

Notes to consolidated financial statements

Year ended December 31, (in millions)	2019	2018	2017
Trading revenue by instrument type			
Interest rate	\$ 2,552	\$ 1,961	\$ 2,479
Credit	1,611	1,395	1,329
Foreign exchange	3,171	3,222	2,746
Equity	5,812	4,924	3,873
Commodity	1,122	906	661
Total trading revenue	14,268	12,408	11,088
Private equity gains/(losses)	(250)	(349)	259
Principal transactions	\$ 14,018	\$ 12,059	\$ 11,347

Principal transactions revenue is earned primarily by CIB. Refer to Note 32 for segment results.

Lending- and deposit-related fees

Lending-related fees include fees earned from loan commitments, standby letters of credit, financial guarantees, and other loan-servicing activities. Deposit-related fees include fees earned in lieu of compensating balances, and fees earned from performing cash management activities and other deposit account services. Lending- and deposit-related fees in this revenue category are recognized over the period in which the related service is provided.

The following table presents the components of lending- and deposit-related fees.

Year ended December 31, (in millions)	2019	2018	2017
Lending-related fees	\$ 1,184	\$ 1,117	\$ 1,110
Deposit-related fees	5,185	4,935	4,823
Total lending- and deposit-related fees	\$ 6,369	\$ 6,052	\$ 5,933

Lending- and deposit-related fees are earned by CCB, CIB, CB, and AWM. Refer to Note 32 for segment results.

Asset management, administration and commissions

This revenue category includes fees from investment management and related services, custody, brokerage services and other products. The Firm manages assets on behalf of its clients, including investors in Firm-sponsored funds and owners of separately managed investment accounts. Management fees are typically based on the value of assets under management and are collected and recognized at the end of each period over which the management services are provided and the value of the managed assets is known. The Firm also receives performance-based management fees, which are earned based on exceeding certain benchmarks or other performance targets and are accrued and recognized when the probability of reversal is remote, typically at the end of the related billing period. The Firm has contractual arrangements with third parties to provide distribution and other services in connection with its asset management activities. Amounts paid to these third-party service providers are generally recorded in professional and outside services expense.

The following table presents the components of Firmwide asset management, administration and commissions.

Year ended December 31, (in millions)	2019	2018	2017
Asset management fees			
Investment management fees ^(a)	\$ 10,865	\$ 10,768	\$ 10,434
All other asset management fees ^(b)	315	270	296
Total asset management fees	11,180	11,038	10,730
Total administration fees ^(c)	2,197	2,179	2,029
Commissions and other fees			
Brokerage commissions ^(d)	2,439	2,505	2,239
All other commissions and fees	1,349	1,396	1,289
Total commissions and fees	3,788	3,901	3,528
Total asset management, administration and commissions	\$ 17,165	\$ 17,118	\$ 16,287

(a) Represents fees earned from managing assets on behalf of the Firm's clients, including investors in Firm-sponsored funds and owners of separately managed investment accounts.

(b) Represents fees for services that are ancillary to investment management services, such as commissions earned on the sales or distribution of mutual funds to clients. These fees are recorded as revenue at the time the service is rendered or, in the case of certain distribution fees based on the underlying fund's asset value and/or investor redemption, recorded over time as the investor remains in the fund or upon investor redemption.

(c) Predominantly includes fees for custody, securities lending, funds services and securities clearance. These fees are recorded as revenue over the period in which the related service is provided.

(d) Represents commissions earned when the Firm acts as a broker, by facilitating its clients' purchases and sales of securities and other financial instruments. Brokerage commissions are collected and recognized as revenue upon occurrence of the client transaction. The Firm reports certain costs paid to third-party clearing houses and exchanges net against commission revenue.

Asset management, administration and commissions are earned primarily by AWM, CIB, CCB, and CB. Refer to Note 32 for segment results.

Mortgage fees and related income

This revenue category primarily reflects CCB's Home Lending net production and net mortgage servicing revenue.

Net production revenue includes fees and income recognized as earned on mortgage loans originated with the intent to sell, and the impact of risk management activities associated with the mortgage pipeline and warehouse loans. Net production revenue also includes gains and losses on sales and lower of cost or fair value adjustments on mortgage loans held-for-sale (excluding certain repurchased loans insured by U.S. government agencies), and changes in the fair value of financial instruments measured under the fair value option.