It imposes different requirements for the recognition and disclosure of loss contingencies based on the likelihood of occurrence of the contingent future event or events. It distinguishes among degrees of likelihood using the following three terms: “probable,” meaning that “the future event or events are likely to occur”; “remote,” meaning that “the chance of the future event or events occurring is slight”; and “reasonably possible,” meaning that “the chance of the future event or events occurring is more than remote but less than likely.” These three terms are used below as defined in ASC 450.

Accruals. ASC 450 requires accrual for a loss contingency when it is “probable that one or more future events will occur confirming the fact of loss” and “the amount of the loss can be reasonably estimated.” In accordance with ASC 450, Citigroup establishes accruals for contingencies, including the litigation and regulatory matters disclosed herein, when Citigroup believes it is probable that a loss has been incurred and the amount of the loss can be reasonably estimated. When the reasonable estimate of the loss is within a range of amounts, the minimum amount of the range is accrued, unless some higher amount within the range is a better estimate than any other amount within the range. Once established, accruals are adjusted from time to time, as appropriate, in light of additional information. The amount of loss ultimately incurred in relation to those matters may be substantially higher or lower than the amounts accrued for those matters.

Disclosure. ASC 450 requires disclosure of a loss contingency if “there is at least a reasonable possibility that a loss or an additional loss may have been incurred” and there is no accrual for the loss because the conditions described above are not met or an exposure to loss exists in excess of the amount accrued. In accordance with ASC 450, if Citigroup has not accrued for a matter because Citigroup believes that a loss is reasonably possible but not probable, or that a loss is probable but not reasonably estimable, and the matter thus does not meet the criteria for accrual, and the reasonably possible loss is material, it discloses the loss contingency. In addition, Citigroup discloses matters for which it has accrued if it believes a reasonably possible exposure to material loss exists in excess of the amount accrued. In accordance with ASC 450, Citigroup’s disclosure includes an estimate of the reasonably possible loss or range of loss for those matters as to which an estimate can be made. ASC 450 does not require disclosure of an estimate of the reasonably possible loss or range of loss where an estimate cannot be made. Neither accrual nor disclosure is required for losses that are deemed remote.

Litigation and Regulatory Contingencies

Overview. In addition to the matters described below, in the ordinary course of business, Citigroup, its affiliates and subsidiaries, and current and former officers, directors and employees (for purposes of this section, sometimes collectively referred to as Citigroup and Related Parties) routinely are named as defendants in, or as parties to, various legal actions and proceedings. Certain of these actions and proceedings assert claims or seek relief in connection with alleged violations of consumer protection, fair lending, securities, banking, antifraud, antitrust, anti-money laundering, employment and other statutory and common laws. Certain of these actual or threatened legal actions and proceedings include claims for substantial or indeterminate compensatory or punitive damages, or for injunctive relief, and in some instances seek recovery on a class-wide basis.

In the ordinary course of business, Citigroup and Related Parties also are subject to governmental and regulatory examinations, information-gathering requests, investigations and proceedings (both formal and informal), certain of which may result in adverse judgments, settlements, fines, penalties, restitution, disgorgement, injunctions or other relief. In addition, certain affiliates and subsidiaries of Citigroup are banks, registered broker-dealers, futures commission merchants, investment advisers or other regulated entities and, in those capacities, are subject to regulation by various U.S., state and foreign securities, banking, commodity futures, consumer protection and other regulators. In connection with formal and informal inquiries by these regulators, Citigroup and such affiliates and subsidiaries receive numerous requests, subpoenas and orders seeking documents, testimony and other information in connection with various aspects of their regulated activities. From time to time Citigroup and Related Parties also receive grand jury subpoenas and other requests for information or assistance, formal or informal, from federal or state law enforcement agencies including, among others, various United States Attorneys’ Offices, the Asset Forfeiture and Money Laundering Section and other divisions of the Department of Justice, the Financial Crimes Enforcement Network of the United States Department of the Treasury, and the Federal Bureau of Investigation relating to Citigroup and its customers.

Because of the global scope of Citigroup’s operations, and its presence in countries around the world, Citigroup and Related Parties are subject to litigation and governmental and regulatory examinations, information-gathering requests, and investigations and proceedings (both formal and informal) in multiple jurisdictions with legal and regulatory regimes that may differ substantially, and present substantially different risks, from those Citigroup and Related Parties are subject to in the United States. In some instances Citigroup and Related Parties may be involved in proceedings involving the same subject matter in multiple jurisdictions, which may result in overlapping, cumulative or inconsistent outcomes.

Citigroup seeks to resolve all litigation and regulatory matters in the manner management believes is in the best interests of Citigroup and its shareholders, and contests liability, allegations of wrongdoing and, where applicable, the

amount of damages or scope of any penalties or other relief sought as appropriate in each pending matter.

Inherent Uncertainty of the Matters Disclosed. Certain of the matters disclosed below involve claims for substantial or indeterminate damages. The claims asserted in these matters typically are broad, often spanning a multi-year period and sometimes a wide range of business activities, and the plaintiffs' or claimants' alleged damages frequently are not quantified or factually supported in the complaint or statement of claim. Other matters relate to regulatory investigations or proceedings, as to which there may be no objective basis for quantifying the range of potential fine, penalty, or other remedy. As a result, Citigroup is often unable to estimate the loss in such matters, even if it believes that a loss is probable or reasonably possible, until developments in the case or investigation have yielded additional information sufficient to support a quantitative assessment of the range of reasonably possible loss. Such developments may include, among other things, discovery from adverse parties or third parties, rulings by the court on key issues, analysis by retained experts, and engagement in settlement negotiations. Depending on a range of factors, such as the complexity of the facts, the novelty of the legal theories, the pace of discovery, the court's scheduling order, the timing of court decisions, and the adverse party's willingness to negotiate in good faith toward a resolution, it may be months or years after the filing of a case or commencement of an investigation before an estimate of the range of reasonably possible loss can be made.

Matters as to Which an Estimate Can Be Made. For some of the matters disclosed below, Citigroup is currently able to estimate a reasonably possible loss or range of loss in excess of amounts accrued (if any). For some of the matters included within this estimation, an accrual has been made because a loss is believed to be both probable and reasonably estimable, but an exposure to loss exists in excess of the amount accrued. In these cases, the estimate reflects the reasonably possible range of loss in excess of the accrued amount. For other matters included within this estimation, no accrual has been made because a loss, although estimable, is believed to be reasonably possible, but not probable; in these cases the estimate reflects the reasonably possible loss or range of loss. As of December 31, 2016, Citigroup estimates that the reasonably possible unaccrued loss for these matters ranges up to approximately \$3.0 billion in the aggregate.

These estimates are based on currently available information. As available information changes, the matters for which Citigroup is able to estimate will change, and the estimates themselves will change. In addition, while many estimates presented in financial statements and other financial disclosures involve significant judgment and may be subject to significant uncertainty, estimates of the range of reasonably possible loss arising from litigation and regulatory proceedings are subject to particular uncertainties. For example, at the time of making an estimate, (i) Citigroup may have only preliminary, incomplete, or inaccurate information about the facts underlying the claim; (ii) its assumptions about the future rulings of the court or other tribunal on significant issues, or the behavior and incentives of adverse parties or regulators, may prove to be wrong; and (iii) the outcomes it is

attempting to predict are often not amenable to the use of statistical or other quantitative analytical tools. In addition, from time to time an outcome may occur that Citigroup had not accounted for in its estimate because it had deemed such an outcome to be remote. For all these reasons, the amount of loss in excess of accruals ultimately incurred for the matters as to which an estimate has been made could be substantially higher or lower than the range of loss included in the estimate.

Matters as to Which an Estimate Cannot Be Made. For other matters disclosed below, Citigroup is not currently able to estimate the reasonably possible loss or range of loss. Many of these matters remain in very preliminary stages (even in some cases where a substantial period of time has passed since the commencement of the matter), with few or no substantive legal decisions by the court or tribunal defining the scope of the claims, the class (if any), or the potentially available damages, and fact discovery is still in progress or has not yet begun. In many of these matters, Citigroup has not yet answered the complaint or statement of claim or asserted its defenses, nor has it engaged in any negotiations with the adverse party (whether a regulator or a private party). For all these reasons, Citigroup cannot at this time estimate the reasonably possible loss or range of loss, if any, for these matters.

Opinion of Management as to Eventual Outcome. Subject to the foregoing, it is the opinion of Citigroup's management, based on current knowledge and after taking into account its current legal accruals, that the eventual outcome of all matters described in this Note would not be likely to have a material adverse effect on the consolidated financial condition of Citigroup. Nonetheless, given the substantial or indeterminate amounts sought in certain of these matters, and the inherent unpredictability of such matters, an adverse outcome in certain of these matters could, from time to time, have a material adverse effect on Citigroup's consolidated results of operations or cash flows in particular quarterly or annual periods.

Commodities Financing Contracts

Beginning in May 2014, Citigroup became aware of reports of potential fraud relating to the financing of physical metal stored at the Qingdao and Penglai ports in China. Citibank and Citigroup Global Markets Limited (CGML) had financing contracts with Mercuria Energy Trading Pte. Ltd collateralized by physical metal stored at these ports, with the agreements providing that Mercuria would repurchase the inventory at a specified date in the future. On July 22, 2014, Citibank and CGML commenced proceedings in the High Court in London to enforce their rights under the relevant agreements in relation to approximately \$285 million in financing.

In December 2016, the Citigroup affiliates reached a resolution on this matter with Mercuria. Accordingly, steps have been taken to withdraw the proceedings in London, as well as related initiatives in Chinese courts. Additional information concerning this action is publicly available in court filings under the claim reference: Mercuria Energy Trading PTE Ltd & Another Citibank, N.A. & Another, Claim No. 2014 Folio 709, Appeal Nos. 2015/2407 (Citigroup) and 2015/2395 (Mercuria).

Credit Crisis-Related Litigation and Other Matters

Citigroup and Related Parties were named as defendants in numerous legal actions and other proceedings asserting claims for damages and related relief for losses arising from the global financial credit crisis that began in 2007. Such matters included, among other types of proceedings, claims asserted by (i) individual investors and purported classes of investors in Citigroup's common and preferred stock and debt, alleging violations of the federal securities laws, foreign laws, state securities and fraud law, and the Employee Retirement Income Security Act (ERISA); and (ii) individual investors and purported classes of investors in securities and other investments underwritten or issued by Citigroup, collateralized debt obligations (CDOs), mortgage-backed securities (MBS), investment funds, and other structured or leveraged instruments, which suffered losses as a result of the credit crisis.

In addition to these litigations and arbitrations, Citigroup continues to cooperate fully in response to subpoenas and requests for information from the Securities and Exchange Commission (SEC), the Office of the Special Inspector General for the Troubled Asset Relief Program, bank regulators, and other government authorities, in connection with various inquiries concerning Citigroup's business activities. These business activities include, but are not limited to, Citigroup's sponsorship, packaging, issuance, trading, servicing and underwriting of CDOs and MBS.

Mortgage-Related Litigation and Other Matters

Securities Actions: Beginning in November 2007, Citigroup and Related Parties were named as defendants in a variety of class and individual securities actions filed by investors in Citigroup's equity and debt securities in state and federal courts relating to the Company's disclosures regarding its exposure to subprime-related assets. These actions asserted a wide range of claims, including claims under the federal securities laws, foreign securities laws, ERISA, and state law. All of these matters have now been dismissed or settled.

Beginning in November 2007, certain Citigroup affiliates also were named as defendants arising out of their activities as underwriters of securities in actions brought by investors in securities issued by public companies adversely affected by the credit crisis. Most of these matters have been dismissed or settled. As a general matter, issuers indemnify underwriters in connection with such claims, but in certain of these matters Citigroup affiliates are not being indemnified or may in the future cease to be indemnified because of the financial condition of the issuer.

Mortgage-Backed Securities and CDO Investor Actions: Beginning in July 2010, Citigroup and Related Parties were named as defendants in complaints filed by purchasers of MBS and CDOs sold or underwritten by Citigroup. The complaints generally assert that defendants made material misrepresentations and omissions about the credit quality of the assets underlying the securities or the manner in which those assets were selected, and typically assert claims under Section 11 of the Securities Act of 1933, state blue sky laws, and/or common-law misrepresentation-based causes of action.

The majority of these matters have been resolved through settlement or otherwise. As of December 31, 2016, the aggregate original purchase amount of the purchases at issue in the pending litigation was approximately \$191 million, and the aggregate original purchase amount of the purchases covered by the remaining tolling (extension) agreement with an investor threatening litigation was approximately \$500 million. Additional information concerning the remaining pending litigation is publicly available in court filings under the docket number 13-1729-II (Tenn. Ch. Ct.) (McCoy, C.).

Mortgage-Backed Security Repurchase Claims: Various parties to MBS securitizations and other interested parties have asserted that certain Citigroup affiliates breached representations and warranties made in connection with mortgage loans sold into securitization trusts (private-label securitizations). Typically, these claims are based on allegations that securitized mortgages were not underwritten in accordance with the applicable underwriting standards. Citigroup also has received numerous inquiries, demands for loan files, and requests to toll (extend) the applicable statutes of limitation for representation and warranty claims relating to its private-label securitizations. These inquiries, demands and requests have been made by trustees of securitization trusts and others.

To date, trustees have filed six actions against Citigroup seeking to enforce certain of these contractual repurchase claims that were excluded from a previously disclosed settlement in connection with four private-label securitizations. Three of these actions were dismissed with prejudice in January 2016. Citigroup has reached an agreement with the directing certificate holder for one of the remaining actions, and the trustee is considering whether to accept the settlement. The other two remaining actions are in various stages of discovery. In the aggregate, plaintiffs are asserting repurchase claims in the three remaining actions as to approximately 2,900 loans that were securitized into these three securitizations, as well as any other loans that are later found to have breached representations and warranties. Additional information concerning these actions is publicly available in court filings under the docket numbers 13 Civ. 2843 (S.D.N.Y.) (Daniels, J.), 13 Civ. 6989 (S.D.N.Y.) (Daniels, J.), 653816/2013 (N.Y. Sup. Ct.) (Kornreich, J.), 653919/2014 (N.Y. Sup. Ct.), 653929/2014 (N.Y. Sup. Ct.), and 653930/2014 (N.Y. Sup. Ct.).

Mortgage-Backed Securities Trustee Actions: On June 18, 2014, a group of investors in 48 RMBS trusts for which Citibank served or currently serves as trustee filed a complaint in New York State Supreme Court in BLACKROCK ALLOCATION TARGET SHARES: SERIES S. PORTFOLIO, ET AL. v. CITIBANK, N.A. The complaint, like those filed against other RMBS trustees, alleges that Citibank failed to pursue contractual remedies against securitization sponsors and servicers. This action was withdrawn without prejudice, effective December 17, 2014.

On November 24, 2014, largely the same group of investors filed an action in the United States District Court for the Southern District of New York, captioned FIXED INCOME SHARES: SERIES M ET AL. v. CITIBANK N.A., alleging similar claims relating to 27 MBS trusts for which

Citibank allegedly served or currently serves as trustee. On September 8, 2015, the United States District Court for the Southern District of New York dismissed all claims as to 24 of the 27 trusts and allowed certain of the claims to proceed as to the other three trusts. On September 7, 2016, plaintiffs filed a stipulation of voluntary dismissal of their claims with respect to two of the three remaining trusts, leaving one trust at issue. Additional information concerning this action is publicly available in court filings under the docket number 14-cv-9373 (S.D.N.Y.) (Furman, J.).

On November 24, 2015, largely the same group of investors filed another action in the New York State Supreme Court, captioned FIXED INCOME SHARES: SERIES M, ET AL. v. CITIBANK N.A., related to the 24 trusts dismissed from the federal court action and one additional trust, asserting claims similar to the original complaint filed in state court. On June 22, 2016, the court dismissed plaintiffs' complaint. Plaintiffs filed an amended complaint on August 5, 2016. Additional information concerning this action is publicly available in court filings under the docket number 653891/2015 (N.Y. Sup. Ct.) (Ramos, J.).

On August 19, 2015, the Federal Deposit Insurance Corporation as receiver for a financial institution filed a civil action against Citibank in the United States District Court for the Southern District of New York, captioned FEDERAL DEPOSIT INSURANCE CORPORATION AS RECEIVER FOR GUARANTY BANK v. CITIBANK N.A. The complaint concerns one RMBS trust for which Citibank formerly served as trustee, and alleges that Citibank failed to pursue contractual remedies against the sponsor and servicers of that trust. On September 30, 2016, the court granted Citibank's motion to dismiss on the grounds that the FDIC lacked standing to pursue its claims. On October 14, 2016, the FDIC filed a motion for reconsideration or relief from judgment from the court's dismissal order. Additional information concerning this action is publicly available in court filings under the docket number 15-cv-6574 (S.D.N.Y.) (Carter, J.).

Counterparty and Investor Actions

In 2010, Abu Dhabi Investment Authority (ADIA) commenced an arbitration (ADIA I) against Citigroup and Related Parties before the International Center for Dispute Resolution (ICDR), alleging statutory and common law claims in connection with its \$7.5 billion investment in Citigroup in December 2007. ADIA sought rescission of the investment agreement or, in the alternative, more than \$4 billion in damages. On October 14, 2011, the arbitration panel issued a final award and statement of reasons finding in favor of Citigroup on all claims asserted by ADIA, and that award was confirmed in court. Additional information concerning this action is publicly available in court filings under the docket numbers 12 Civ. 283 (S.D.N.Y.) (Daniels, J.), 13-1068-cv (2d Cir.), and 13-1500 (U.S.).

On August 20, 2013, ADIA commenced a second arbitration (ADIA II) against Citigroup before the ICDR, alleging common law claims arising out of the same investment at issue in ADIA I, seeking more than \$2 billion in damages or rescission of one of the investment agreement's ancillary agreements. This arbitration was resolved on

December 14, 2016, when the arbitration panel issued a final decision.

Lehman Brothers Bankruptcy Proceedings

On February 8, 2012, Citibank and certain Citigroup affiliates were named as defendants in an adversary proceeding asserting objections to proofs of claim totaling approximately \$2.6 billion filed by Citibank and those affiliates, and claims under federal bankruptcy and state law to recover \$2 billion deposited by Lehman Brothers Holdings Inc. (LBHI) with Citibank against which Citibank asserts a right of setoff. Plaintiffs have filed various amended complaints asserting additional claims and factual allegations, and amending certain previously asserted claims, and have dismissed, with prejudice, their claim to avoid a \$500 million transfer and an amendment to a guarantee in favor of Citibank. A trial has been scheduled for April 2017. Additional information concerning this action is publicly available in court filings under the docket numbers 12-01044 and 08-13555 (Bankr. S.D.N.Y.) (Chapman, J.).

Tribune Company Bankruptcy

Certain Citigroup affiliates have been named as defendants in adversary proceedings related to the Chapter 11 cases of Tribune Company (Tribune) filed in the United States Bankruptcy Court for the District of Delaware, asserting claims arising out of the approximately \$11 billion leveraged buyout of Tribune in 2007. On August 2, 2013, the Litigation Trustee, as successor plaintiff to the Official Committee of Unsecured Creditors, filed a fifth amended complaint in the adversary proceeding KIRSCHNER v. FITZSIMONS, ET AL. The complaint seeks to avoid and recover as actual fraudulent transfers the transfers of Tribune stock that occurred as a part of the leveraged buyout. Several Citigroup affiliates are named as "Shareholder Defendants" and are alleged to have tendered Tribune stock to Tribune as a part of the buyout.

Several Citigroup affiliates are named as defendants in certain actions brought by Tribune noteholders, also seeking to recover the transfers of Tribune stock that occurred as a part of the leveraged buyout, as alleged state-law constructive fraudulent conveyances. The noteholders' claims were previously dismissed and the United States Court of Appeals for the Second Circuit affirmed the dismissal on appeal. The noteholders' petition to the United States Supreme Court for a writ of certiorari is pending.

In the FITZSIMONS action, on January 6, 2017, the United States District Court for the Southern District of New York dismissed the actual fraudulent transfer claim against the shareholder defendants, including several Citigroup affiliates. Additional information concerning these actions is publicly available in court filings under the docket numbers 08-13141 (Bankr. D. Del.) (Carey, J.), 11 MD 02296 (S.D.N.Y.) (Sullivan, J.), 12 MC 2296 (S.D.N.Y.) (Sullivan, J.), 13-3992, 13-3875, 13-4196 (2d Cir.) and 16-317 (U.S.).

Depository Receipts Conversion Litigation

Citigroup, Citibank and CGMI were sued by a purported class of persons or entities who, from January 2000 to the present, are or were holders of depository receipts for which Citi

served as the depository bank and converted foreign-currency dividends or other distributions into U.S. dollars. Plaintiffs allege, among other things, that Citibank breached its deposit agreements by charging a spread for such conversions. Citi's motion to dismiss was granted in part and denied in part on August 15, 2016, and only the breach of contract claim against Citibank remains. Plaintiffs are seeking disgorgement of Citi's profits, as well as compensatory, consequential and general damages. Additional information concerning this action is publicly available in court filings under the docket number 15 Civ. 9185 (S.D.N.Y.) (McMahon, C.).

Foreign Exchange Matters

Regulatory Actions: Government and regulatory agencies in the U.S. and in other jurisdictions are conducting investigations or making inquiries regarding Citigroup's foreign exchange business. Citigroup is fully cooperating with these and related investigations and inquiries.

Antitrust and Other Litigation: Numerous foreign exchange dealers, including Citigroup and Citibank, are named as defendants in putative class actions that are proceeding on a consolidated basis in the United States District Court for the Southern District of New York under the caption IN RE FOREIGN EXCHANGE BENCHMARK RATES ANTITRUST LITIGATION. The plaintiffs allege that they suffered losses as a result of the defendants' alleged manipulation of, and collusion with respect to, the foreign exchange market. The plaintiffs allege violations of the Commodity Exchange Act, the Sherman Act, and/or the Clayton Act, and seek compensatory damages, treble damages and declaratory and injunctive relief.

On December 15, 2015, the court entered an order preliminarily approving a proposed settlement between the Citi defendants and classes of plaintiffs who traded foreign exchange instruments in the spot market and on exchanges. The proposed settlement provides for the Citi defendants to receive a release in exchange for a payment of approximately \$400 million. On December 20, 2016, the court approved the notice of settlements and preliminarily approved the plan of distribution. The final approval hearing is scheduled for October 18, 2017. Additional information concerning these actions is publicly available in court filings under the consolidated lead docket number: 13 Civ. 7789 (S.D.N.Y.) (Schofield, J.).

On May 21, 2015, an action captioned NYPL v. JPMORGAN CHASE & CO., ET AL. was brought in the United States District Court for the Northern District of California against Citigroup, as well as numerous other foreign exchange dealers for possible consolidation with IN RE FOREIGN EXCHANGE BENCHMARK RATES ANTITRUST LITIGATION. On January 22, 2016, plaintiffs in NYPL v. JPMORGAN CHASE & CO., ET AL. filed a second amended class action complaint in the United States District Court for the Southern District of New York naming Citibank and Citicorp as defendants, in addition to Citigroup and numerous other foreign exchange dealers. The plaintiffs seek to represent a putative class of "consumers and businesses in the United States who directly purchased supracompetitive foreign currency exchange rates" from

defendants for their end use, and are seeking compensatory damages, treble damages and declaratory and injunctive relief.

On September 2, 2016, Citigroup and Related Parties, along with other defendant banks, moved to dismiss the second amended complaint. Additional information concerning this action is publicly available in court filings under the docket numbers 15 Civ. 2290 (N.D. Cal.) (Chhabria, J.) and 15 Civ. 9300 (S.D.N.Y.) (Schofield, J.).

On June 3, 2015, an action captioned ALLEN v. BANK OF AMERICA CORPORATION, ET AL. was brought in the United States District Court for the Southern District of New York against Citigroup, as well as numerous other foreign exchange dealers. The plaintiffs seek to represent a putative class of participants, beneficiaries, and named fiduciaries of qualified Employee Retirement Income Security Act (ERISA) plans for whom a defendant provided foreign exchange transactional services or authorized or permitted foreign exchange transactional services involving a plan's assets in connection with its exercise of authority or control regarding an ERISA plan. The plaintiffs allege violations of ERISA, and seek compensatory damages, restitution, disgorgement and declaratory and injunctive relief.

On April 6, 2016, the plaintiffs filed a second amended class action complaint against numerous foreign exchange dealers, including Citigroup and Citibank. On April 15, 2016, the settling defendants in IN RE FOREIGN EXCHANGE BENCHMARK RATES ANTITRUST LITIGATION moved to enjoin the ALLEN action pending final settlement approval in IN RE FOREIGN EXCHANGE BENCHMARK RATES ANTITRUST LITIGATION. On June 1, 2016, the court granted the motion in part as to claims based on collusive conduct and directed plaintiffs to file a separate pleading for claims based exclusively on non-collusive conduct. The plaintiffs filed a third amended complaint on July 15, 2016.

On September 20, 2016, the plaintiffs and settling defendants in IN RE FOREIGN EXCHANGE BENCHMARK RATES ANTITRUST LITIGATION filed a joint stipulation dismissing plaintiffs' claims with prejudice. On October 20, 2016, the ALLEN plaintiffs appealed the lower court's dismissal of claims against settling defendants in IN RE FOREIGN EXCHANGE BENCHMARK RATES ANTITRUST LITIGATION to the United States Court of Appeals for the Second Circuit, after having also appealed dismissal as to other defendants. The Second Circuit has consolidated the two appeals. Additional information concerning this action is publicly available in court filings under the docket numbers 13 Civ. 7789 (S.D.N.Y.) (Schofield, J.); 15 Civ. 4285 (S.D.N.Y.) (Schofield, J.); 16-3327 (2d Cir.); and 16-3571 (2d Cir.).

On September 16, 2015, an action captioned NEGRETE v. CITIBANK, N.A. was filed in the United States District Court for the Southern District of New York. Plaintiffs allege that Citibank engaged in conduct in connection with plaintiffs' foreign exchange trading that caused them losses. Plaintiffs assert claims for fraud, breach of contract, and negligence, and seek compensatory damages, punitive damages and injunctive relief. On June 20, 2016, plaintiffs filed an amended complaint. Citibank has moved to dismiss the amended complaint, and plaintiffs have cross-moved for partial

summary judgment. Additional information concerning this action is publicly available in court filings under the docket number 15 Civ. 7250 (S.D.N.Y.) (Sweet, J.).

On September 26, 2016, investors in exchange-traded funds (ETFs) commenced a suit captioned *BAKER ET AL. v. BANK OF AMERICA CORPORATION ET AL.* in the United States District Court for the Southern District of New York against Citigroup, Citibank, Citicorp and CGMI, as well as various other banks. The complaint asserts claims under the Sherman Act, New York state antitrust law, and California state antitrust law and unfair competition law, based on alleged foreign exchange market collusion affecting ETF investments. The plaintiffs seek to certify nationwide, California and New York classes, and request damages and injunctive relief under the relevant statutes, including treble damages. Additional information concerning this action is publicly available in court filings under the docket number 16 civ.7512 (S.D.N.Y.) (Schofield, J.).

In September 2015, putative class actions captioned *BÉLAND v. ROYAL BANK OF CANADA, ET AL.* and *STAINES v. ROYAL BANK OF CANADA, ET AL.* were filed in the Quebec Superior Court of Justice and the Ontario Superior Court of Justice, respectively, against Citigroup and Related Parties, as well as numerous other foreign exchange dealers. Plaintiffs allege that defendants conspired to fix the prices and supply of currency purchased in the foreign exchange market, and that this manipulation caused investors to pay inflated rates for currency and/or to receive deflated rates for currency. Plaintiffs assert claims under the Canadian Competition Act and the Quebec Civil Code and/or for civil conspiracy, unjust enrichment and waiver of tort. Plaintiffs seek compensatory and punitive damages, or disgorgement, on behalf of putative classes of all persons in Quebec or in Canada who entered into a foreign exchange instrument or participated in a fund or investment vehicle that entered into a foreign exchange instrument between January 1, 2003 and December 31, 2013. Citigroup and Related Parties have agreed to settle these actions for CAD 21 million. On December 14, 2016, the court preliminarily approved the settlement. A final approval hearing is scheduled for April 13, 2017. Additional information concerning these actions is publicly available in court filings under the docket numbers 200-06-000189-152 (C.S.Q. Quebec) and CV-15-536174 (Ont. S.C.J.).

Derivative Actions and Related Proceedings: On March 30, 2016, a derivative action captioned *OKLAHOMA FIREFIGHTERS PENSION & RETIREMENT SYSTEM, ET AL. v. CORBAT, ET AL.* was filed in the Delaware Chancery Court on behalf of Citigroup (as nominal defendant) against certain of Citigroup's present and former directors and officers. Plaintiffs assert claims for breach of fiduciary duty and waste of corporate assets in connection with defendants' alleged failure to exercise appropriate oversight and management of Bank Secrecy Act and anti-money laundering laws and regulations and related consent decrees concerning Citigroup subsidiaries, Citibanamex and Banamex USA (BUSA), as well as defendants' alleged failures to implement adequate internal controls and exercise adequate oversight with respect to Citigroup subsidiaries' participation in foreign

exchange markets and credit card practices. On August 15, 2016, plaintiffs filed an amended version of the supplemental complaint. On November 14, 2016, the defendants moved to dismiss the amended supplemental complaint. Additional information concerning this action is publicly available in court filings under the docket number C.A. No. 12151-VCG (Del. Ch.) (Glasscock, Ch.).

Interest Rate Swaps Matters

Antitrust and Other Litigation: Beginning in November 2015, numerous interest rate swap (IRS) market participants, including Citigroup, Citibank, CGMI and CGML, were named as defendants in a number of industry-wide putative class actions. These actions have been consolidated in the United States District Court for the Southern District of New York under the caption *IN RE INTEREST RATE SWAPS ANTITRUST LITIGATION*. Plaintiffs in these actions allege that defendants colluded to prevent the development of exchange-like trading for IRS, thereby causing the putative classes to suffer losses in connection with their IRS transactions. Plaintiffs assert federal antitrust claims and claims for unjust enrichment. Also consolidated under the same caption are two individual actions filed by swap execution facilities, asserting federal and state antitrust claims as well as claims for unjust enrichment and tortious interference with business relations. Plaintiffs in all of these actions seek treble damages, fees, costs and injunctive relief. Additional information concerning these actions is publicly available in court filings under the docket number 16-MD-2704 (S.D.N.Y.) (Engelmayer, J.).

Regulatory Actions: The Commodity Futures Trading Commission is conducting an investigation into the trading and clearing of interest rate swaps by investment banks. Citigroup is cooperating with the investigation.

Interchange Fee Litigation

Beginning in 2005, several putative class actions were filed against Citigroup and Related Parties, together with Visa, MasterCard and other banks and their affiliates, in various federal district courts and consolidated with other related individual cases in a multi-district litigation proceeding in the United States District Court for the Eastern District of New York (Interchange MDL). This proceeding is captioned *IN RE PAYMENT CARD INTERCHANGE FEE AND MERCHANT DISCOUNT ANTITRUST LITIGATION*.

The plaintiffs, merchants that accept Visa- and MasterCard-branded payment cards as well as membership associations that claim to represent certain groups of merchants, allege, among other things, that defendants have engaged in conspiracies to set the price of interchange and merchant discount fees on credit and debit card transactions and to restrain trade through various Visa and MasterCard rules governing merchant conduct, all in violation of Section 1 of the Sherman Act and certain California statutes. Supplemental complaints also have been filed against defendants in the putative class actions alleging that Visa's and MasterCard's respective initial public offerings were anticompetitive and violated Section 7 of the Clayton Act, and

that MasterCard's initial public offering constituted a fraudulent conveyance.

On January 14, 2014, the district court entered a final judgment approving the terms of a class settlement providing for, among other things, a total payment to the class of \$6.05 billion; a rebate to merchants participating in the damages class settlement of 10 basis points on interchange collected for a period of eight months by the Visa and MasterCard networks; and changes to certain network rules. Various objectors appealed from the final class settlement approval order to the United States Court of Appeals for the Second Circuit.

On June 30, 2016, the Court of Appeals reversed the district court's approval of the class settlement and remanded for further proceedings. On November 23, 2016, counsel for the class plaintiffs that entered the now-vacated settlement filed a petition for certiorari review by the United States Supreme Court relating to the Second Circuit's decision. Additional information concerning these consolidated actions and the appeal is publicly available in court filings under the docket numbers MDL 05-1720 (E.D.N.Y.) (Brodie, J.), 12-4671 (2d Cir.) and 16-710 (U.S. Supreme Court).

In addition, following the district court's approval of the class settlement, and during the pendency of appeals from that approval, numerous merchants, including large national merchants, requested exclusion from the portion of the now-vacated settlement involving a settlement class certified with respect to damages claims for past conduct, and some of those opting out filed complaints against Visa, MasterCard, and in some instances one or more issuing banks. One of these suits, 7-ELEVEN, INC., ET AL. v. VISA INC., ET AL., brought on behalf of numerous individual merchants, names Citigroup as a defendant. Additional information concerning these actions is publicly available in court filings under the docket number MDL 05-1720 (E.D.N.Y.) (Brodie, J.).

Interbank Offered Rates-Related Litigation and Other Matters

Regulatory Actions: A consortium of state attorneys general is conducting an investigation regarding submissions made by panel banks to bodies that publish various interbank offered rates and other benchmark rates. As members of a number of such panels, Citigroup subsidiaries have received requests for information and documents. Citigroup is cooperating with the investigation and is responding to the requests.

Antitrust and Other Litigation: Citigroup and Citibank, along with other U.S. Dollar (USD) LIBOR panel banks, are defendants in a multi-district litigation (MDL) proceeding before the United States District Court for the Southern District of New York captioned IN RE LIBOR-BASED FINANCIAL INSTRUMENTS ANTITRUST LITIGATION (the LIBOR MDL). Consolidated amended complaints were filed on behalf of two separate putative classes of plaintiffs: (i) over-the-counter (OTC) purchasers of derivative instruments tied to USD LIBOR; and (ii) purchasers of exchange-traded derivative instruments tied to USD LIBOR. Each of these putative classes alleges that the panel bank defendants conspired to suppress USD LIBOR: (i) OTC purchasers assert claims under the Sherman Act and for unjust enrichment and

breach of the implied covenant of good faith and fair dealing; and (ii) purchasers of exchange-traded derivative instruments assert claims under the Commodity Exchange Act and the Sherman Act and for unjust enrichment. Several individual actions also were consolidated into the LIBOR MDL. The plaintiffs seek compensatory damages and restitution for losses caused by the alleged violations, as well as treble damages under the Sherman Act. The OTC purchasers and certain individual action plaintiffs also seek injunctive relief.

Additional actions have been consolidated in the LIBOR MDL proceeding, including (i) lawsuits filed by, or on behalf of putative classes of, community and other banks, savings and loans institutions, credit unions, municipalities and purchasers and holders of LIBOR-linked financial products; and (ii) lawsuits filed by putative classes of lenders and adjustable rate mortgage borrowers. The plaintiffs allege that defendant panel banks artificially suppressed USD LIBOR in violation of applicable law and seek compensatory and other damages.

Additional information relating to these actions is publicly available in court filings under the following docket numbers: 11 Civ. 2613; 11 Civ. 5450; 11 Civ. 4186; 12 Civ. 1205; 12 Civ. 5723; 12 Civ. 5822; 12 Civ. 6056; 12 Civ. 6693; 12 Civ. 7461; 13 Civ. 346; 13 Civ. 407; 13 Civ. 1016, 13 Civ. 1456, 13 Civ. 1700, 13 Civ. 2262, 13 Civ. 2297; 13 Civ. 4018; 13 Civ. 7720; 14 Civ. 146 (S.D.N.Y.) (Buchwald, J.); 12 Civ. 6294 (E.D.N.Y.) (Seybert, J.); 12 Civ. 6571 (N.D. Cal.) (Conti, J.); 12 Civ. 10903 (C.D. Cal.) (Snyder, J.); 13 Civ. 48 (S.D. Cal.) (Sammartino, J.); 13 Civ. 62 (C.D. Cal.) (Phillips, J.); 13 Civ. 106 (N.D. Cal.) (Beller, J.); 13 Civ. 108 (N.D. Cal.) (Ryu, J.); 13 Civ. 109 (N.D. Cal.) (Laporte, J.); 13 Civ. 122 (C.D. Cal.) (Bernal, J.); 13 Civ. 334, 13 Civ. 335 (S.D. Iowa) (Pratt, J.); 13 Civ. 342 (E.D. Va.) (Brinkema, J.); 13 Civ. 1466 (S.D. Cal.) (Lorenz, J.); 13 Civ. 1476 (E.D. Cal.) (Mueller, J.); 13 Civ. 2149 (S.D. Tex.) (Hoyt, J.); 13 Civ. 2244 (N.D. Cal.) (Hamilton, J.); 13 Civ. 2921 (N.D. Cal.) (Chesney, J.); 13 Civ. 2979 (N.D. Cal.) (Tigar, J.); 13 Civ. 4352 (E.D. Pa.) (Restrepo, J.); 13 Civ. 5278 (N.D. Cal.) (Vadas, J.); 15 Civ. 1334 (S.D.N.Y.) (Buchwald, J.); and 15 Civ. 2973 (S.D.N.Y.) (Buchwald, J.).

On May 23, 2016, the United States Court of Appeals for the Second Circuit reversed the district court's dismissal of antitrust claims in the action captioned IN RE LIBOR-BASED FINANCIAL INSTRUMENTS ANTITRUST LITIGATION and remanded to the district court the issue of antitrust standing—specifically whether plaintiffs are “efficient enforcers” of the antitrust laws. On December 20, 2016 the district court resolved the issue of antitrust standing, dismissing certain plaintiffs' actions on efficient enforcer grounds, and limiting the classes of OTC and exchange-traded derivative instruments purchasers. The district court also dismissed antitrust claims against Citigroup and Citibank brought by several individual plaintiffs outside of New York on personal jurisdiction grounds. Additional information concerning these actions is publicly available in court filings under the docket numbers 11 MD 2262 (S.D.N.Y.) (Buchwald, J.); 16-545 (U.S.).

Citigroup and Citibank, along with other USD LIBOR panel banks, also are named as defendants in an individual

action filed in the United States District Court for the Southern District of New York on February 13, 2013, captioned 7 WEST 57th STREET REALTY CO. v. CITIGROUP, INC., ET AL. The plaintiff alleges that the defendant panel banks manipulated USD LIBOR to keep it artificially high and that this manipulation affected the value of plaintiffs' OTC municipal bond portfolio in violation of federal and state antitrust laws and federal RICO law. The plaintiff seeks compensatory damages, treble damages where authorized by statute, and declaratory relief. On March 31, 2015, the United States District Court for the Southern District of New York dismissed this action. On June 1, 2015, the plaintiff moved for leave to file a second amended complaint. Additional information concerning this action is publicly available in court filings under the docket number 13 Civ. 981 (Gardephe, J.).

On August 13, 2015, plaintiffs in the class action SULLIVAN v. BARCLAYS PLC, ET AL. pending in the United States District Court for the Southern District of New York filed a fourth amended complaint naming Citigroup and Citibank as defendants. Plaintiffs claim to have suffered losses as a result of purported EURIBOR manipulation and assert claims under the Commodity Exchange Act, the Sherman Act and the federal RICO law, and for unjust enrichment. On February 21, 2017, the court granted in part and denied in part defendants' motion to dismiss. Additional information concerning this action is publicly available in court filings under the docket number 13 Civ. 2811 (S.D.N.Y.) (Castel, J.).

On July 1, 2016, a putative class action captioned FRONTPOINT ASIAN EVENT DRIVEN FUND, LTD. ET AL v. CITIBANK, N.A. ET AL. was filed in the United States District Court for the Southern District of New York against Citibank, Citigroup and various other banks. Plaintiffs assert claims for violation of the Sherman Act, Clayton Act and RICO Act, as well as state law claims for alleged manipulation of the Singapore Interbank Offered Rate and Singapore Swap Offer Rate. Additional information concerning this action is publicly available in court filings under the docket number 16 Civ. 5263 (S.D.N.Y.) (Hellerstein, J.).

Money Laundering Inquiries

Regulatory Actions: Citigroup and Related Parties, including Citigroup's indirect, wholly owned subsidiary Banamex USA (BUSA), a California state-chartered bank, have received grand jury subpoenas issued by the United States Attorney's Office for the District of Massachusetts concerning, among other issues, policies, procedures and activities related to compliance with Bank Secrecy Act (BSA) and anti-money laundering (AML) requirements under applicable federal laws and banking regulations. Citigroup and BUSA also have received inquiries and requests for information from other regulators, including the Financial Crimes Enforcement Network, concerning BSA- and AML-related issues. Citigroup is cooperating fully with these inquiries.

Citibank received a subpoena from the United States Attorney for the Eastern District of New York in connection with its investigation of alleged bribery, corruption and money laundering associated with the Federation Internationale de

Football Association (FIFA), and the potential involvement of financial institutions in that activity. The subpoena requested information relating to, among other things, banking relationships and transactions at Citibank and its affiliates associated with certain individuals and entities identified as having had involvement with the alleged corrupt conduct. Citi is cooperating with the authorities in this matter.

Derivative Actions and Related Proceedings: On September 22, 2015, a derivative action captioned FIREMAN'S RETIREMENT SYSTEM OF ST. LOUIS, ET AL. v. CORBAT, ET AL. was filed in the United States District Court for the Southern District of New York on behalf of Citigroup (as nominal defendant) against certain of Citigroup's and certain of its affiliates' present and former directors and officers. The plaintiffs asserted claims derivatively for violation of Section 14(a) of the Securities Exchange Act of 1934, breach of fiduciary duty, waste of corporate assets, and unjust enrichment in connection with the defendants' alleged failure to exercise appropriate oversight and management of BSA and AML laws and regulations and related consent decrees concerning Citigroup's subsidiaries, Citibanamex and BUSA. Due to the similarity of issues, plaintiffs voluntarily dismissed the action in favor of proceeding together with plaintiffs in the derivative action captioned OKLAHOMA FIREFIGHTERS PENSION & RETIREMENT SYSTEM, ET AL. v. CORBAT, ET AL. in the Delaware Chancery Court, described above. Additional information concerning these actions is publicly available in court filings under the docket numbers C.A. No. 12151-VCP (Del. Ch.) (Glasscock, Ch.) and 15 Civ. 7501 (S.D.N.Y.) (Furman, J.).

Oceanografia Fraud and Related Matters

Regulatory Actions: As a result of Citigroup's announcement in the first quarter of 2014 of a fraud discovered in a Petróleos Mexicanos (Pemex) supplier program involving Oceanografía SA de CV (OSA), a Mexican oil services company and a key supplier to Pemex, the SEC commenced a formal investigation and the U.S. Department of Justice requested information regarding Banamex's dealings with OSA. The SEC inquiry has included requests for documents and witness testimony. Citi continues to cooperate fully with these inquiries.

Other Litigation: On February 26, 2016, a complaint was filed against Citigroup in the United States District Court for the Southern District of Florida alleging that it conspired with Oceanografía, S.A. de C.V. (OSA) and others with respect to receivable financings and other financing arrangements related to OSA in a manner that injured bondholders and other creditors of OSA. The complaint asserts claims on behalf of 39 plaintiffs that are characterized in the complaint variously as trade creditors of, investors in, or lenders to OSA. Plaintiffs collectively claim to have lost \$1.1 billion as a result of OSA's bankruptcy. The complaint asserts claims under the federal civil Racketeer Influenced and Corrupt Organizations Act and seeks treble damages and other relief pursuant to that statute. The complaint also asserts claims for fraud and breach of fiduciary duty.

On August 23, 2016, plaintiffs filed an amended complaint adding common law claims for fraud, aiding and

abetting fraud, and conspiracy on behalf of all plaintiffs. Citigroup has moved to dismiss the amended complaint. Additional information concerning this action is publicly available in court filings under the docket number 16-20725 (S.D. Fla.) (Gayles, J.).

Parmalat Litigation and Related Matters

On July 29, 2004, Dr. Enrico Bondi, the Extraordinary Commissioner appointed under Italian law to oversee the administration of various Parmalat companies, filed a complaint in New Jersey state court against Citigroup and Related Parties alleging, among other things, that the defendants “facilitated” a number of frauds by Parmalat insiders. On October 20, 2008, following trial, a jury rendered a verdict in Citigroup’s favor on Parmalat’s claims and in favor of Citibank on three counterclaims, awarding Citi \$431 million. Parmalat has exhausted all appeals, and the judgment is now final. Additional information concerning this action is publicly available in court filings under the docket number A-2654-08T2 (N.J. Sup. Ct.). Citigroup has taken steps to enforce that judgment in the Italian courts. On August 29, 2014, the Court of Appeal of Bologna affirmed the decision in the full amount of \$431 million, plus interest, to be paid in Parmalat shares. Parmalat has appealed the judgment to the Italian Supreme Court.

On June 16, 2015, the Parmalat administrator refiled a prior claim in an Italian civil court in Milan claiming damages of €1.8 billion against Citigroup and Related Parties and other financial institutions. The next hearing in this proceeding is scheduled for May 30, 2017.

Referral Hiring Practices Investigations

Government and regulatory agencies in the U.S., including the SEC, are conducting investigations or making inquiries concerning compliance with the Foreign Corrupt Practices Act and other laws with respect to the hiring of candidates referred by or related to foreign government officials. Citigroup is cooperating with the investigations and inquiries.

Regulatory Review of Student Loan Servicing

Citibank is currently subject to regulatory investigation concerning certain student loan servicing practices. Citibank is cooperating with the investigation. Similar servicing practices have been the subject of an enforcement action against at least one other institution. In light of that action and the current regulatory focus on student loans, regulators may order that Citibank remediate customers and/or impose penalties or other relief.

Sovereign Securities Matters

Regulatory Actions: Government and regulatory agencies in the U.S. and in other jurisdictions are conducting investigations or making inquiries regarding Citigroup’s sales and trading activities in connection with sovereign securities. Citigroup is fully cooperating with these investigations and inquiries.

Antitrust and Other Litigation: Beginning in July 2015, CGMI and numerous other U.S. Treasury primary dealer banks, have been named as defendants in a number of

substantially similar putative class actions involving allegations that they colluded to manipulate U.S. Treasury securities markets. The actions are based upon the defendants’ roles as registered primary dealers of U.S. Treasury securities and assert claims of alleged collusion under the antitrust laws and manipulation under the Commodity Exchange Act and seek damages, including treble damages where authorized by statute, and injunctive relief. These actions were filed in the United States District Court for the Southern District of New York, the Northern District of Illinois, the Southern District of Alabama and the District of the Virgin Islands.

In December 2015, the cases were consolidated in the United States District Court for the Southern District of New York by the Judicial Panel on Multidistrict Litigation. Additional information relating to these actions is publicly available in court filings under the docket number: 15-MD-2673 (S.D.N.Y.) (Gardephe, J.).

Since May 2016, a number of substantially similar putative class action complaints have been filed against a number of financial institutions and traders related to the supranational, sub-sovereign, and agency (SSA) bond market. Citigroup, Citibank, CGMI and CGML are named as defendants in three of the complaints. The actions are based upon the defendants’ roles as market makers and traders of SSA bonds and assert claims of alleged collusion under the antitrust laws and unjust enrichment and seek damages, including treble damages where authorized by statute, and disgorgement. These actions were filed in the United States District Court for the Southern District of New York. Beginning in August 2016, the cases were consolidated in the United States District Court for the Southern District of New York. Additional information relating to these actions is publicly available in court filings under the docket number: 16-cv-03711 (S.D.N.Y.) (Ramos, J.).

Settlement Payments

Payments required in settlement agreements described above have been made or are covered by existing litigation accruals.

28. CONDENSED CONSOLIDATING FINANCIAL STATEMENTS

Citigroup amended its Registration Statement on Form S-3 on file with the SEC (File No. 33-192302) to add its wholly owned subsidiary, Citigroup Global Markets Holdings Inc. (CGMHI), as a co-registrant. Any securities issued by CGMHI under the Form S-3 will be fully and unconditionally guaranteed by Citigroup.

The following are the Condensed Consolidating Statements of Income and Comprehensive Income for the years ended December 31, 2016, 2015 and 2014, Condensed Consolidating Balance Sheet as of December 31, 2016 and 2015 and Condensed Consolidating Statement of Cash Flows for the years ended December 31, 2016, 2015 and 2014 for Citigroup Inc., the parent holding company (Citigroup parent company), CGMHI, other Citigroup subsidiaries and eliminations and total consolidating adjustments. "Other Citigroup subsidiaries and eliminations" includes all other subsidiaries of Citigroup, intercompany eliminations and income (loss) from discontinued operations. "Consolidating adjustments" includes Citigroup parent company elimination of distributed and undistributed income of subsidiaries and investment in subsidiaries.

These Condensed Consolidating Financial Statements have been prepared and presented in accordance with SEC Regulation S-X Rule 3-10, "Financial Statements of Guarantors and Issuers of Guaranteed Securities Registered or Being Registered."

These Condensed Consolidating Financial Statements schedules are presented for purposes of additional analysis, but should be considered in relation to the Consolidated Financial Statements of Citigroup taken as a whole.

Condensed Consolidating Statements of Income and Comprehensive Income

Year ended December 31, 2016

<i>In millions of dollars</i>	Citigroup parent company	CGMHI	Other Citigroup subsidiaries and eliminations	Consolidating adjustments	Citigroup consolidated
Revenues					
Dividends from subsidiaries	\$ 15,570	\$ —	\$ —	\$ (15,570)	\$ —
Interest revenue	7	4,586	53,022	—	57,615
Interest revenue—intercompany	3,008	545	(3,553)	—	—
Interest expense	4,419	1,429	6,663	—	12,511
Interest expense—intercompany	209	1,649	(1,858)	—	—
Net interest revenue	\$ (1,613)	\$ 2,053	\$ 44,664	\$ —	\$ 45,104
Commissions and fees	\$ —	\$ 4,305	\$ 6,216	\$ —	\$ 10,521
Commissions and fees—intercompany	(20)	246	(226)	—	—
Principal transactions	(1,025)	5,602	3,008	—	7,585
Principal transactions—intercompany	24	(2,868)	2,844	—	—
Other income	2,599	225	3,841	—	6,665
Other income—intercompany	(2,095)	105	1,990	—	—
Total non-interest revenues	\$ (517)	\$ 7,615	\$ 17,673	\$ —	\$ 24,771
Total revenues, net of interest expense	\$ 13,440	\$ 9,668	\$ 62,337	\$ (15,570)	\$ 69,875
Provisions for credit losses and for benefits and claims	\$ —	\$ —	\$ 6,982	\$ —	\$ 6,982
Operating expenses					
Compensation and benefits	\$ 22	\$ 4,719	\$ 16,229	\$ —	\$ 20,970
Compensation and benefits—intercompany	36	—	(36)	—	—
Other operating	482	1,635	18,329	—	20,446
Other operating—intercompany	217	1,138	(1,355)	—	—
Total operating expenses	\$ 757	\$ 7,492	\$ 33,167	\$ —	\$ 41,416
Equity in undistributed income of subsidiaries	871	—	—	(871)	—
Income (loss) from continuing operations before income taxes	13,554	2,176	22,188	(16,441)	21,477
Provision (benefit) for income taxes	(1,358)	746	7,056	—	6,444
Income (loss) from continuing operations	\$ 14,912	\$ 1,430	\$ 15,132	\$ (16,441)	\$ 15,033
Loss from discontinued operations, net of taxes	—	—	(58)	—	(58)
Net income (loss) before attribution of noncontrolling interests	\$ 14,912	\$ 1,430	\$ 15,074	\$ (16,441)	\$ 14,975
Noncontrolling interests	—	(13)	76	—	63
Net income (loss)	\$ 14,912	\$ 1,443	\$ 14,998	\$ (16,441)	\$ 14,912
Comprehensive income					
Add: Other comprehensive income (loss)	\$ (3,022)	\$ (116)	\$ 4,867	\$ (4,751)	\$ (3,022)
Total Citigroup comprehensive income (loss)	\$ 11,890	\$ 1,327	\$ 19,865	\$ (21,192)	\$ 11,890
Add: Other comprehensive income (loss) attributable to noncontrolling interests	\$ —	\$ —	\$ (56)	\$ —	\$ (56)
Add: Net income attributable to noncontrolling interests	—	(13)	76	—	63
Total comprehensive income (loss)	\$ 11,890	\$ 1,314	\$ 19,885	\$ (21,192)	\$ 11,897

Condensed Consolidating Statements of Income and Comprehensive Income

Year ended December 31, 2015

<i>In millions of dollars</i>	Citigroup parent company	CGMHI	Other Citigroup subsidiaries and eliminations	Consolidating adjustments	Citigroup consolidated
Revenues					
Dividends from subsidiaries	\$ 13,500	\$ —	\$ —	\$ (13,500)	\$ —
Interest revenue	9	4,389	54,153	—	58,551
Interest revenue—intercompany	2,880	272	(3,152)	—	—
Interest expense	4,563	997	6,361	—	11,921
Interest expense—intercompany	(475)	1,295	(820)	—	—
Net interest revenue	\$ (1,199)	\$ 2,369	\$ 45,460	\$ —	\$ 46,630
Commissions and fees	\$ —	\$ 4,854	\$ 6,994	\$ —	\$ 11,848
Commissions and fees—intercompany	—	214	(214)	—	—
Principal transactions	1,012	10,365	(5,369)	—	6,008
Principal transactions—intercompany	(1,733)	(8,709)	10,442	—	—
Other income	3,294	426	8,148	—	11,868
Other income—intercompany	(3,054)	1,079	1,975	—	—
Total non-interest revenues	\$ (481)	\$ 8,229	\$ 21,976	\$ —	\$ 29,724
Total revenues, net of interest expense	\$ 11,820	\$ 10,598	\$ 67,436	\$ (13,500)	\$ 76,354
Provisions for credit losses and for benefits and claims	\$ —	\$ —	\$ 7,913	\$ —	\$ 7,913
Operating expenses					
Compensation and benefits	\$ (58)	\$ 5,003	\$ 16,824	\$ —	\$ 21,769
Compensation and benefits—intercompany	59	—	(59)	—	—
Other operating	271	1,948	19,627	—	21,846
Other operating—intercompany	247	1,164	(1,411)	—	—
Total operating expenses	\$ 519	\$ 8,115	\$ 34,981	\$ —	\$ 43,615
Equity in undistributed income of subsidiaries	4,601	—	—	(4,601)	—
Income (loss) from continuing operations before income taxes	15,902	2,483	24,542	(18,101)	24,826
Provision (benefit) for income taxes	(1,340)	537	8,243	—	7,440
Income (loss) from continuing operations	\$ 17,242	\$ 1,946	\$ 16,299	\$ (18,101)	\$ 17,386
Loss from discontinued operations, net of taxes	—	—	(54)	—	(54)
Net income (loss) before attribution of noncontrolling interests	\$ 17,242	\$ 1,946	\$ 16,245	\$ (18,101)	\$ 17,332
Noncontrolling interests	—	9	81	—	90
Net income (loss)	\$ 17,242	\$ 1,937	\$ 16,164	\$ (18,101)	\$ 17,242
Comprehensive income					
Add: Other comprehensive income (loss)	\$ (6,128)	\$ (125)	\$ (6,367)	\$ 6,492	\$ (6,128)
Total Citigroup comprehensive income (loss)	\$ 11,114	\$ 1,812	\$ 9,797	\$ (11,609)	\$ 11,114
Add: Other comprehensive income (loss) attributable to noncontrolling interests	\$ —	\$ —	\$ (83)	\$ —	\$ (83)
Add: Net income attributable to noncontrolling interests	—	9	81	—	90
Total comprehensive income (loss)	\$ 11,114	\$ 1,821	\$ 9,795	\$ (11,609)	\$ 11,121

Condensed Consolidating Statements of Income and Comprehensive Income

Year ended December 31, 2014

<i>In millions of dollars</i>	Citigroup parent company	CGMHI	Other Citigroup subsidiaries and eliminations	Consolidating adjustments	Citigroup consolidated
Revenues					
Dividends from subsidiaries	\$ 8,900	\$ —	\$ —	\$ (8,900)	\$ —
Interest revenue	12	4,210	57,461	—	61,683
Interest revenue—intercompany	3,109	144	(3,253)	—	—
Interest expense	5,055	1,010	7,625	—	13,690
Interest expense—intercompany	(618)	1,258	(640)	—	—
Net interest revenue	\$ (1,316)	\$ 2,086	\$ 47,223	\$ —	\$ 47,993
Commissions and fees	\$ —	\$ 5,185	\$ 7,847	\$ —	\$ 13,032
Commissions and fees—intercompany	—	95	(95)	—	—
Principal transactions	13	(1,115)	7,800	—	6,698
Principal transactions—intercompany	(672)	3,822	(3,150)	—	—
Other income	1,037	425	8,034	—	9,496
Other income—intercompany	(131)	1,206	(1,075)	—	—
Total non-interest revenues	\$ 247	\$ 9,618	\$ 19,361	\$ —	\$ 29,226
Total revenues, net of interest expense	\$ 7,831	\$ 11,704	\$ 66,584	\$ (8,900)	\$ 77,219
Provisions for credit losses and for benefits and claims	\$ —	\$ —	\$ 7,467	\$ —	\$ 7,467
Operating expenses					
Compensation and benefits	\$ 158	\$ 5,156	\$ 18,645	\$ —	\$ 23,959
Compensation and benefits—intercompany	38	—	(38)	—	—
Other operating	1,572	6,082	23,438	—	31,092
Other operating—intercompany	212	1,651	(1,863)	—	—
Total operating expenses	\$ 1,980	\$ 12,889	\$ 40,182	\$ —	\$ 55,051
Equity in undistributed income of subsidiaries	816	—	—	(816)	—
Income (loss) from continuing operations before income taxes	6,667	(1,185)	18,935	(9,716)	14,701
Provision (benefit) for income taxes	(643)	600	7,240	—	7,197
Income (loss) from continuing operations	\$ 7,310	\$ (1,785)	\$ 11,695	\$ (9,716)	\$ 7,504
Loss from discontinued operations, net of taxes	—	—	(2)	—	(2)
Net income (loss) before attribution of noncontrolling interests	\$ 7,310	\$ (1,785)	\$ 11,693	\$ (9,716)	\$ 7,502
Noncontrolling interests	—	8	184	—	192
Net income (loss)	\$ 7,310	\$ (1,793)	\$ 11,509	\$ (9,716)	\$ 7,310
Comprehensive income					
Add: Other comprehensive income (loss)	\$ (4,083)	\$ 194	\$ (4,760)	\$ 4,566	\$ (4,083)
Total Citigroup comprehensive income (loss)	\$ 3,227	\$ (1,599)	\$ 6,749	\$ (5,150)	\$ 3,227
Add: Other comprehensive income (loss) attributable to noncontrolling interests	\$ —	\$ —	\$ (106)	\$ —	\$ (106)
Add: Net income attributable to noncontrolling interests	—	8	184	—	192
Total comprehensive income (loss)	\$ 3,227	\$ (1,591)	\$ 6,827	\$ (5,150)	\$ 3,313

Condensed Consolidating Balance Sheet

	December 31, 2016					
	Citigroup parent company	CGMHI	Other Citigroup subsidiaries and eliminations	Consolidating adjustments	Citigroup consolidated	
<i>In millions of dollars</i>						
Assets						
Cash and due from banks	\$ —	\$ 870	\$ 22,173	\$ —	\$ 23,043	
Cash and due from banks—intercompany	142	3,820	(3,962)	—	—	
Federal funds sold and resale agreements	—	196,236	40,577	—	236,813	
Federal funds sold and resale agreements—intercompany	—	12,270	(12,270)	—	—	
Trading account assets	6	121,484	122,435	—	243,925	
Trading account assets—intercompany	1,173	907	(2,080)	—	—	
Investments	173	335	352,796	—	353,304	
Loans, net of unearned income	—	575	623,794	—	624,369	
Loans, net of unearned income—intercompany	—	—	—	—	—	
Allowance for loan losses	—	—	(12,060)	—	(12,060)	
Total loans, net	\$ —	\$ 575	\$ 611,734	\$ —	\$ 612,309	
Advances to subsidiaries	\$ 143,154	\$ —	\$ (143,154)	\$ —	\$ —	
Investments in subsidiaries	226,279	—	—	(226,279)	—	
Other assets ⁽¹⁾	23,734	46,095	252,854	—	322,683	
Other assets—intercompany	27,845	38,207	(66,052)	—	—	
Total assets	\$ 422,506	\$ 420,799	\$ 1,175,051	\$ (226,279)	\$ 1,792,077	
Liabilities and equity						
Deposits	\$ —	\$ —	\$ 929,406	\$ —	\$ 929,406	
Deposits—intercompany	—	—	—	—	—	
Federal funds purchased and securities loaned or sold	—	122,320	19,501	—	141,821	
Federal funds purchased and securities loaned or sold—intercompany	—	25,417	(25,417)	—	—	
Trading account liabilities	—	87,714	51,331	—	139,045	
Trading account liabilities—intercompany	1,006	868	(1,874)	—	—	
Short-term borrowings	—	1,356	29,345	—	30,701	
Short-term borrowings—intercompany	—	35,596	(35,596)	—	—	
Long-term debt	147,333	8,128	50,717	—	206,178	
Long-term debt—intercompany	—	41,287	(41,287)	—	—	
Advances from subsidiaries	41,258	—	(41,258)	—	—	
Other liabilities	3,466	57,430	57,887	—	118,783	
Other liabilities—intercompany	4,323	7,894	(12,217)	—	—	
Stockholders' equity	225,120	32,789	194,513	(226,279)	226,143	
Total liabilities and equity	\$ 422,506	\$ 420,799	\$ 1,175,051	\$ (226,279)	\$ 1,792,077	

(1) *Other assets* for Citigroup parent company at December 31, 2016 included \$20.7 billion of placements to Citibank and its branches, of which \$6.8 billion had a remaining term of less than 30 days.

Condensed Consolidating Balance Sheet

December 31, 2015

<i>In millions of dollars</i>	Citigroup parent company	CGMHI	Other Citigroup subsidiaries and eliminations	Consolidating adjustments	Citigroup consolidated
Assets					
Cash and due from banks	\$ —	\$ 592	\$ 20,308	\$ —	\$ 20,900
Cash and due from banks—intercompany	124	1,403	(1,527)	—	—
Federal funds sold and resale agreements	—	178,178	41,497	—	219,675
Federal funds sold and resale agreements—intercompany	—	15,035	(15,035)	—	—
Trading account assets	—	124,731	116,484	—	241,215
Trading account assets—intercompany	1,032	1,765	(2,797)	—	—
Investments	484	402	342,069	—	342,955
Loans, net of unearned income	—	1,068	616,549	—	617,617
Loans, net of unearned income—intercompany	—	—	—	—	—
Allowance for loan losses	—	(3)	(12,623)	—	(12,626)
Total loans, net	\$ —	\$ 1,065	\$ 603,926	\$ —	\$ 604,991
Advances to subsidiaries	\$ 104,405	\$ —	\$ (104,405)	\$ —	\$ —
Investments in subsidiaries	221,362	—	—	(221,362)	—
Other assets ⁽¹⁾	25,819	36,860	238,795	—	301,474
Other assets—intercompany	58,199	30,737	(88,936)	—	—
Total assets	\$ 411,425	\$ 390,768	\$ 1,150,379	\$ (221,362)	\$ 1,731,210
Liabilities and equity					
Deposits	\$ —	\$ —	\$ 907,887	\$ —	\$ 907,887
Deposits—intercompany	—	—	—	—	—
Federal funds purchased and securities loaned or sold	—	122,459	24,037	—	146,496
Federal funds purchased and securities loaned or sold—intercompany	185	22,042	(22,227)	—	—
Trading account liabilities	—	62,386	55,126	—	117,512
Trading account liabilities—intercompany	1,036	2,045	(3,081)	—	—
Short-term borrowings	146	188	20,745	—	21,079
Short-term borrowings—intercompany	—	34,916	(34,916)	—	—
Long-term debt	141,914	2,530	56,831	—	201,275
Long-term debt—intercompany	—	51,171	(51,171)	—	—
Advances from subsidiaries	36,453	—	(36,453)	—	—
Other liabilities	3,560	55,482	54,827	—	113,869
Other liabilities—intercompany	6,274	10,967	(17,241)	—	—
Stockholders' equity	221,857	26,582	196,015	(221,362)	223,092
Total liabilities and equity	\$ 411,425	\$ 390,768	\$ 1,150,379	\$ (221,362)	\$ 1,731,210

(1) *Other assets* for Citigroup parent company at December 31, 2015 included \$42.7 billion of placements to Citibank and its branches, of which \$33.9 billion had a remaining term of less than 30 days.

Condensed Consolidating Statement of Cash Flows

Year ended December 31, 2016

<i>In millions of dollars</i>	Citigroup parent company	CGMHI	Other Citigroup subsidiaries and eliminations	Consolidating adjustments	Citigroup consolidated
Net cash provided by operating activities of continuing operations	\$ 12,777	\$ 20,662	\$ 20,493	\$ —	\$ 53,932
Cash flows from investing activities of continuing operations					
Purchases of investments	\$ —	\$ (4)	\$ (211,398)	\$ —	\$ (211,402)
Proceeds from sales of investments	3,024	—	129,159	—	132,183
Proceeds from maturities of investments	234	—	65,291	—	65,525
Change in deposits with banks	—	(3,643)	(21,668)	—	(25,311)
Change in loans	—	—	(39,761)	—	(39,761)
Proceeds from sales and securitizations of loans	—	—	18,140	—	18,140
Proceeds from significant disposals	—	—	265	—	265
Change in federal funds sold and resales	—	(15,293)	(1,845)	—	(17,138)
Changes in investments and advances—intercompany	(18,083)	(5,574)	23,657	—	—
Other investing activities	—	—	(2,089)	—	(2,089)
Net cash used in investing activities of continuing operations	\$ (14,825)	\$ (24,514)	\$ (40,249)	\$ —	\$ (79,588)
Cash flows from financing activities of continuing operations					
Dividends paid	\$ (2,287)	\$ —	\$ —	\$ —	\$ (2,287)
Issuance of preferred stock	2,498	—	—	—	2,498
Treasury stock acquired	(9,290)	—	—	—	(9,290)
Proceeds (repayments) from issuance of long-term debt, net	7,005	5,916	(4,575)	—	8,346
Proceeds (repayments) from issuance of long-term debt—intercompany, net	—	(9,453)	9,453	—	—
Change in deposits	—	—	24,394	—	24,394
Change in federal funds purchased and repos	—	3,236	(7,911)	—	(4,675)
Change in short-term borrowings	(164)	1,168	8,618	—	9,622
Net change in short-term borrowings and other advances—intercompany	4,620	680	(5,300)	—	—
Capital contributions from parent	—	5,000	(5,000)	—	—
Other financing activities	(316)	—	—	—	(316)
Net cash provided by financing activities of continuing operations	\$ 2,066	\$ 6,547	\$ 19,679	\$ —	\$ 28,292
Effect of exchange rate changes on cash and due from banks	\$ —	\$ —	\$ (493)	\$ —	\$ (493)
Change in cash and due from banks	\$ 18	\$ 2,695	\$ (570)	\$ —	\$ 2,143
Cash and due from banks at beginning of period	124	1,995	18,781	—	20,900
Cash and due from banks at end of period	\$ 142	\$ 4,690	\$ 18,211	\$ —	\$ 23,043
Supplemental disclosure of cash flow information for continuing operations					
Cash paid during the year for income taxes	\$ 351	\$ 92	\$ 3,916	\$ —	\$ 4,359
Cash paid during the year for interest	4,397	3,115	4,555	—	12,067
Non-cash investing activities					
Transfers to loans HFS from loans	—	—	13,900	—	13,900
Transfers to OREO and other repossessed assets	—	—	165	—	165

Condensed Consolidating Statement of Cash Flows

Year ended December 31, 2015

<i>In millions of dollars</i>	Citigroup parent company	CGMHI	Other Citigroup subsidiaries and eliminations	Consolidating adjustments	Citigroup consolidated
Net cash provided by (used in) operating activities of continuing operations	\$ 27,825	\$ 12,336	\$ (424)	\$ —	\$ 39,737
Cash flows from investing activities of continuing operations					
Purchases of investments	\$ —	\$ (4)	\$ (242,358)	\$ —	\$ (242,362)
Proceeds from sales of investments	—	53	141,417	—	141,470
Proceeds from maturities of investments	237	—	81,810	—	82,047
Change in deposits with banks	—	(8,414)	23,902	—	15,488
Change in loans	—	—	1,353	—	1,353
Proceeds from sales and securitizations of loans	—	—	9,610	—	9,610
Proceeds from significant disposals	—	—	5,932	—	5,932
Payments due to transfers of net liabilities associated with significant disposals	—	—	(18,929)	—	(18,929)
Change in federal funds sold and resales	—	8,037	14,858	—	22,895
Changes in investments and advances—intercompany	(35,548)	1,044	34,504	—	—
Other investing activities	3	(101)	(2,523)	—	(2,621)
Net cash provided by (used in) investing activities of continuing operations	\$ (35,308)	\$ 615	\$ 49,576	\$ —	\$ 14,883
Cash flows from financing activities of continuing operations					
Dividends paid	\$ (1,253)	\$ —	\$ —	\$ —	\$ (1,253)
Issuance of preferred stock	6,227	—	—	—	6,227
Treasury stock acquired	(5,452)	—	—	—	(5,452)
Proceeds (repayments) from issuance of long-term debt, net	127	(139)	(8,212)	—	(8,224)
Proceeds (repayments) from issuance of long-term debt—intercompany, net	—	12,557	(12,557)	—	—
Change in deposits	—	—	8,555	—	8,555
Change in federal funds purchased and repos	—	(27,442)	500	—	(26,942)
Change in short-term borrowings	(845)	(1,737)	(34,674)	—	(37,256)
Net change in short-term borrowings and other advances—intercompany	9,106	4,054	(13,160)	—	—
Capital contributions from parent	—	—	—	—	—
Other financing activities	(428)	—	—	—	(428)
Net cash provided by (used in) financing activities of continuing operations	\$ 7,482	\$ (12,707)	\$ (59,548)	\$ —	\$ (64,773)
Effect of exchange rate changes on cash and due from banks	\$ —	\$ —	\$ (1,055)	\$ —	\$ (1,055)
Change in cash and due from banks	\$ (1)	\$ 244	\$ (11,451)	\$ —	\$ (11,208)
Cash and due from banks at beginning of period	125	1,751	30,232	—	32,108
Cash and due from banks at end of period	\$ 124	\$ 1,995	\$ 18,781	\$ —	\$ 20,900
Supplemental disclosure of cash flow information for continuing operations					
Cash paid during the year for income taxes	\$ 111	\$ 175	\$ 4,692	\$ —	\$ 4,978
Cash paid during the year for interest	4,916	2,346	4,769	—	12,031

Non-cash investing activities										
Decrease in net loans associated with significant disposals reclassified to HFS	\$	—	\$	—	\$	(9,063)	\$	—	\$	(9,063)
Decrease in investments associated with significant disposals reclassified to HFS		—		—		(1,402)		—		(1,402)
Decrease in goodwill and intangible assets associated with significant disposals reclassified to HFS		—		—		(223)		—		(223)
Decrease in deposits with banks with significant disposals reclassified to HFS		—		—		(404)		—		(404)
Transfers to loans held-for-sale from loans		—		—		28,600		—		28,600
Transfers to OREO and other repossessed assets		—		—		276		—		276
Non-cash financing activities										
Decrease in long-term debt associated with significant disposals reclassified to HFS	\$	—	\$	—	\$	(4,673)	\$	—	\$	(4,673)

Condensed Consolidating Statements of Cash Flows

	Year ended December 31, 2014				
<i>In millions of dollars</i>	Citigroup parent company	CGMHI	Other Citigroup subsidiaries and eliminations	Consolidating adjustments	Citigroup consolidated
Net cash provided by (used in) operating activities of continuing operations	\$ 5,940	\$ (10,915)	\$ 51,318	\$ —	\$ 46,343
Cash flows from investing activities of continuing operations					
Purchases of investments	\$ —	\$ (188)	\$ (258,804)	\$ —	\$ (258,992)
Proceeds from sales of investments	41	42	135,741	—	135,824
Proceeds from maturities of investments	155	—	93,962	—	94,117
Change in deposits with banks	—	4,183	36,733	—	40,916
Change in loans	—	—	1,170	—	1,170
Proceeds from sales and securitizations of loans	—	—	4,752	—	4,752
Change in federal funds sold and resales	—	8,832	5,635	—	14,467
Proceeds from significant disposals	—	—	346	—	346
Payments due to transfers of net liabilities associated with significant disposals	—	—	(1,255)	—	(1,255)
Changes in investments and advances—intercompany	(7,986)	3,549	4,437	—	—
Other investing activities	5	(72)	(2,696)	—	(2,763)
Net cash provided by (used in) investing activities of continuing operations	\$ (7,785)	\$ 16,346	\$ 20,021	\$ —	\$ 28,582
Cash flows from financing activities of continuing operations					
Dividends paid	\$ (633)	\$ —	\$ —	\$ —	\$ (633)
Issuance of preferred stock	3,699	—	—	—	3,699
Redemption of preferred stock	—	—	—	—	—
Treasury stock acquired	(1,232)	—	—	—	(1,232)
Proceeds (repayments) from issuance of long-term debt, net	(3,636)	(634)	12,183	—	7,913
Proceeds (repayments) from issuance of long-term debt—intercompany, net	—	1,131	(1,131)	—	—
Change in deposits	—	—	(48,336)	—	(48,336)
Change in federal funds purchased and repos	—	(15,268)	(14,806)	—	(30,074)
Change in short-term borrowings	749	143	(1,991)	—	(1,099)
Net change in short-term borrowings and other advances—intercompany	3,297	1,212	(4,509)	—	—
Capital contributions from parent	—	8,500	(8,500)	—	—
Other financing activities	(507)	—	(1)	—	(508)
Net cash provided by (used in) financing activities of continuing operations	\$ 1,737	\$ (4,916)	\$ (67,091)	\$ —	\$ (70,270)
Effect of exchange rate changes on cash and due from banks	\$ —	\$ —	\$ (2,432)	\$ —	\$ (2,432)
Discontinued operations					—
Net cash used in discontinued operations	\$ —	\$ —	\$ —	\$ —	\$ —
Change in cash and due from banks	\$ (108)	\$ 515	\$ 1,816	\$ —	\$ 2,223
Cash and due from banks at beginning of period	233	1,236	28,416	—	29,885
Cash and due from banks at end of period	\$ 125	\$ 1,751	\$ 30,232	\$ —	\$ 32,108
Supplemental disclosure of cash flow information for continuing operations					
Cash paid during the year for income taxes	\$ 235	\$ 353	\$ 4,044	\$ —	\$ 4,632
Cash paid during the year for interest	5,632	2,298	6,071	—	14,001

Non-cash investing activities										
Change in loans due to consolidation/deconsolidation of VIEs	\$	—	\$	—	\$	(374)	\$	—	\$	(374)
Transfers to loans held-for-sale from loans		—		—		15,100		—		15,100
Transfers to OREO and other repossessed assets		—		—		321		—		321
Non-cash financing activities										
Decrease in deposits associated with reclassifications to HFS	\$	—	\$	—	\$	(20,605)	\$	—	\$	(20,605)
Increase in short-term borrowings due to consolidation of VIEs		—		—		500		—		500
Decrease in long-term debt due to deconsolidation of VIEs		—		—		(864)		—		(864)

29. SUBSEQUENT EVENT

In January 2017, Citi signed agreements to effectively exit its U.S. mortgage servicing operations by the end of 2018 and intensify its focus on loan originations. Citi entered into an agreement to sell mortgage servicing rights and related servicing on approximately 780,000 Fannie Mae and Freddie Mac held loans with outstanding balances of approximately \$97 billion. In addition, Citi entered into a subservicing agreement for its remaining Citi-owned loans and certain other mortgage servicing rights. As part of the transactions, Citi will transfer certain employees along with the mortgage servicing rights. These transactions are expected to negatively impact Citi's pre-tax earnings by approximately \$400 million, including a loss on sale and certain related transaction costs, in the first quarter of 2017. When Citi completes the servicing rights sale to the buyer in 2017, Citi's mortgage servicing rights asset is expected to decline by approximately \$1 billion.

Citi's mortgage servicing operations and related mortgage servicing assets were not considered held-for-sale as of December 31, 2016. As of that date, there were no approved purchase agreements and negotiations were still underway.

As such, the assets and liabilities included in the sale were measured on a held and used basis, and no impairment was deemed to exist as of the balance sheet date.

30. SELECTED QUARTERLY FINANCIAL DATA (UNAUDITED)

<i>In millions of dollars, except per share amounts</i>	2016				2015			
	Fourth	Third	Second	First	Fourth	Third	Second	First
Revenues, net of interest expense	\$ 17,012	\$ 17,760	\$ 17,548	\$ 17,555	\$ 18,456	\$ 18,692	\$ 19,470	\$ 19,736
Operating expenses	10,120	10,404	10,369	10,523	11,134	10,669	10,928	10,884
Provisions for credit losses and for benefits and claims	1,792	1,736	1,409	2,045	2,514	1,836	1,648	1,915
Income from continuing operations before income taxes	\$ 5,100	\$ 5,620	\$ 5,770	\$ 4,987	\$ 4,808	\$ 6,187	\$ 6,894	\$ 6,937
Income taxes	1,509	1,733	1,723	1,479	1,403	1,881	2,036	2,120
Income from continuing operations	\$ 3,591	\$ 3,887	\$ 4,047	\$ 3,508	\$ 3,405	\$ 4,306	\$ 4,858	\$ 4,817
Income (loss) from discontinued operations, net of taxes	(3)	(30)	(23)	(2)	(45)	(10)	6	(5)
Net income before attribution of noncontrolling interests	\$ 3,588	\$ 3,857	\$ 4,024	\$ 3,506	\$ 3,360	\$ 4,296	\$ 4,864	\$ 4,812
Noncontrolling interests	15	17	26	5	25	5	18	42
Citigroup's net income	\$ 3,573	\$ 3,840	\$ 3,998	\$ 3,501	\$ 3,335	\$ 4,291	\$ 4,846	\$ 4,770
Earnings per share⁽¹⁾								
Basic								
Income from continuing operations	\$ 1.14	\$ 1.25	\$ 1.25	\$ 1.11	\$ 1.04	\$ 1.36	\$ 1.51	\$ 1.51
Net income	1.14	1.24	1.24	1.10	1.02	1.36	1.52	1.51
Diluted								
Income from continuing operations	1.14	1.25	1.25	1.11	1.03	1.36	1.51	1.51
Net income	1.14	1.24	1.24	1.10	1.02	1.35	1.51	1.51
Common stock price per share								
High	61.09	47.90	47.33	51.13	55.87	60.34	57.39	54.26
Low	47.03	40.78	38.48	34.98	49.88	49.00	51.52	46.95
Close	59.43	47.23	42.39	41.75	51.75	49.61	55.24	51.52
Dividends per share of common stock	0.16	0.16	0.05	0.05	0.05	0.05	0.05	0.01

This Note to the Consolidated Financial Statements is unaudited due to the Company's individual quarterly results not being subject to an audit.

(1) Due to averaging of shares, quarterly earnings per share may not sum to the totals reported for the full year.

[End of Consolidated Financial Statements and Notes to Consolidated Financial Statements]

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Citigroup Inc.:

We consent to the incorporation by reference in the Registration Statements on:

- Form S-3 Nos. 33-62903, 33-63663, 33-12439, 33-20803, 33-21143, 33-37992, 33-44549, 33-46628, 33-48474, 33-49442, 33-50338, 33-56088, 33-68949, 33-57364, 33-68989, 33-75554, 33-102206, 33-103940, 33-105316, 33-106510, 33-106598, 33-108047, 33-117615, 33-122925, 33-132177, 33-132370, 33-135163, 33-135867, 33-142849, 33-146471, 33-152454, 33-154914, 33-157386, 33-157459, 33-172554, 33-172562, 33-186425, 33-191056, 33-192302, 33-214120 and 33-216372
- Form S-8 Nos. 333-58460, 333-58458, 333-02811, 333-56589, 333-63016, 333-101134, 333-107166, 333-124635, 333-163852, 333-166242, 333-166215, 333-173683, 333-181647, 333-203791, 333-203792 and 333-211479

of Citigroup Inc. of our reports dated February 24, 2017, except as to Notes 3, 6, 14, 15, 16, 18, 24, 26 and 28 which are as of June 16, 2017, with respect to the consolidated balance sheet of Citigroup Inc. and subsidiaries (the “Company” or “Citigroup”) as of December 31, 2016 and 2015, the related consolidated statements of income, comprehensive income, changes in stockholders’ equity and cash flows for each of the years in the three-year period ended December 31, 2016, which reports appear in exhibit 99.01 of Citigroup's Current Report on Form 8-K filed on June 16, 2017.

/s/ KPMG LLP

New York, New York
June 16, 2017