

## Note 17: Fair Value of Financial Instruments and Trading-Related Revenue

We record trading assets and liabilities, derivatives, available-for-sale securities and securities sold but not yet purchased at fair value, and other non-trading assets and liabilities at amortized cost less allowances or write-downs for impairment. The fair values presented in this note are based upon the amounts estimated for individual assets and liabilities and do not include an estimate of the fair value of any of the legal entities or underlying operations that comprise our business.

Fair value represents the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between willing market participants at the measurement date. The fair value amounts disclosed represent point-in-time estimates that may change in subsequent reporting periods due to changes in market conditions or other factors. Some financial instruments are not typically exchangeable or exchanged and therefore it is difficult to determine their fair value. Where there is no quoted market price, we determine fair value using management's best estimates based on a range of valuation techniques and assumptions; since these involve uncertainties, the fair values may not be realized in an actual sale or immediate settlement of the asset or liability.

### Governance Over the Determination of Fair Value

Senior executive oversight of our valuation processes is provided through various valuation and risk committees. In order to ensure that all financial instruments carried at fair value are reasonably measured for risk management and financial reporting purposes, we have established governance structures and controls, such as model validation and approval, independent price verification ("IPV") and profit or loss attribution analysis ("PAA"), consistent with industry practice. These controls are applied independently of the relevant operating groups.

We establish and regularly update valuation methodologies for each financial instrument that is required to be measured at fair value. The application of valuation models for products or portfolios is subject to independent approval to ensure only validated models are used. The impact of known limitations of models and data inputs is also monitored on an ongoing basis. IPV is a process that regularly and independently verifies the accuracy and appropriateness of market prices or model inputs used in the valuation of financial instruments. This process assesses fair values using a variety of different approaches to verify and validate the valuations. PAA is a daily process used by management to identify and explain changes in fair value positions across all operating lines of business within BMO Capital Markets. This process works in concert with other processes to ensure that the fair values being reported are reasonable and appropriate.

### Securities

For traded securities, quoted market value is considered to be fair value. Quoted market value is based on bid or ask prices, depending on which is the most appropriate to measure fair value. Securities for which no active market exists are valued using all reasonably available market information. Our fair value methodologies are described below.

#### *Government Securities*

The fair value of government issued or guaranteed debt securities in active markets is determined by reference to recent transaction prices, broker quotes or third-party vendor prices. The fair value of securities that are not traded in an active market is modelled using implied yields derived from the prices of similar actively traded government securities and observable spreads. Market inputs to the model include coupon, maturity and duration.

#### *Mortgage-Backed Securities and Collateralized Mortgage Obligations*

The fair value of mortgage-backed securities and collateralized mortgage obligations is determined using independent prices obtained from third-party vendor prices, broker quotes and relevant market indices, as applicable. If such prices are not available, fair value is determined using cash flow models that make maximum use of observable market inputs or benchmark prices for similar instruments. Valuation assumptions for mortgage-backed securities and collateralized mortgage obligations include discount rates, expected prepayments, credit spreads and recoveries.

#### *Corporate Debt Securities*

The fair value of corporate debt securities is determined using prices observed in the most recent transactions. When observable price quotations are not available, fair value is determined based on discounted cash flow models using discounting curves and spreads obtained from independent dealers, brokers and multi-contributor pricing sources.

#### *Corporate Equity Securities*

The fair value of equity securities is based on quoted prices in active markets, where available. Where quoted prices in active markets are not readily available, fair value is determined using either quoted market prices for similar securities or using valuation techniques, which include discounted cash flow analysis and multiples of earnings.

#### *Privately Issued Securities*

Privately issued debt and equity securities are valued using prices observed in recent market transactions, where available. Otherwise, fair value is derived from valuation models using a market or income approach. These models consider various factors, including projected cash flows, earnings, revenue and other third-party evidence, as available. The fair value of limited partnership investments is based upon net asset values published by third-party fund managers.

Prices from brokers and multi-contributor pricing sources are corroborated as part of our independent review process, which may include using valuation techniques or obtaining consensus or composite prices from other pricing services. We validate the estimates of fair value by independently obtaining multiple quotes for external market prices and input values. We review the approach taken by third-party vendors to ensure that the vendor employs a valuation model which maximizes the use of observable inputs such as benchmark yields, bid-ask spreads, underlying collateral, weighted-average terms to maturity and prepayment rate assumptions. Fair value estimates from internal valuation techniques are verified, where possible, by reference to prices obtained from third-party vendors.

## Loans

In determining the fair value of our fixed rate performing loans, we discount the remaining contractual cash flows, adjusted for estimated prepayment, at market interest rates currently offered for loans with similar terms and risks. For floating rate performing loans, changes in interest rates have minimal impact on the fair value since interest rates are repriced or reset frequently. On that basis, fair value is assumed to be equal to carrying value.

The value of our loan balances determined using this approach is further adjusted by a credit mark that represents an estimate of the expected credit losses in our loan portfolio.

## Derivative Instruments

A number of valuation techniques are employed to estimate fair value, including discounted cash flow analysis, the Black-Scholes model, Monte Carlo simulation and other accepted market models. These independently validated models incorporate current market data for interest rates, currency exchange rates, equity and commodity prices and indices, credit spreads, recovery rates, corresponding market volatility levels, spot prices, correlation levels and other market-based pricing factors. Option implied volatilities, an input into many valuation models, are either obtained directly from market sources or calculated from market prices. Multi-contributor pricing sources are used wherever possible.

In determining the fair value of complex and customized derivatives, we consider all reasonably available information, including dealer and broker quotations, multi-contributor pricing sources and any relevant observable market inputs. Our model calculates fair value based on inputs specific to the type of contract, which may include stock prices, correlation for multiple assets, interest rates, foreign exchange rates, yield curves and volatilities.

We calculate a credit valuation adjustment (“CVA”) to recognize the risk that any given derivative counterparty may not ultimately be able to fulfill its obligations. The CVA is derived from market-observed credit spreads or proxy credit spreads and our assessment of the net counterparty credit risk exposure, taking into account credit mitigants such as collateral, master netting agreements and novation to central counterparties. We also calculate a funding valuation adjustment (“FVA”) to recognize the implicit funding costs associated with over-the-counter derivative positions. The FVA is determined by reference to market funding spreads.

## Deposits

In determining the fair value of our deposits, we incorporate the following assumptions:

- For fixed rate, fixed maturity deposits, we discount the remaining contractual cash flows for these deposits, adjusted for expected redemptions, at market interest rates currently offered for deposits with similar terms and risks.
- For fixed rate deposits with no defined maturities, we consider fair value to equal carrying value, based on carrying value being equivalent to the amount payable on the reporting date.
- For floating rate deposits, changes in interest rates have minimal impact on fair value since deposits reprice to market frequently. On that basis, fair value is assumed to equal carrying value.

A portion of our structured note liabilities that have coupons or repayment terms linked to the performance of interest rates, foreign currencies, commodities or equity securities have been designated at fair value through profit or loss. The fair value of these structured notes is estimated using internally validated valuation models and incorporates observable market prices for identical or comparable securities, as well as other inputs such as interest rate yield curves, option volatilities and foreign exchange rates, where appropriate. Where observable prices or inputs are not available, management judgment is required to determine the fair value by assessing other relevant sources of information, such as historical data and proxy information from similar transactions.

## Securities Sold But Not Yet Purchased

The fair value of these obligations is based on the fair value of the underlying securities, which can be equity or debt securities. As these obligations are fully collateralized, the method used to determine fair value would be the same as that used for the relevant underlying equity or debt securities.

## Securitization and Structured Entities’ Liabilities

The determination of the fair value of securitization and structured entities’ liabilities is based on quoted market prices or quoted market prices for similar financial instruments, where available. Where quoted prices are not available, fair value is determined using valuation techniques, such as discounted cash flows, that maximize the use of observable inputs.

## Subordinated Debt

The fair value of our subordinated debt is determined by referring to current market prices for the same or similar instruments.

## Financial Instruments with a Carrying Value Approximating Fair Value

### Short-term Financial Instruments

The carrying value of certain financial assets and liabilities, such as interest bearing deposits with banks, securities borrowed or purchased under resale agreements, customers’ liability under acceptances, certain other assets, acceptances, securities lent or sold under repurchase agreements and certain other liabilities, is a reasonable estimate of fair value due to their short-term nature or because they are frequently repriced to current market rates.

*Other Financial Instruments*

Carrying value is assumed to be a reasonable estimate of fair value for our cash and cash equivalents and certain other securities.

For longer-term financial instruments recorded within other liabilities, fair value is determined as the present value of contractual cash flows using discount rates at which liabilities with similar remaining maturities could be issued as at the balance sheet date.

Certain assets, including premises and equipment, goodwill and intangible assets, as well as shareholders' equity, are not considered financial instruments and therefore no fair value has been determined for these items.

**Fair Value Hierarchy**

We use a fair value hierarchy to categorize financial instruments according to the inputs we use in valuation techniques to measure fair value.

**Fair Value of Financial Instruments Not Carried at Fair Value on the Balance Sheet**

Set out in the following tables are the amounts that would be reported if all financial assets and liabilities not currently carried at fair value were reported at their fair values.

(Canadian \$ in millions)

	2017				
	Carrying value	Fair value	Valued using quoted market prices	Valued using models (with observable inputs)	Valued using models (without observable inputs)
<b>Securities</b>					
Held to maturity	9,094	9,096	2,522	6,574	-
Other (1)	627	2,907	-	-	2,907
	9,721	12,003	2,522	6,574	2,907
<b>Loans</b>					
Residential mortgages	115,258	114,313	-	-	114,313
Consumer instalment and other personal	61,944	61,031	-	-	61,031
Credit cards	8,071	7,828	-	-	7,828
Businesses and governments	178,232	175,927	-	-	175,927
	363,505	359,099	-	-	359,099
<b>Deposits (2)</b>	469,814	470,137	-	470,137	-
<b>Securitization and structured entities' liabilities</b>	23,054	23,148	-	23,148	-
<b>Other liabilities (3)</b>	-	-	-	-	-
<b>Subordinated debt</b>	5,029	5,255	-	5,255	-

This table excludes financial instruments with a carrying value approximating fair value, such as cash and cash equivalents, interest bearing deposits with banks, securities borrowed or purchased under resale agreements, customers' liability under acceptances, certain other assets, acceptances, securities lent or sold under repurchase agreements and certain other liabilities.

(1) Excluded from other securities is \$333 million of securities related to our merchant banking business that are carried at fair value on the balance sheet.

(2) Excludes \$13,674 million of structured note liabilities designated at fair value through profit or loss and accounted for at fair value.

(3) Other liabilities includes certain other liabilities of subsidiaries, other than deposits. Excludes \$28,665 million of other liabilities for which carrying value approximates fair value or are designated at fair value through profit or loss.

(Canadian \$ in millions)

	2016				
	Carrying value	Fair value	Valued using quoted market prices	Valued using models (with observable inputs)	Valued using models (without observable inputs)
<b>Securities</b>					
Held to maturity	8,965	9,073	864	8,209	-
Other (1)	579	2,778	-	-	2,778
	9,544	11,851	864	8,209	2,778
<b>Loans</b>					
Residential mortgages	112,277	112,400	-	-	112,400
Consumer instalment and other personal	64,680	64,043	-	-	64,043
Credit cards	8,101	7,862	-	-	7,862
Businesses and governments	175,597	173,601	-	-	173,601
	360,655	357,906	-	-	357,906
<b>Deposits (2)</b>	461,768	462,732	-	462,732	-
<b>Securitization and structured entities' liabilities</b>	22,377	22,506	-	22,506	-
<b>Other liabilities (3)</b>	703	1,104	-	1,104	-
<b>Subordinated debt</b>	4,439	4,580	-	4,580	-

This table excludes financial instruments with a carrying value approximating fair value, such as cash and cash equivalents, interest bearing deposits with banks, securities borrowed or purchased under resale agreements, customers' liability under acceptances, certain other assets, acceptances, securities lent or sold under repurchase agreements and certain other liabilities.

(1) Excluded from other securities is \$320 million of securities related to our merchant banking business that are carried at fair value on the balance sheet.

(2) Excludes \$11,604 million of structured note liabilities designated at fair value through profit or loss and accounted for at fair value.

(3) Other liabilities includes certain other liabilities of subsidiaries, other than deposits. Excludes \$27,321 million of other liabilities for which carrying value approximates fair value or are designated at fair value through profit or loss.

Certain comparative figures have been reclassified to conform with the current year's presentation.

## Valuation Techniques and Significant Inputs

We determine the fair value of publicly traded fixed maturity debt and equity securities using quoted prices in active markets (Level 1) when these are available. When quoted prices in active markets are not available, we determine the fair value of financial instruments using models such as discounted cash flows, with observable market data for inputs, such as yield and prepayment rates or broker quotes and other third-party vendor quotes (Level 2). Fair value may also be determined using models where significant market inputs are not observable due to inactive markets or minimal market activity (Level 3). We maximize the use of observable market inputs to the extent possible.

Our Level 2 trading securities are primarily valued using discounted cash flow models with observable spreads or broker quotes. The fair value of Level 2 available-for-sale securities is determined using discounted cash flow models with observable spreads or third-party vendor quotes. Level 2 structured note liabilities are valued using models with observable market information. Level 2 derivative assets and liabilities are valued using industry-standard models and observable market information.

The extent of our use of actively quoted market prices (Level 1), internal models using observable market information as inputs (Level 2) and internal models without observable market information as inputs (Level 3) in the valuation of securities, fair value liabilities, derivative assets and derivative liabilities was as follows:

	2017			2016				
	Valued using quoted market prices	Valued using models (with observable inputs)	Valued using models (without observable inputs)	Total	Valued using quoted market prices	Valued using models (with observable inputs)	Valued using models (without observable inputs)	Total
<b>Trading Securities</b>								
Issued or guaranteed by:								
Canadian federal government	8,712	2,115	-	10,827	10,998	1,954	-	12,952
Canadian provincial and municipal governments	3,177	4,150	-	7,327	3,404	4,018	-	7,422
U.S. federal government	9,417	56	-	9,473	6,012	136	-	6,148
U.S. states, municipalities and agencies	189	1,942	-	2,131	-	1,124	-	1,124
Other governments	630	193	-	823	316	286	-	602
Mortgage-backed securities and collateralized mortgage obligations	-	931	-	931	-	1,062	-	1,062
Corporate debt	1,485	10,278	-	11,763	565	8,857	91	9,513
Loans	3	150	-	153	-	139	-	139
Corporate equity	55,640	1	-	55,641	44,459	1,037	-	45,496
	<b>79,253</b>	<b>19,816</b>	<b>-</b>	<b>99,069</b>	<b>65,754</b>	<b>18,613</b>	<b>91</b>	<b>84,458</b>
<b>Available-for-Sale Securities</b>								
Issued or guaranteed by:								
Canadian federal government	8,283	897	-	9,180	6,286	1,882	-	8,168
Canadian provincial and municipal governments	920	2,707	-	3,627	3,995	2,237	-	6,232
U.S. federal government	14,269	-	-	14,269	9,557	-	-	9,557
U.S. states, municipalities and agencies	18	4,077	1	4,096	-	4,449	1	4,450
Other governments	2,290	1,268	-	3,558	3,083	2,144	-	5,227
Mortgage-backed securities and collateralized mortgage obligations	-	13,216	-	13,216	-	13,122	-	13,122
Corporate debt	1,551	2,972	2	4,525	4,974	2,314	4	7,292
Corporate equity	37	126	1,441	1,604	33	126	1,456	1,615
	<b>27,368</b>	<b>25,263</b>	<b>1,444</b>	<b>54,075</b>	<b>27,928</b>	<b>26,274</b>	<b>1,461</b>	<b>55,663</b>
<b>Other Securities</b>	-	-	333	333	-	-	320	320
<b>Fair Value Liabilities</b>								
Securities sold but not yet purchased	22,992	2,171	-	25,163	23,552	1,554	-	25,106
Structured note liabilities and other note liabilities	-	13,674	-	13,674	-	11,613	-	11,613
Annuity liabilities	-	749	-	749	-	682	-	682
	<b>22,992</b>	<b>16,594</b>	<b>-</b>	<b>39,586</b>	<b>23,552</b>	<b>13,849</b>	<b>-</b>	<b>37,401</b>
<b>Derivative Assets</b>								
Interest rate contracts	4	9,223	-	9,227	5	18,059	-	18,064
Foreign exchange contracts	17	17,196	-	17,213	31	18,945	-	18,976
Commodity contracts	232	846	-	1,078	405	814	-	1,219
Equity contracts	93	1,333	-	1,426	188	713	-	901
Credit default swaps	-	7	-	7	-	23	-	23
	<b>346</b>	<b>28,605</b>	<b>-</b>	<b>28,951</b>	<b>629</b>	<b>38,554</b>	<b>-</b>	<b>39,183</b>
<b>Derivative Liabilities</b>								
Interest rate contracts	7	8,309	-	8,316	16	16,138	-	16,154
Foreign exchange contracts	6	14,967	-	14,973	17	18,462	-	18,479
Commodity contracts	239	835	-	1,074	262	909	-	1,171
Equity contracts	166	3,220	-	3,386	69	2,322	-	2,391
Credit default swaps	-	55	-	55	-	32	-	32
	<b>418</b>	<b>27,386</b>	<b>-</b>	<b>27,804</b>	<b>364</b>	<b>37,863</b>	<b>-</b>	<b>38,227</b>

Certain comparative figures have been reclassified to conform with the current year's presentation.

### Quantitative Information about Level 3 Fair Value Measurements

The table below presents the fair values of our significant Level 3 financial instruments, the valuation techniques used to determine their fair values and the value ranges of significant unobservable inputs used in the valuations. We have not applied any other reasonably possible alternative assumption to the significant Level 3 categories of private equity investments and merchant banking securities, as the net asset values are provided by the investment or fund managers.

As at October 31, 2017 (Canadian \$ in millions, except as noted)	Reporting line in fair value hierarchy table	Fair value of assets	Valuation techniques	Significant unobservable inputs	Range of input values (1)	
					Low	High
<b>Securities</b>						
Private equity (2)	Corporate equity	<b>1,441</b>	Net Asset Value EV/EBITDA	Net Asset Value Multiple	<b>na</b> <b>6x</b>	<b>na</b> <b>17x</b>
Merchant banking securities	Other	<b>333</b>	Net Asset Value EV/EBITDA	Net Asset Value Multiple	<b>na</b> <b>4.8x</b>	<b>na</b> <b>10.9x</b>

(1) The low and high input values represent the actual highest and lowest level of inputs used to value a group of financial instruments in a particular product category. These input ranges do not reflect the level of input uncertainty, but are affected by the specific underlying instruments within the product category. The input ranges will therefore vary from period to period based on the characteristics of the underlying instruments held at each balance sheet date.

(2) Included in private equity is \$777 million of Federal Reserve Bank and U.S. Federal Home Loan Bank shares that we hold to meet regulatory requirements. These shares are carried at cost, which is deemed to approximate fair value since these shares are not traded in the market.  
na - not applicable

### Significant Unobservable Inputs in Level 3 Instrument Valuations

#### Net Asset Value

Net asset value represents the estimated value of a security based on valuations received from the investment or fund manager. The valuation of certain private equity securities is based on the economic benefit we derive from our investment.

#### EV/EBITDA Multiple

The fair value of private equity and merchant banking investments is derived by calculating an enterprise value ("EV") using the EV/EBITDA multiple and then proceeding through a waterfall of the company's capital structure to determine the value of the assets or securities we hold. The EV/EBITDA multiple is determined using judgment in considering factors such as multiples for comparable listed companies, recent transactions and company-specific factors, as well as liquidity discounts that account for the lack of active trading in these assets and securities.

#### Significant Transfers

Our policy is to record transfers of assets and liabilities between fair value hierarchy levels at their fair values as at the end of each reporting period, consistent with the date of the determination of fair value. Transfers between the various fair value hierarchy levels reflect changes in the availability of quoted market prices or observable market inputs that result from changes in market conditions. The following is a discussion of the significant transfers between Level 1, Level 2 and Level 3 balances for the year ended October 31, 2017.

During the year ended October 31, 2017, \$176 million of trading securities and \$107 million of available-for-sale securities were transferred from Level 1 to Level 2 due to reduced observability of the inputs used to value these securities. During the year ended October 31, 2017, \$156 million of trading securities and \$56 million of available-for-sale securities were transferred from Level 2 to Level 1 due to increased availability of quoted prices in active markets.

During the year ended October 31, 2017, \$33 million of available-for-sale securities were transferred from Level 3 to Level 1 due to the availability of observable prices used to value these securities.

## Changes in Level 3 Fair Value Measurements

The tables below present a reconciliation of all changes in Level 3 financial instruments during the years ended October 31, 2017 and 2016, including realized and unrealized gains (losses) included in earnings and other comprehensive income.

For the year ended October 31, 2017 (Canadian \$ in millions)	Change in fair value							Fair value as at October 31, 2017	Change in unrealized gains (losses) recorded in income for instruments still held (1)	
	Balance October 31, 2016	Included in earnings	Included in other comprehensive income (2)	Purchases	Sales	Maturities/Settlement	Transfers into Level 3			Transfers out of Level 3
<b>Trading Securities</b>										
Issued or guaranteed by:										
U.S. states, municipalities and agencies	-	-	-	-	-	-	-	-	-	-
Corporate debt	91	1	1	-	-	(93)	-	-	-	-
<b>Total trading securities</b>	<b>91</b>	<b>1</b>	<b>1</b>	<b>-</b>	<b>-</b>	<b>(93)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Available-for-Sale Securities</b>										
Issued or guaranteed by:										
U.S. states, municipalities and agencies	1	-	-	-	-	-	-	-	1	na
Corporate debt	4	-	-	-	(1)	(1)	-	-	2	na
Corporate equity	1,456	(40)	(15)	190	(117)	-	-	(33)	1,441	na
<b>Total available-for-sale securities</b>	<b>1,461</b>	<b>(40)</b>	<b>(15)</b>	<b>190</b>	<b>(118)</b>	<b>(1)</b>	<b>-</b>	<b>(33)</b>	<b>1,444</b>	<b>na</b>
<b>Other Securities</b>	<b>320</b>	<b>(9)</b>	<b>(7)</b>	<b>134</b>	<b>(102)</b>	<b>(3)</b>	<b>-</b>	<b>-</b>	<b>333</b>	<b>(8)</b>

(1) Changes in unrealized gains or losses on other securities still held on October 31, 2017 are included in earnings for the year.

(2) Foreign exchange translation on trading securities held by foreign subsidiaries is included in other comprehensive income, net foreign operations.

na - not applicable

For the year ended October 31, 2016 (Canadian \$ in millions)	Change in fair value							Fair value as at October 31, 2016	Change in unrealized gains (losses) recorded in income for instruments still held (1)	
	Balance October 31, 2015	Included in earnings	Included in other comprehensive income (2)	Purchases	Sales	Maturities/Settlement	Transfers into Level 3			Transfers out of Level 3
<b>Trading Securities</b>										
Issued or guaranteed by:										
U.S. states, municipalities and agencies	98	-	-	-	-	-	-	(98)	-	-
Corporate debt	243	2	4	-	-	(158)	-	-	91	2
<b>Total trading securities</b>	<b>341</b>	<b>2</b>	<b>4</b>	<b>-</b>	<b>-</b>	<b>(158)</b>	<b>-</b>	<b>(98)</b>	<b>91</b>	<b>2</b>
<b>Available-for-Sale Securities</b>										
Issued or guaranteed by:										
U.S. states, municipalities and agencies	1	-	-	-	-	-	-	-	1	na
Corporate debt	6	-	-	9	(9)	(2)	-	-	4	na
Corporate equity	1,251	(27)	44	283	(92)	-	-	(3)	1,456	na
<b>Total available-for-sale securities</b>	<b>1,258</b>	<b>(27)</b>	<b>44</b>	<b>292</b>	<b>(101)</b>	<b>(2)</b>	<b>-</b>	<b>(3)</b>	<b>1,461</b>	<b>na</b>
<b>Other Securities</b>	<b>365</b>	<b>(40)</b>	<b>7</b>	<b>42</b>	<b>(54)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>320</b>	<b>(38)</b>
<b>Derivative Assets</b>										
Credit default swaps	1	-	-	-	-	(1)	-	-	-	-

(1) Changes in unrealized gains (losses) on trading securities and other securities still held on October 31, 2016 are included in earnings for the year.

(2) Foreign exchange translation on trading securities held by foreign subsidiaries is included in other comprehensive income, net foreign operations.

na - not applicable

## Trading-Related Revenue

Trading assets and liabilities, including derivatives, securities and financial instruments designated at fair value through profit or loss, are measured at fair value, with gains and losses recognized in Trading revenues, Non-Interest Revenue, in the Consolidated Statement of Income. Trading-related revenue includes net interest income and non-interest revenue and excludes underwriting fees and commissions on securities transactions, which are shown separately in the Consolidated Statement of Income. Net interest income arises from interest and dividends related to trading assets and liabilities and is reported net of interest expense associated with funding these assets and liabilities in the following table.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(Canadian \$ in millions)	2017	2016	2015
Interest rates	<b>480</b>	663	422
Foreign exchange	<b>369</b>	349	364
Equities	<b>239</b>	188	171
Commodities	<b>84</b>	66	56
Other	<b>47</b>	25	6
<b>Total trading revenue</b>	<b>1,219</b>	1,291	1,019
Reported as:			
Net interest income (1)	<b>(133)</b>	99	32
Non-interest revenue – trading revenue	<b>1,352</b>	1,192	987
<b>Total trading revenue</b>	<b>1,219</b>	1,291	1,019

(1) Amounts in brackets denote net interest expense.