

MANAGEMENT'S RESPONSIBILITY FOR FINANCIAL REPORTING

The consolidated financial statements of the Ontario Teachers' Pension Plan Board (Ontario Teachers') have been prepared by management, which is responsible for the integrity and fairness of the data presented, including the many amounts which must, of necessity, be based on estimates and judgments. The accounting policies followed in the preparation of these consolidated financial statements conform to Canadian accounting standards for pension plans. Financial information presented throughout the annual report is consistent with the consolidated financial statements.

Systems of internal control and supporting procedures are maintained to provide assurance that transactions are authorized, assets safeguarded and proper records maintained. These controls include quality standards in hiring and training of employees, a code of conduct, the establishment of an organizational structure that provides a well-defined division of responsibilities and accountability for performance, and the communication of policies and guidelines through the organization.

Ultimate responsibility for the consolidated financial statements rests with the members of the Ontario Teachers' board (the board). The board is assisted in its responsibilities by the Audit & Actuarial Committee (the Committee), consisting of seven board members who are not officers or employees of the Ontario Teachers'. In addition, the Committee reviews the recommendations of the internal and external auditors for improvements in internal control and the action of management to implement such recommendations. In carrying out its duties and responsibilities, the Committee meets regularly with management and with both the external and internal auditors to review the scope and timing of their respective audits, to review their findings and to satisfy itself that their responsibilities have been properly discharged. This Committee reviews the consolidated financial statements and recommends them for approval by the board.

Ontario Teachers' external auditor, Deloitte LLP, is directly accountable to the Audit & Actuarial Committee and has full and unrestricted access to the Committee. They discuss with the Committee their audit and related findings as to the integrity of the Ontario Teachers' financial reporting and the adequacy of internal control systems. Ontario Teachers' external auditor has conducted an independent examination of the consolidated financial statements in accordance with Canadian generally accepted auditing standards, performing such tests and other procedures as they consider necessary to express the opinion in their Report to the Administrator.



Jo Taylor

President and Chief Executive Officer

February 27, 2020



David McGraw

Chief Financial Officer

INDEPENDENT AUDITOR'S REPORT

To the Administrator of

Ontario Teachers' Pension Plan:

OPINION

We have audited the consolidated financial statements of Ontario Teachers' Pension Plan Board ("Ontario Teachers"), which comprise the consolidated statement of financial position as at December 31, 2019, and the consolidated statements of changes in net assets available for benefits, changes in accrued pension benefits, and changes in deficit for the year then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies (collectively referred to as the "financial statements").

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of Ontario Teachers' as at December 31, 2019, and the changes in its net assets available for benefits and changes in its accrued pension benefits for the year then ended in accordance with Canadian accounting standards for pension plans.

BASIS FOR OPINION

We conducted our audit in accordance with Canadian generally accepted auditing standards ("Canadian GAAS"). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of Ontario Teachers' in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

RESPONSIBILITIES OF MANAGEMENT AND THOSE CHARGED WITH GOVERNANCE FOR THE FINANCIAL STATEMENTS

Management is responsible for the preparation and fair presentation of the financial statements in accordance with Canadian accounting standards for pension plans, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing Ontario Teachers' ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate Ontario Teachers' or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing Ontario Teachers' financial reporting process.

AUDITOR'S RESPONSIBILITIES FOR THE AUDIT OF THE FINANCIAL STATEMENTS

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian GAAS will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with Canadian GAAS, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of Ontario Teachers' internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on Ontario Teachers' ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause Ontario Teachers' to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within Ontario Teachers' to express an opinion on the financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Deloitte LLP

Chartered Professional Accountants

Licensed Public Accountants

Toronto, Ontario

February 27, 2020

ACTUARIES' OPINION

Mercer (Canada) Limited was retained by the Ontario Teachers' Pension Plan Board (Ontario Teachers') to perform an actuarial valuation of the going concern liabilities in respect of Ontario Teachers' Pension Plan (the Plan) as at December 31, 2019, for inclusion in Ontario Teachers' consolidated financial statements. As part of the valuation, we examined the Plan's recent experience with respect to the non-economic assumptions and presented our findings to the board members of Ontario Teachers' (the board).

The valuation of actuarial liabilities in respect of the Plan was based on:

- membership data provided by Ontario Teachers' as at August 31, 2019;
- methods prescribed by Section 4600 of the Chartered Professional Accountants Canada Handbook for pension plan financial statements;
- real and nominal interest rates on long-term bonds at the end of 2019;
- assumptions about future events (for example, future rates of inflation and future retirement rates) which have been communicated to us as the board's best estimate of these events; and
- information obtained from the Ontario Ministry of Labour and other published data, where applicable, on wage rate changes.

The objective of the consolidated financial statements is to fairly present Ontario Teachers' financial position on December 31, 2019, as a going concern. This is different from the funding valuation (the actuarial valuation required by the Pension Benefits Act (Ontario)), which establishes a prudent level for future contributions.

While the actuarial assumptions used to estimate liabilities for Ontario Teachers' consolidated financial statements represent the board's best estimate of future events and market conditions at the end of 2019, and while in our opinion these assumptions are reasonable, the Plan's future experience will inevitably differ, perhaps significantly, from the actuarial assumptions. Any differences between the actuarial assumptions and future experience will emerge as gains or losses in future valuations and will affect the financial position of the Plan at that time.

We have tested the data for reasonableness and consistency, and we believe it to be sufficient and reliable for the purposes of the valuation. We also believe that the methods employed in the valuation are appropriate for the purposes of the valuation, and that the assumptions used in the valuation are in accordance with accepted actuarial practice in Canada. Our opinions have been given, and our valuation has been performed, in accordance with accepted actuarial practice in Canada.



Scott Clausen, F.C.I.A., F.S.A.

February 27, 2020



Lise Houle, F.C.I.A., F.S.A.

CONSOLIDATED STATEMENT OF FINANCIAL POSITION

As at December 31 (Canadian \$ millions)	2019	2018
Net assets available for benefits		
ASSETS		
Cash	\$ 643	\$ 534
Receivable from the Province of Ontario (note 3)	3,146	3,224
Receivable from brokers	205	189
Investments (note 2)	259,763	256,891
Premises and equipment	130	63
	263,887	260,901
LIABILITIES		
Accounts payable and accrued liabilities	563	458
Due to brokers	195	22
Investment-related liabilities (note 2)	55,717	69,309
	56,475	69,789
Net assets available for benefits	\$ 207,412	\$ 191,112
Accrued pension benefits and deficit		
Accrued pension benefits (note 4)	\$ 224,669	\$ 192,281
Deficit	(17,257)	(1,169)
Accrued pension benefits and deficit	\$ 207,412	\$ 191,112

The accompanying notes are an integral part of these Consolidated Financial Statements.

On behalf of the Plan administrator:

SR McCURK

Chair

R O'Neill

Board Member

CONSOLIDATED STATEMENT OF CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS

For the year ended December 31 (Canadian \$ millions)	2019	2018
Net assets available for benefits, beginning of year	\$ 191,112	\$ 189,478
Investment operations		
Net investment income (note 6)	20,185	5,233
Administrative expenses (note 11a)	(615)	(555)
Net investment operations	19,570	4,678
Member service operations		
Contributions (note 9)	3,223	3,166
Benefits (note 10)	(6,415)	(6,141)
Administrative expenses (note 11b)	(78)	(69)
Net member service operations	(3,270)	(3,044)
Increase in net assets available for benefits	16,300	1,634
Net assets available for benefits, end of year	\$ 207,412	\$ 191,112

The accompanying notes are an integral part of these Consolidated Financial Statements.

CONSOLIDATED STATEMENT OF CHANGES IN ACCRUED PENSION BENEFITS

For the year ended December 31 (Canadian \$ millions)	2019	2018
Accrued pension benefits, beginning of year	\$ 192,281	\$ 204,322
Increase in accrued pension benefits		
Interest on accrued pension benefits	6,151	6,043
Benefits accrued	6,281	7,157
Changes in actuarial assumptions and methods (note 4a)	25,515	—
Experience losses (note 4c)	853	709
	38,800	13,909
Decrease in accrued pension benefits		
Benefits paid (note 10)	6,412	6,138
Changes in actuarial assumptions and methods (note 4a)	—	19,812
	6,412	25,950
Net increase/(decrease) in accrued pension benefits	32,388	(12,041)
Accrued pension benefits, end of year	\$ 224,669	\$ 192,281

The accompanying notes are an integral part of these Consolidated Financial Statements.

CONSOLIDATED STATEMENT OF CHANGES IN DEFICIT

For the year ended December 31 (Canadian \$ millions)	2019	2018
Deficit, beginning of year	\$ (1,169)	\$ (14,844)
Increase in net assets available for benefits	16,300	1,634
Net (increase)/decrease in accrued pension benefits	(32,388)	12,041
Deficit, end of year	\$ (17,257)	\$ (1,169)

The accompanying notes are an integral part of these Consolidated Financial Statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

For the year ended December 31, 2019

DESCRIPTION OF ONTARIO TEACHERS' AND THE PLAN

The following description of the Ontario Teachers' Pension Plan Board (Ontario Teachers') and Ontario Teachers' Pension Plan (the Plan) is a summary only. For more complete information, reference should be made to the *Teachers' Pension Act (Ontario)* (the TPA) as amended and other governing documents.

(a) General

The Plan is a contributory defined benefit pension plan co-sponsored by the Province of Ontario (the Province) and Ontario Teachers' Federation (OTF) (the co-sponsors). The principal terms of the Plan are set out in Schedule 1 to the TPA.

The Plan is registered with the Financial Services Regulatory Authority of Ontario (FSRA) (formerly, with the Financial Services Commission of Ontario), and under the *Income Tax Act (Canada)* (the ITA) (registration number 0345785) as a Registered Pension Plan (RPP) which is exempt from income taxes in Canada. The Plan may be liable for taxes on income earned in other jurisdictions.

The Plan is administered and the investments are managed by Ontario Teachers'. Under the TPA, Ontario Teachers' is constituted as a corporation without share capital to which the *Corporations Act (Ontario)* does not apply.

Ontario Teachers' is overseen by independent, professional board members (the board). The co-sponsors each appoint five board members and they jointly select the chair.

(b) Funding

Plan benefits are funded by contributions and investment earnings. Contributions are made by active members of the Plan and are matched by either the Province or designated employers. The determination of the value of the accrued pension benefits and required contributions is made on the basis of periodic actuarial valuations.

(c) Retirement pensions

A retirement pension is available based on the number of years of credited service, the average of the best five annual salaries and the age of the member at retirement. A member is eligible for a reduced retirement pension from age 50. An unreduced retirement pension is available from age 65 or when the sum of a member's age and qualifying service equals 85 if earlier.

(d) Disability pensions

A disability pension is available at any age to a member with a minimum of 10 years of qualifying service, who becomes disabled while employed in education and who ceases to be employed in education as a result of the disability. The type of disability pension is determined by the extent of the disability.

(e) Death benefits

Death benefits are available on the death of an active member and may be available on the death of a retired member. The benefit may take the form of a survivor pension, lump-sum payment or both.

(f) Escalation of benefits

Pension benefits are adjusted in January each year for inflation, subject to an upper limit of 8% and a lower limit of 0% in any one year with any excess above or below those limits carried forward. For pension credit earned up to December 31, 2009, inflation protection is 100% of the change in the Consumer Price Index. Pension credit earned after December 31, 2009, is subject to conditional inflation protection (CIP). For pension credit earned between January 1, 2010, and December 31, 2013, the minimum indexation level is set at 50% of the change in the Consumer Price Index. There is no minimum level of inflation protection for pension credit earned after 2013. The indexation level stated in the most recent funding valuation filing remains in effect until a subsequent filing updates the amount. Inflation protection of up to 100% for pension credit earned after 2009 can be restored on a go-forward basis, depending on the Plan's funded status.

(g) Retirement Compensation Arrangement

Restrictions in the ITA and its regulations on the payment of certain benefits from the RPP for periods of service after 1991 may impact some Plan members. To address affected members, the Retirement Compensation Arrangement (the RCA) was established by agreement between the co-sponsors as a supplementary plan to provide for these benefits. Examples of these benefits include: (1) members of the Plan who retired with average earnings above \$163,748 (CPP-exempt members \$151,278) in 2019 and \$159,471 (CPP-exempt members \$147,222) in 2018; and (2) members whose pensions would require a larger reduction for early retirement to comply with the ITA limitations than the Plan would impose. Because the RCA is a separate trust, the net assets available for benefits and accrued benefits and deficit of the RCA are not included in these consolidated financial statements.

NOTE 1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

(a) Basis of presentation

These consolidated financial statements are prepared in Canadian dollars, Ontario Teachers' functional currency, in accordance with the accounting standards for pension plans in Part IV of the Chartered Professional Accountants (CPA) Canada Handbook (Section 4600). Section 4600 provides specific accounting guidance on investments and pension obligations. For accounting policies that do not relate to either investments or pension obligations, Ontario Teachers' must consistently comply with either International Financial Reporting Standards (IFRS) in Part I or Accounting Standards for Private Enterprises in Part II of the CPA Canada Handbook. Ontario Teachers' has elected to comply with IFRS in Part I of the CPA Canada Handbook. To the extent that IFRS in Part I is inconsistent with Section 4600, Section 4600 takes precedence.

Ontario Teachers' real estate investments are either owned or managed on behalf of Ontario Teachers' by The Cadillac Fairview Corporation Limited (CFCL), a wholly owned subsidiary that is consolidated. Ontario Teachers' also consolidates Ontario Teachers' Finance Trust (OTFT) and Ontario Teachers' Cadillac Fairview Properties Trust (CFPT), two entities that support Ontario Teachers' investing and funding strategies, and wholly owned investment holding companies managed by either Ontario Teachers' or CFCL. Investment holding companies that are managed by external parties are recognized as Ontario Teachers' investment assets. Under Section 4600, investment assets, including those over which Ontario Teachers' has control or significant influence, are measured at fair value and presented on a non-consolidated basis.

The consolidated financial statements for the year ended December 31, 2019 were authorized for issue through a resolution of the board on February 27, 2020.

(b) Changes in accounting policies

Effective January 1, 2019, Ontario Teachers' adopted IFRS 16, Leases and the impact is not material to the overall financial statements. Ontario Teachers' has adopted IFRS 16 using the cumulative catch-up approach and has not restated prior periods. The asset value of capitalized leases for office premises, previously treated as operating leases is included in Premises and equipment and the related liability is included in Accounts payable and accrued liabilities. Investment assets and Investment-related liabilities include the impact of capitalized leases related to the real estate portfolio.

(c) Investments

Valuation of investments

Investments are either directly or indirectly owned by Ontario Teachers'. Investment-related liabilities are incurred by Ontario Teachers' directly. Details of investments and

investment-related liabilities are presented in note 2a and are stated at fair value. Fair value is the price that would either be received to sell an asset or be paid to transfer a liability in an orderly transaction (i.e., an exit price) between market participants at the measurement date. In an active market, fair value is best evidenced by an independent quoted market price. In the absence of an active market, fair value is determined by valuation techniques that make maximum use of inputs observed from markets.

Fair values of investments are determined as follows:

- a. Short-term investments and commercial paper are valued using either quoted closing mid-market prices or discounted cash flows based on current market yields, when quoted closing mid-market prices are unavailable.
- b. Bonds, including both nominal and real return, are valued on the basis of quoted closing mid-market prices. If quoted closing mid-market prices are not available, estimated values are calculated using discounted cash flows based on current market yields and comparable securities, as appropriate.
- c. Securities sold under agreements to repurchase and securities purchased under agreements to resell are valued using discounted cash flows based on current market yields.
- d. Public equities are valued at quoted closing mid-market prices. When the market for a public equity is not active, management assesses whether the quoted prices represent fair value. If not, management adjusts the quoted prices or estimates the fair value by using appropriate techniques including valuation models.
- e. Real estate, private equities, infrastructure, timberland, and natural resources are valued based on estimated fair values determined by using appropriate valuation techniques. Where external valuation advisors are engaged by management in the valuation process, management ensures the advisors are independent and assesses whether the assumptions used by the valuation advisors are reasonable and supportable based on current market conditions and industry practice to ensure the valuation captures the business and economic conditions specific to the investment.

At least 70% of the value of the rental property portfolio covering all product types and geographic regions is independently appraised annually. Real estate properties with a value of over \$250 million will be valued independently every year. Private equity funds are recorded at fair value based on net asset values obtained from each of the funds' administrators. These net asset values are reviewed by management.
- f. Derivative financial instruments are recorded at fair value using market prices where available. Where quoted market values are not readily available, appropriate alternative valuation techniques are used to determine fair value. In determining

fair value, consideration is also given to the credit risk of the counterparty through the calculation of a credit valuation adjustment.

- g. Alternative investments, comprised primarily of hedge funds and managed futures accounts, are recorded at fair value based on net asset values obtained from each of the funds' administrators. These net asset values are reviewed by management.

Ontario Teachers' uses a number of valuation techniques to determine the fair value of investments for which observable prices in active markets for identical investments are not available. These techniques include: valuation methodologies based on observable prices for similar investments; present-value approaches where future cash flows generated by the investment are estimated and then discounted using a risk-adjusted discount rate; and option-pricing models. The principal inputs to these valuation techniques are listed below. Values between and beyond available data points may be obtained by interpolation and extrapolation.

- Bond prices – quoted prices are generally available for government bonds, certain corporate bonds and some other debt-related products.
- Credit spreads – where available, credit spreads are derived from prices of credit default swaps or other credit-based instruments, such as debt securities. For others, credit spreads are obtained from pricing services.
- Interest rates – principally derived from benchmark interest rates such as quoted interest rates from central banks and in swap, bond and futures markets. Benchmark interest rates are considered when determining discount rates used in the present-value approaches.
- Foreign currency exchange rates – there are observable markets, both spot and forward, and in futures in all major currencies.
- Public equity and equity index prices – quoted prices are generally readily available for equity shares listed on the stock exchanges and for indices on such shares.
- Commodity prices – many commodities are actively traded in spot, forward and futures markets.
- Price volatilities and correlations – volatility is a measure of the tendency of a specific price to change over time. Correlation measures the degree to which two or more prices or other variables are observed to have moved together historically. Volatility is an input in valuing options and certain products such as derivatives with more than one underlying variable that is correlation-dependent. Volatility and correlation values are either obtained from broker quotations, from pricing services, or are derived from quoted option prices.
- Forecasts on operating cash flows of real estate, private equities, infrastructure, and natural resources – forecasts include assumptions on revenue, revenue growth, expenses, capital expenditures, and capital structure. They are generally provided by either management of the companies in which Ontario Teachers' invests or

external managers. Additional assumptions from external parties, for example, external appraisers, may also be used in the forecast.

Ontario Teachers' refines and modifies its valuation techniques as markets and products develop and the pricing for individual products becomes more transparent.

While Ontario Teachers' believes its valuation techniques are appropriate and consistent with other market participants, the use of different techniques or assumptions could result in different estimates of fair value at the balance sheet date. Management has assessed and determined that using possible alternative assumptions will not result in significantly different fair values. This excludes externally managed fund investments where the underlying assumptions are not available to Ontario Teachers'.

Fair value hierarchy

Investment assets and investment-related liabilities are classified and disclosed in one of the following categories reflecting the significance of inputs used in making the fair value measurement:

- Level 1 – quoted prices (unadjusted) in active markets for identical assets or liabilities;
- Level 2 – inputs other than quoted prices included within Level 1 that are observable for the assets or liabilities, either directly or indirectly; and
- Level 3 – unobservable inputs.

If different levels of inputs are used to measure the fair value of an investment, the classification within the hierarchy is based on the lowest level input that is significant to the fair value measurement.

Trade-date reporting

Purchases and sales of investments and derivative contracts are recorded as of the trade date.

Net investment income

Dividend income is recognized based on the ex-dividend date, and interest income and real estate income are recognized on the accrual basis as earned. Net investment income also includes both realized and unrealized gains and losses. Unrealized gains and losses are recognized only when the fair value of the investment is based on a quoted market price in an active market or a valuation using appropriate valuation techniques is performed and approved by management.

Transaction costs

Transaction costs are incremental costs directly attributable to the acquisition, issue or disposal of a financial asset or financial liability. Transaction costs are expensed as incurred. Any transaction amounts received by Ontario Teachers' that are directly attributable to the acquisition of an investment are netted against transaction costs paid.

Management fees

Management and performance fees for external investment managers and administrators are expensed as incurred when directly invoiced or information is otherwise available from capital notices or other manager communications. Fees related to other externally managed investments are offset against investment income. Management fees include incremental costs incurred with external parties that are directly attributable to existing investments and are not related to acquisition or disposal.

(d) Foreign currency translation

Assets and liabilities denominated in foreign currencies are translated into Canadian dollars at the exchange rates prevailing on the year-end date. Income and expenses are translated into Canadian dollars at the exchange rates prevailing on the dates of the transactions. The realized and unrealized gains and losses arising from these translations are included within net realized and unrealized gains on investments in investment income.

(e) Accrued pension benefits

The value of accrued pension benefits and changes therein during the year are based on an actuarial valuation prepared by Mercer (Canada) Limited, an independent firm of actuaries. The valuation is performed annually as at August 31 and then extrapolated to year end. It uses the projected benefit method pro-rated on service and management's best estimate, as at the valuation date, of various economic and non-economic assumptions.

As described in paragraph (f) of the Description of Plan note, the inflation protection level for pension credit earned after December 31, 2009 is conditional, depending on the Plan's funded status. For financial statement valuations, future pension payments are indexed at the levels stated in the most recent funding valuation filing.

(f) Contributions

Contributions from the members, the Province and designated employers are recorded on an accrual basis. Cash received from members for credited service and cash transfers from other pension plans are recorded when received.

(g) Benefits

Benefit payments to members and others, commuted value payments and refunds to former members, and transfer payments to other plans are recorded in the period in which they are paid. Any benefit payment accruals not paid are reflected in accrued pension benefits.

(h) Premises and equipment

Premises and equipment are recorded at cost and amortized on a straight-line basis over their estimated useful lives. Premises and equipment also include the right-of-use asset recognized under IFRS 16.

(i) Use of estimates

In preparing these consolidated financial statements, management uses estimates and assumptions that primarily affect the reported values of assets and liabilities, and related income and expenses. Estimates and assumptions are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable and relevant under the circumstances. The effect of a change in an estimate or assumption is recognized in the period in which the estimate or assumption is revised. Significant estimates and assumptions are used primarily in the determination of accrued pension benefits and the fair value of investments and investment-related receivables and liabilities. Note 4 explains how estimates and assumptions are used in determining accrued pension benefits and note 1c explains how estimates and assumptions are used to derive the fair value of investments and investment-related receivables and liabilities.

(j) Contingencies

A contingent liability is a possible obligation that depends on the occurrence or non-occurrence of one or more future events not controlled by Ontario Teachers'. Contingent liabilities are not recognized but the nature and extent are disclosed in the notes to the consolidated financial statements. A provision for a present obligation is recognized when a reliable estimate can be determined and the settlement of the obligation is probable.

NOTE 2. INVESTMENTS

Ontario Teachers' invests, directly or through derivatives, in equities, fixed income, inflation sensitive and real asset investments.

(a) Investments before allocating the effect of derivative contracts

The schedule below summarizes Ontario Teachers' investments and investment-related liabilities, including net accrued interest and dividends of \$656 million (2018 – \$714 million), before allocating the effect of derivative contracts:

As at December 31 (Canadian \$ millions)	2019		2018	
	Fair Value	Cost	Fair Value	Cost
Equity				
Publicly traded				
Canadian	\$ 1,725	\$ 1,573	\$ 1,545	\$ 1,904
Non-Canadian	26,494	22,282	21,228	19,459
Non-publicly traded				
Canadian	5,641	3,642	4,881	3,482
Non-Canadian	34,573	26,050	32,149	23,444
	68,433	53,547	59,803	48,289
Fixed income				
Bonds	54,501	51,552	54,561	53,328
Short-term investments	8,622	8,616	9,111	9,094
Alternative investments	17,342	15,767	15,375	12,644
Canadian real-rate products	20,248	14,932	19,904	15,608
Non-Canadian real-rate products	13,939	11,618	14,514	12,834
	114,652	102,485	113,465	103,508
Inflation sensitive				
Commodities	985	853	875	853
Timberland	2,340	1,300	2,496	1,301
Natural resources	5,859	5,985	5,621	5,706
	9,184	8,138	8,992	7,860
Real assets				
Real estate (note 5)	33,768	21,442	31,301	19,319
Infrastructure	17,044	10,419	17,842	11,549
	50,812	31,861	49,143	30,868
	243,081	196,031	231,403	190,525
Investment-related receivables				
Securities purchased under agreements to resell	11,230	11,293	15,826	15,577
Cash collateral deposited under securities borrowing arrangements	901	901	2,549	2,549
Cash collateral paid under credit support annexes	56	56	57	57
Derivative-related, net	4,495	2,251	7,056	2,684
	16,682	14,501	25,488	20,867
Investments	\$ 259,763	\$ 210,532	\$ 256,891	\$ 211,392

As at December 31	2019		2018	
(Canadian \$ millions)	Fair Value	Cost	Fair Value	Cost
Investment-related liabilities				
Securities sold under agreements to repurchase	\$ (19,821)	\$ (19,983)	\$ (28,280)	\$ (27,869)
Securities sold but not yet purchased				
Equities	(900)	(866)	(2,617)	(2,587)
Fixed income	(9,917)	(8,990)	(12,493)	(11,573)
Real estate (note 5) ²	(5,228)	(4,723)	(3,894)	(3,471)
Commercial paper	(8,490)	(8,576)	(8,676)	(8,323)
Term debt	(7,187)	(6,986)	(5,091)	(4,669)
Cash collateral received under credit support annexes	(988)	(988)	(937)	(937)
Derivative-related, net	(3,186)	(1,232)	(7,321)	(1,797)
	(55,717)	(52,344)	(69,309)	(61,226)
Net investments¹ (note 2d)	\$ 204,046	\$ 158,188	\$ 187,582	\$ 150,166

¹ For additional details, refer to the Major Investments on page 95.

² Real estate liabilities include the liabilities of real estate subsidiaries and trusts. These include \$783 million fair value and \$764 million cost (December 31, 2018 - \$795 million fair value and \$764 million cost) of the 4.31% Series B Debenture with principal amount of \$750 million which is guaranteed by Ontario Teachers' as described in note 15. The remaining liabilities held in real estate entities are not guaranteed by Ontario Teachers'.

(b) Fair value hierarchy

The schedule below presents Ontario Teachers' investments and investment-related liabilities within the fair value hierarchy as outlined in note 1c:

(Canadian \$ millions)	December 31, 2019				December 31, 2018				
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total	
Equity	\$ 27,086	\$ 220	\$ 41,127	\$ 68,433	\$ 21,757	\$ 162	\$ 37,884	\$ 59,803	
Fixed income	84,801	11,934	17,917	114,652	85,455	12,084	15,926	113,465	
Inflation sensitive	985	—	8,199	9,184	875	—	8,117	8,992	
Real assets	2,192	385	48,235	50,812	2,485	309	46,349	49,143	
Investment-related receivables	1,033	15,506	143	16,682	2,830	22,469	189	25,488	
Investment-related liabilities	(12,030)	(41,449)	(2,238)	(55,717)	(16,095)	(51,138)	(2,076)	(69,309)	
Net investments	\$ 104,067	\$ (13,404)	\$ 113,383	\$ 204,046	\$ 97,307	\$ (16,114)	\$ 106,389	\$ 187,582	

There were no transfers between Level 2 and Level 1 in 2019 and 2018.

The schedule below presents a reconciliation of investments and investment-related receivables/(liabilities) measured at fair value using significant unobservable inputs (Level 3) during the year. Realized and unrealized gains/(losses) are included in investment income.

	2019						
(Canadian \$ millions)	Equity	Fixed Income	Inflation Sensitive	Real Assets	Investment-Related Receivables	Investment-Related Liabilities	Total
Balance, beginning of year	\$ 37,884	\$ 15,926	\$ 8,117	\$ 46,349	\$ 189	\$ (2,076)	\$ 106,389
Purchases	9,133	9,620	305	5,665	39	113	24,875
Sales	(8,858)	(7,572)	(33)	(4,695)	(41)	(443)	(21,642)
Transfers in ³	—	—	—	—	(5)	7	2
Transfers out ³	(152)	—	—	—	(9)	96	(65)
Gains/(losses) included in investment income							
Realized	2,507	1,107	—	(1,233)	(31)	129	2,479
Unrealized	613	(1,164)	(190)	2,149	1	(64)	1,345
Balance, end of year	\$ 41,127	\$ 17,917	\$ 8,199	\$ 48,235	\$ 143	\$ (2,238)	\$ 113,383

	2018						
(Canadian \$ millions)	Equity	Fixed Income	Inflation sensitive	Real Assets	Investment-Related Receivables	Investment-Related Liabilities	Total
Balance, beginning of year	\$ 34,864	\$ 14,390	\$ 6,553	\$ 45,305	\$ 97	\$ (1,830)	\$ 99,379
Purchases	7,123	5,299	1,427	2,681	128	195	16,853
Sales	(8,997)	(3,884)	(15)	(3,789)	(60)	(276)	(17,021)
Transfers in ³	—	—	—	—	(4)	—	(4)
Transfers out ³	—	(1,062)	—	—	—	4	(1,058)
Gains/(losses) included in investment income							
Realized	3,545	463	—	(47)	(30)	62	3,993
Unrealized	1,349	720	152	2,199	58	(231)	4,247
Balance, end of year	\$ 37,884	\$ 15,926	\$ 8,117	\$ 46,349	\$ 189	\$ (2,076)	\$ 106,389

³ Transfers in and transfers out of Level 3 are due to the change in the availability of observable inputs used for fair value measurement of investment assets or related liabilities. See note 1c Fair Value Hierarchy.

(c) Derivative contracts

Derivative contracts are financial contracts, the value of which is derived from the value of underlying assets, commodities, indices, interest rates or currency rates. Derivative contracts are transacted either in the over-the-counter (OTC) market or on regulated exchanges.

Notional amounts of derivative contracts represent the contractual amount to which a rate or price is applied for computing the cash to be paid or received. Notional amounts are the basis upon which the returns from, and the fair value of, the contracts are determined. They do not necessarily indicate the amounts of future cash flow involved or the current fair value of the derivative contracts and, therefore, do not indicate Ontario Teachers' exposure to credit or market risks. The derivative contracts become favourable

(assets) or unfavourable (liabilities) as a result of fluctuations in either market rates or prices relative to their terms. The aggregate notional amounts and fair values of derivative contracts can fluctuate significantly.

Derivative contracts, transacted either in the OTC market or on regulated exchanges, include:

Swaps

Swaps are OTC contracts in which two counterparties exchange a series of cash flows based on agreed upon rates to a notional amount. The various swap agreements that Ontario Teachers' enters into are as follows:

Equity and commodity swaps are contracts in which one counterparty agrees to either pay or receive from the other cash flows based on changes in the value of either an equity or commodity index, a basket of stocks or commodities, or a single stock or commodity.

Interest rate swaps are agreements where two counterparties exchange a series of payments based on different interest rates applied to a notional amount. Certain interest rate swaps traded with U.S. counterparties in the OTC market are centrally cleared at regulated clearing houses.

Currency swaps involve the exchange of fixed payments in one currency for the receipt of fixed payments in another currency.

Forwards and futures

Futures are standardized contracts traded on regulated future exchanges, whereas forward contracts are negotiated agreements that are transacted between counterparties in the OTC market. Examples of futures and forwards are described below:

Equity and commodity futures are contractual obligations to either buy or sell at a fixed value (the contracted price) of an equity or commodity index, a basket of stocks, a single stock or commodities at a predetermined future date.

Interest rate futures are contractual obligations to either buy or sell an interest rate sensitive financial instrument on a predetermined future date at a specified price.

Currency forwards and futures are contractual obligations to exchange one currency for another at a specified price or settlement at a predetermined future date.

Options

Options may be either acquired in standardized amounts on regulated exchanges or customized and acquired in the OTC market. They are contractual agreements under which the seller (writer) grants the purchaser the right, but not the obligation, either to buy (call option) or sell (put option), a security, exchange rate, interest rate, or other financial instrument or commodity at a predetermined price, at or by a specified future

date. The seller (writer) of an option can also settle the contract by paying the cash settlement value of the purchaser's right. The seller (writer) receives a premium from the purchaser for this right. The various option agreements that Ontario Teachers' enters into include equity and commodity options, interest rate options, and foreign currency options.

Credit derivatives

Credit derivatives are OTC contracts that transfer credit risk related to an underlying financial instrument (referenced asset) from one counterparty to another. Examples of credit derivatives include credit default swaps, total return swaps, and loan participations.

Credit default swaps provide protection against the decline in value of the referenced asset as a result of specified events such as payment default or insolvency. These swaps are similar in structure to an option whereby the purchaser pays a premium to the seller of the credit default swap in return for payment related to the deterioration in the value of the referenced asset. The referenced asset for credit default swaps is a debt instrument. Certain credit default swaps traded with U.S. counterparties in the OTC market are centrally cleared at regulated clearing houses.

Total return swaps are contracts in which one counterparty agrees to pay or receive from the other cash flows based on changes in the value of the referenced asset.

Other derivative products

Ontario Teachers' also transacts in other derivative products including statistic swaps and dividend swaps in the OTC market. An investor may trade the statistic swaps with the objective of adding value or hedging for risks associated with the magnitude of movement, i.e., volatility, variance, correlation, covariance of some underlying products, such as exchange rates, or stock indexes. Dividend swaps are OTC contracts where an investor agrees to match all dividends paid out by an underlying stock or index over a specified time period. In return, the dividend payer receives a fixed amount at expiry called the dividend swap rate.

The following schedule summarizes the notional amounts and fair value of Ontario Teachers' derivative contracts held as at December 31:

(Canadian \$ millions)	2019						2018	
	Notional	Fair Value		Notional	Fair Value			
		Assets	Liabilities		Assets	Liabilities		
Equity and commodity derivatives								
Swaps	\$ 41,173	\$ 924	\$ (316)	\$ 57,105	\$ 1,215	\$ (2,370)		
Futures	16,499	28	(19)	11,288	15	(49)		
Options: Listed								
	– purchased	3,666	76	–	139	2	–	
	– written	2,643	–	(69)	404	–	(32)	
OTC								
	– purchased	41,410	918	–	33,201	2,265	–	
	– written	39,001	18	(453)	24,999	28	(781)	
		144,392	1,964	(857)	127,136	3,525	(3,232)	
Interest rate derivatives								
Swaps	140,847	925	(678)	185,629	976	(865)		
Futures	65,830	–	(305)	126,127	317	–		
Options: Listed								
	– purchased	5,683	–	–	399,686	21	–	
	– written	6,501	–	(3)	15,890	–	(20)	
OTC								
	– purchased	30,077	26	(13)	79,879	189	(78)	
	– written	50,324	4	(24)	94,110	81	(148)	
		299,262	955	(1,023)	901,321	1,584	(1,111)	
Currency derivatives								
Swaps	3,814	8	(12)	13,367	25	(53)		
Forwards ⁴	78,201	1,011	(642)	89,968	1,391	(2,149)		
Options: OTC								
	– purchased	4,366	40	–	19,225	256	(12)	
	– written	3,699	–	(22)	17,603	12	(224)	
		90,080	1,059	(676)	140,163	1,684	(2,438)	
Credit derivatives								
Credit default swaps								
	– purchased	24,955	37	(690)	41,934	147	(356)	
	– written	17,364	508	(169)	38,108	308	(231)	
		42,319	545	(859)	80,042	455	(587)	
		576,053	4,523	(3,415)	1,248,662	7,248	(7,368)	
Net cash collateral (received)/paid under derivative contracts			(28)	229		(192)	47	
Notional and fair value of derivative contracts	\$ 576,053	\$ 4,495	\$ (3,186)	\$ 1,248,662	\$ 7,056	\$ (7,321)		

⁴ Excludes currency forwards related to Real Estate assets as disclosed in note 5.

(d) Investment asset mix

Direct investments, derivative contracts, and investment-related receivables and liabilities are classified by asset mix category based on the intent of the investment strategies of the underlying portfolios of Ontario Teachers'. Ontario Teachers' effective net investments reflecting these classifications are summarized in Canadian dollars below as at December 31:

	2019		2018	
	Effective Net Investments at Fair Value (\$ millions)	Asset Mix %	Effective Net Investments at Fair Value (\$ millions)	Asset Mix %
Equity				
Publicly traded	\$ 35,844	18%	\$ 31,602	17%
Non-publicly traded	39,344	19	33,354	18
	75,188	37	64,956	35
Fixed income				
Bonds	72,668	36	58,243	31
Real-rate products	20,440	10	19,473	10
	93,108	46	77,716	41
Inflation sensitive				
Commodities	17,588	9	10,612	6
Natural resources	8,199	4	8,117	4
Inflation hedge	10,277	5	8,709	5
	36,064	18	27,438	15
Real assets				
Real estate	28,692	14	27,444	15
Infrastructure	16,984	8	17,801	9
Real-rate products	—	—	4,332	2
	45,676	22	49,577	26
Credit	16,305	8	15,232	8
Absolute return strategies	16,561	8	12,547	7
Overlay	272	—	(375)	—
Money market	(79,128)	(39)	(59,509)	(32)
Net investments	\$ 204,046	100%	\$ 187,582	100%

(e) Risk management

Objectives

Ontario Teachers' primary long-term risk is that Ontario Teachers' assets will fall short of its liabilities (i.e., benefits owed to members). Therefore, Ontario Teachers' follows an approach of asset diversification. The objective is to achieve a diversification of risks and returns in a fashion that minimizes the likelihood of an overall reduction in total fund value and maximizes the opportunity for gains over the entire portfolio.

Ontario Teachers' also manages its liquidity risk so that there is sufficient liquidity to enable Ontario Teachers' to meet all of its future obligations as they become payable, which includes pension payments, meeting short-term mark-to-market payments resulting from Ontario Teachers' derivative exposure and to give Ontario Teachers' the ability to adjust the asset mix in response to the changes in market conditions.

Policies

To apply risk management to investments in a consistent manner, Ontario Teachers' has a number of policies, for example:

- Statement of Investment Policies and Procedures – The statement addresses the manner in which the fund shall be invested. The statement is subject to the board's review at least annually. Ontario Teachers' investments are selected and held in accordance with the criteria and limitations set forth in the statement and in accordance with all relevant legislation. The statement effective for the year ended December 31, 2019 was last amended November 15, 2018, and includes the following asset class exposure limits:

	Asset Mix % Minimum	Asset Mix % Maximum
Equities	30%	40%
Fixed income	23%	77%
Inflation sensitive	11%	21%
Real assets	19%	29%
Credit	3%	13%
Absolute return strategies	4%	14%
Money market ⁵	(94)%	0%

⁵ The money market asset class provides funding for investments in other asset classes.

- Board Investment Policy – This policy applies to the total-fund and aggregate asset classes. The policy addresses the risks that are relevant and material at the total-fund level. The policy sets ranges for allocations to the asset classes and foreign currency. Management determines exposure within these approved ranges. The policy also specifies the risk budget allocation and lists investment constraints such as maximum exposures permitted for different types of investments and liquidity requirements. The board approves this policy and reviews it regularly.
- Investment Risk Management Policy – This policy supports the operationalization of the board's risk appetite into the day-to-day management of some key investment risks and articulates the associated roles and responsibilities of the Investment Division, Strategy & Risk and other functional partners.
- Investment Division Policy – This policy addresses the manner in which the Investment Division is organized for the purpose of undertaking the investment and risk management of the fund and for day-to-day operations management. This policy specifies the oversight role of the CEO, CIO and senior management committees within the Investment Division.
- Portfolio policies for each investment department – These policies are developed to apply to the individual portfolios within each asset class managed by the Investment Division. Portfolio policies include the departments' investment strategies, operating procedures, investment constraints, key risks and a description of how the risks will be managed and reporting requirements for each investment department.
- Trading Operations Policy – This policy specifies operational requirements to be followed within the Investment Division to trade on regulated exchanges and in OTC markets.
- Investment Division Counterparty Credit Policy – This policy applies to investments with credit risk exposure that arises from entering into certain counterparty agreements. The policy provides constraints on counterparty credit exposure and procedures for obtaining authorization to trade with a new counterparty.
- Pre-Investment Approval Policy – This policy formalizes the procedures to ensure the data needed for trade capture, pricing, risk management, and accounting is accurate, complete, and can be entered into Ontario Teachers' systems of record on a timely basis prior to commencement of trading.

Processes

Ontario Teachers' uses risk budgeting to allocate active risk across the investment asset classes. The active risk budget is presented to the board annually for review and approval. Each investment department is responsible for managing the investment risks associated with the investments they manage within the active risk budget allocated to them. Each

department is subject to compliance with the Statement of Investment Policies and Procedures, the Board Investment Policy (which includes the active risk budget allocated to them), Investment Division Policy, Trading Operations Policy, Pre-Investment Approval Policy and the applicable portfolio policies. In addition, the Total Fund Management department is responsible for maintaining the liquidity positions in accordance with Ontario Teachers' policies on liquidity, and the Total Fund Management and Capital Markets departments are responsible for compliance with the Investment Division Counterparty Credit Policy. The Finance Division independently measures the investment risk exposure and the liquidity position of Ontario Teachers' and provides the information to the Investment Division and the Investment Committee of the board.

Each investment department has an investment committee, or an equivalent, which meets regularly to assess the investment risks associated with the portfolios it manages and determines action plans, if required. Individual managers in each investment department receive limited authority to invest from the board by sub-delegation from senior management. Investment constraints and approval requirements are set out in the portfolio policies for the department, the Investment Division Policy and/or the Board Investment Policy. For investments not traded on exchanges, such as alternative investments and private equity investments, the investment departments conduct due diligence before acquisition and use it as a tool to monitor the investments after acquisition. The objective is to obtain as much transparency as possible for the departments to assess the risk exposure arising from these private and alternative investments.

Senior representatives from each investment department are members of one or both of the Investment Committee - Total Fund (IC - TF) and Investment Committee - Global Privates & Illiquids (IC - GPI). The IC-TF is responsible for considerations around the overall investment program with a focus on managing investment risks at a total-fund level. This committee brings together the experience, investment and operational business judgment required for assessing and managing market, credit and liquidity risks on a regular basis. It monitors the currency positions, interest rate risk and liquidity risk at the total-fund level. Chaired by the Chief Investment Officer, the IC-GPI is responsible for the oversight of private market or illiquid transactions and the overall private portfolio composition. The Chief Risk & Strategy Officer is a member of both Committees. The Chief Legal & Corporate Affairs Officer or a delegate attends the IC-GPI meetings in an advisory capacity. The committees meet at least every other week.

The CEO chairs the Enterprise Risk Management Committee, the CEO-Led Risk Committee (Investments) and the CEO-Led Risk Committee (Member Services). The Enterprise Risk Management Committee oversees the enterprise risk management program of Ontario Teachers' and includes senior representatives from all divisions. The Enterprise Risk Management Committee meets regularly and reports to the board semi-annually and more frequently as necessary. The CEO-Led Risk Committee (Investments) oversees the alignment of the investment program with the risk appetite and mission, vision and

values of Ontario Teachers' including policies, committee mandates, significant operational risks and external developments that could have a material impact on the investment program. This committee includes senior representatives from Investments, Strategy & Risk, Finance, Enterprise Operations and the General Counsel's Office and meets quarterly and more frequently as necessary. The CEO-Led Risk Committee (Member Services) oversees the alignment of the Member Services division with the board's Enterprise Risk Appetite Statement and Ontario Teachers' mission, vision and values. This Committee includes senior members from Strategy and Risk, Member Services, and Legal and Compliance.

(f) Credit risk

Ontario Teachers' is exposed to the risk that a counterparty defaults or becomes insolvent. Credit risk is the risk of loss associated with a counterparty's inability to fulfill its payment obligations. Credit risk may arise directly from an obligor, an issuer of securities, or indirectly from a guarantor of a credit obligation.

Credit risk management

Ontario Teachers' actively manages its credit exposures. When over exposures are detected – either in individual exposures or in groups of exposures – Ontario Teachers' takes action to mitigate the risks. Such actions may include reducing the exposures and using credit derivatives.

Ontario Teachers' enters into agreements with counterparties to limit its exposure to credit losses. An International Swaps and Derivatives Association (ISDA) Master Agreement is executed with most OTC derivative counterparties, which allows both parties to settle obligations on a net basis when termination or other predetermined events occur. Ontario Teachers' also negotiates collateral agreements known as credit support annexes (CSAs) with key counterparties to further mitigate counterparty credit risk. A CSA gives Ontario Teachers' the power to realize collateral posted by counterparties in the event of a default by such counterparties.

Since collateral is an important mitigant of counterparty credit risk, Ontario Teachers' routinely obtains collateral from its counterparties, not only under OTC derivative contracts but also under reverse repurchase agreements. Note 2i provides further details on collateral pledged and received.

Ontario Teachers' has a credit risk assessment process to approve prospective new counterparties and to monitor authorized counterparties for derivative contracts, repurchase and reverse repurchase agreements, securities borrowing agreements, prime broker relationships and futures, options, and fixed income clearing. Ontario Teachers' deals primarily with counterparties that have an investment grade credit rating. Policies are in place to limit the maximum exposures to any individual counterparty for derivative contracts or repurchase and reverse repurchase agreements, prime broker relationships and futures and options clearing.

Maximum exposure to credit risk before collateral held

Ontario Teachers' assumes credit risk exposure through debt investments and amounts receivable from the Province of Ontario and brokers. The maximum exposure to credit risk related to these financial instruments is their value as presented in the consolidated statements of financial position and note 2a. Ontario Teachers' is also exposed to credit risk of counterparties to its OTC derivative transactions. Counterparty credit risk exposure for OTC derivatives is measured as the net positive fair value of the contractual obligations with the counterparties.

To monitor credit risk, Ontario Teachers' produces, on a quarterly basis, a concentration report by credit rating of all credit sensitive financial securities.

Counterparties are assigned a credit rating as determined by Ontario Teachers' internal credit risk management function. Counterparty credit ratings are also compared to their external ratings as provided by recognized credit rating agencies on a daily basis.

The credit risk exposure of debt investments and OTC derivatives, by credit rating category, without taking account of any collateral held or other credit enhancements as at December 31 is as follows:

							2019
Credit rating (Canadian \$ millions)	Bonds and Short-term investments	Real-rate products	Securities purchased under agreements to resell	Loans and Private debt	OTC Derivatives		
AAA/R-1 (high)	\$ 36,196	\$ 31,159	\$ —	\$ —	\$ —		
AA/R-1 (mid)	4,530	934	2,056	—	614		
A/R-1 (low)	10,838	2,046	3,922	—	1,069		
BBB/R-2	5,345	—	324	—	—		
Below BBB/R-2	3,358	—	—	—	—		
Unrated ⁶	2,856	48	4,928	12,644	—		
	\$ 63,123	\$ 34,187	\$ 11,230	\$ 12,644	\$ 1,683		
							2018
Credit rating (Canadian \$ millions)	Bonds and Short-term investments	Real-rate products	Securities purchased under agreements to resell	Loans and Private debt	OTC Derivatives		
AAA/R-1 (high)	\$ 37,520	\$ 31,377	\$ —	\$ —	\$ —		
AA/R-1 (mid)	2,267	77	5,277	—	82		
A/R-1 (low)	12,575	2,901	7,945	—	1,124		
BBB/R-2	5,742	—	248	—	66		
Below BBB/R-2	3,016	—	—	—	—		
Unrated ⁶	2,552	63	2,356	12,958	—		
	\$ 63,672	\$ 34,418	\$ 15,826	\$ 12,958	\$ 1,272		

⁶ Unrated comprises securities that are either privately held, managed externally, or not rated by the rating agencies.

Ontario Teachers' is also exposed to credit risk through off-balance sheet arrangements as shown in the table below. For off-balance sheet guarantees, the maximum exposure to credit risk is the maximum amount that Ontario Teachers' would have to pay if the guarantees were to be called upon. For loan commitments, the maximum exposure is the committed amount under the agreements. For credit derivatives, the maximum exposure is the notional amount of written credit derivatives (as presented in note 2c).

As at December 31 (Canadian \$ millions)	2019	2018
Guarantees	\$ 274	\$ 280
Loan commitments	11	18
Notional amount of written credit derivatives	17,364	38,108
Total off balance sheet credit risk exposure	\$ 17,649	\$ 38,406

While Ontario Teachers' maximum exposure to credit risk is the carrying value of the assets, or, in the case of off-balance sheet items, the amount guaranteed or committed, in most cases the likely exposure is far less due to collateral, credit enhancements (e.g., guarantees in favour of Ontario Teachers') and other actions taken to mitigate Ontario Teachers' exposure, as described previously.

Credit risk concentrations

As at December 31, 2019, Ontario Teachers' has a significant concentration of credit risk with the Government of Canada, the Province of Ontario and the U.S Treasury. This concentration relates primarily to holding Government of Canada issued securities of \$44.4 billion (2018 – \$42.5 billion), U.S. Treasury issued securities of \$10.4 billion (2018 – \$10.8 billion), Province of Ontario bonds of \$7.7 billion (2018 – \$6.5 billion), and receivable from the Province of Ontario (see note 3) of \$3.1 billion (2018 – \$3.2 billion).

(g) Market risk

Market risk is the risk of loss that results from fluctuations in various market factors such as equity and commodity prices, interest and foreign exchange rates, and credit spreads. Ontario Teachers' is exposed to market risk through its investing activities. The level of market risk to which Ontario Teachers' is exposed varies depending on considerations such as market conditions, expectations of future price movements, the occurrence of certain catastrophic events (e.g., hurricanes and earthquakes) affecting the prices of insurance linked securities, expectations of future yield movements and the composition of the asset mix.

Market risk management

Ontario Teachers' manages market risk primarily through diversifying the investments across industry sectors, investment strategies and on a global basis. A variety of derivative contracts are also utilized to manage Ontario Teachers' market risk exposures.

Market and credit risk measurement

Ontario Teachers' uses a statistical Value-at-Risk (VaR)-type approach, the expected tail loss (ETL) methodology, to measure investment risk comprising of market and credit risk over a one-year horizon at a 99% confidence level. The ETL methodology captures more of the effect of extreme loss events than VaR for the same confidence level as it is the average of all the losses in the tail.

Total Asset Risk is prepared using the ETL methodology which captures the investment risk exposure by asset class and reflects the risk of potential losses in net assets due to both market and credit risk factors. Statistically, Ontario Teachers' would expect to see losses approximate to the risk exposure on the report only 1% of the time over a one year period, subject to certain assumptions and limitations discussed below.

The ETL methodology is a statistical approach that accounts for market volatility and credit risk as well as risk diversification achieved by investing in various products and markets. Risks are measured consistently across all markets and products and can be aggregated to arrive at a single risk number. The one-year 99% ETL number used by Ontario Teachers' is generated using a historical simulation and bootstrap sampling approach that reflects the expected annual return on the portfolio in the worst 1% of the cases. When sufficient historical data is not available, proxies and statistical methods are used to complete the data series.

There are limitations to the ETL methodology in use. For example, historical data may not provide the best estimate of future changes. It may fail to capture the correlation in asset returns in extreme adverse market movements which have not occurred in the historical window. However, the sampling approach and long historical window mitigate this limitation to some extent by enabling the generation of a set of scenarios that include extreme adverse events. Another limitation is that Ontario Teachers' computes the risk relative to asset positions at the close of the business day. Positions may change substantially during the course of a trading day. These limitations and the nature of the ETL measure mean that Ontario Teachers' losses may exceed the risk exposure amounts indicated in any risk reports.

Ontario Teachers' continuously monitors and enhances the risk calculation methodology, striving for better estimation of risk exposure.

The table below shows Total Asset Risk ETL of Ontario Teachers'.

(Canadian \$ billions) ⁷	2019	2018
Equity		
Publicly traded	\$ 9.5	\$ 8.5
Non-publicly traded	16.5	14.0
Fixed income		
Bonds	12.0	9.5
Real-rate products	4.5	4.0
Inflation sensitive		
Commodities	4.5	3.0
Natural resources	2.0	2.0
Inflation hedge	3.5	3.5
Real assets		
Real estate	4.5	4.5
Infrastructure	3.5	3.0
Real-rate products	—	1.0
Credit	2.5	2.0
Absolute return strategies	1.5	1.5
Overlay	8.5	5.5
Money market	18.0	14.5
Total Asset Risk ETL Exposure⁸	\$ 47.5	\$ 38.0

⁷ Rounded to the nearest \$0.5 billion.

⁸ Total Asset Risk ETL Exposure does not equal the sum of ETL exposure for each asset class because diversification reduces total risk exposure.

Interest rate risk

Interest rate risk refers to the effect on the market value of Ontario Teachers' assets and liabilities due to fluctuations in interest rates. The value of Ontario Teachers' assets is affected by short-term changes in nominal and real interest rates. Pension liabilities are exposed to fluctuations in long-term interest rates as well as expectations for salary escalation.

Ontario Teachers' measures interest rate risk of relevant asset classes in its asset mix (note 2d). Ontario Teachers' measures the sensitivity to changes in nominal interest rates of bonds and derivative contracts included in its Fixed Income and Credit asset classes - a 1% increase in nominal interest rates would result in a decline in the value of these investments of \$9.5 billion (2018 – \$7.6 billion). Similarly, Ontario Teachers' measures the sensitivity to changes in real interest rates of real-rate products and derivative contracts included in its Fixed Income and Real Assets asset classes - a 1% increase in real interest rates would result in a decline in the value of these investments of \$2.7 billion (2018 – \$3.1 billion).

Ontario Teachers' also measures the sensitivity of nominal and real-rate securities and derivative contracts that are included in the Inflation hedge category of Ontario Teachers' Inflation sensitive asset class to changes in market-implied inflation. A 1% increase in the market-implied rate of inflation would result in an increase in the value of these investments of \$2.1 billion (2018 - \$2.0 billion).

As at December 31, 2019, holding the inflation and salary escalation assumptions constant, a 1% decrease in the assumed long-term real rates of return would result in an increase in the pension liabilities of approximately 23% or \$50.6 billion (2018 – 21% or \$40.1 billion).

Foreign currency risk

Foreign currency exposure arises from Ontario Teachers' holdings of foreign currency-denominated investments and related derivative contracts.

As at December 31, Ontario Teachers' has investments exposed to foreign currency. In Canadian dollars this exposure is as follows:

(Canadian \$ millions)	2019	2018
Currency	Net Exposure	Net Exposure
United States Dollar	\$ 38,161	\$ 35,150
Euro	4,709	2,976
Brazilian Real	3,538	2,747
Chilean Peso	3,347	3,425
Japanese Yen	3,056	2,331
Chinese Renminbi	2,367	(2,272)
British Pound Sterling	2,361	2,730
Mexican Peso	2,023	1,394
Danish Krone	1,994	2,049
Australian Dollar	1,925	1,418
Other	10,860	9,851
	\$ 74,341	\$ 61,799

As at December 31, with all other variables and underlying values held constant, a 5% increase/decrease in the value of the Canadian dollar against major foreign currencies would result in an approximate decrease/increase in the value of net investments as follows:

(Canadian \$ millions)	2019	2018
Currency	Change in Net Investment Value	Change in Net Investment Value
United States Dollar	\$ 1,908	\$ 1,758
Euro	236	149
Brazilian Real	177	137
Chilean Peso	167	171
Other	1,229	875
	\$ 3,717	\$ 3,090

(h) Liquidity risk

Liquidity risk is the risk of being unable to obtain sufficient cash or cash equivalents at a reasonable cost to meet Ontario Teachers' financial obligations in a timely manner, or to support new investment opportunities, under a range of stressed conditions. By maintaining a structurally sound liquidity profile, Ontario Teachers' seeks to ensure sufficient liquidity is available to cover potential cash and collateral outflows under stressed conditions without adversely impacting Ontario Teachers' asset mix while allowing for opportunistic investments.

Liquidity risk management

Ontario Teachers' monitors its liquidity position on a daily basis to ensure sufficient liquid assets are available to meet potential cash and collateral requirements and other contingent payments over different time horizons. Available liquid assets primarily consist

of sovereign, provincial or territorial government debt, other liquid investment grade debt, and publicly traded equity securities after considering the impact of collateral pledged and received, repurchase agreements and securities lending and borrowing arrangements. In assessing Ontario Teachers' liquidity position, factors such as fair value under a market stress event and the portion of available liquid assets earmarked to meet contractual cash flows and other projected cash flows (such as pension payments) are considered. Potential collateral requirements from Ontario Teachers' positions in securities sold short, repurchase agreements, derivatives contracts, and securities lending and borrowing agreements are estimated under stress by a historical simulation of market movements.

Liquid assets

As of December 31, 2019, Ontario Teachers' maintains \$78,555 million of available liquid assets (December 31, 2018 - \$71,251 million).

Contractual maturity

Ontario Teachers' liabilities include accrued pension benefits, investment-related liabilities, due to brokers, accounts payable and accrued liabilities. Due to brokers, accounts payable and accrued liabilities are all due within one year. As Ontario Teachers' may settle securities sold but not yet purchased, cash collateral received under credit support annexes and derivatives at fair value before contractual maturity, they are considered to mature within one year.

Ontario Teachers' investment-related liabilities by maturity as at December 31 are as follows:

(Canadian \$ millions)	2019			
	Within One Year	One to Five Years	Over Five Years	Total
Securities sold under agreements to repurchase	\$ (13,648)	\$ (6,173)	\$ —	\$ (19,821)
Securities sold but not yet purchased				
Equities	(900)	—	—	(900)
Fixed income	(9,917)	—	—	(9,917)
Real estate	(1,115)	(1,888)	(2,225)	(5,228)
Commercial Paper	(8,490)	—	—	(8,490)
Term debt	—	(7,187)	—	(7,187)
Cash collateral received under credit support annexes	(988)	—	—	(988)
Derivative-related, net	(3,186)	—	—	(3,186)
	\$ (38,244)	\$ (15,248)	\$ (2,225)	\$ (55,717)

(Canadian \$ millions)

2018

		Within One Year		One to Five Years		Over Five Years		Total
Securities sold under agreements to repurchase	\$	(21,040)	\$	(7,240)	\$	—	\$	(28,280)
Securities sold but not yet purchased								
Equities		(2,617)		—		—		(2,617)
Fixed Income		(12,493)		—		—		(12,493)
Real estate		(587)		(2,257)		(1,050)		(3,894)
Commercial Paper		(8,676)		—		—		(8,676)
Term debt		—		(5,091)		—		(5,091)
Cash collateral received under credit support annexes		(937)		—		—		(937)
Derivative-related, net		(7,321)		—		—		(7,321)
	\$	(53,671)	\$	(14,588)	\$	(1,050)	\$	(69,309)

(i) Collateral pledged and received

Ontario Teachers' pledges and receives cash and security collateral in the ordinary course of managing net investments. Security collateral consists primarily of Canadian and U.S. government securities. Generally, additional collateral is provided if the value of the securities falls below a predetermined level. The securities transferred are recognized as assets when Ontario Teachers' retains substantially all risks and rewards, including credit risk, settlement risk and market risk. Ontario Teachers' is not allowed to either pledge the same securities with other financial institutions or to sell them to another entity unless Ontario Teachers' substitutes such securities with other eligible securities. Ontario Teachers' holds the collateral received as long as Ontario Teachers' is not a defaulting party or an affected party in connection with a specified condition listed on the contractual agreements and there is no early termination of the contractual agreement. Ontario Teachers' is permitted to either sell or repledge the collateral in the absence of default by the owner of the collateral. The fair value of collateral sold or repledged as at December 31, 2019 is \$nil (2018 - \$nil).

Ontario Teachers' engages in securities borrowing and lending transactions and pledges and receives associated collateral. Ontario Teachers' does not recognize any securities borrowed as its investment assets or derecognize securities lent because the risks and rewards of the borrowed securities remain with the lenders.

The fair value of collateral pledged and received, as well as the securities purchased under agreements to resell and sold under agreements to repurchase and securities borrowed and lent as at December 31 are as follows:

(Canadian \$ millions)	2019	2018
Securities purchased under agreements to resell and sold under agreements to repurchase		
Gross amounts of securities purchased under agreements to resell ⁹	\$ 12,204	\$ 16,216
Collateral held	12,259	16,498
Gross amounts of securities sold under agreements to repurchase ⁹	20,795	28,670
Collateral pledged	20,983	29,016
Securities borrowing and lending		
Securities borrowed	2,796	5,442
Securities lent	—	288
Collateral pledged ¹⁰	2,965	5,535
Derivative-related		
Collateral received ¹¹	1,842	1,505
Collateral pledged ¹²	1,587	2,600

⁹ See note 2j for reconciliation of total gross amount to net amounts presented in note 2a.

¹⁰ Includes cash collateral of \$901 (2018 - \$2,549)

¹¹ Includes cash collateral of \$988 (2018 - \$937)

¹² Includes cash collateral of \$56 (2018 - \$57)

(j) Offsetting financial assets and financial liabilities

Financial assets and financial liabilities are offset and the net amount is reported in the Consolidated Statements of Financial Position when there is a legally enforceable right to offset the recognized amounts and there is an intention to settle on a net basis, or realize the asset and settle the liability simultaneously. Certain repurchase agreement transactions settled through a central clearing counterparty satisfy the offsetting criteria. Ontario Teachers' enters into agreements with counterparties such as ISDA Master Agreements and Global Master Repurchase Agreements (GMRA's) in order to mitigate its exposure to credit losses (see note 2f). These agreements provide rights to allow the parties to settle obligations on a net basis when certain predetermined events occur. When these rights of offset are conditional, the related amounts are not netted in the Consolidated Statements of Financial Position.

The impact of these arrangements as at December 31 is presented in the following table:

(Canadian \$ millions)							2019
	Gross amounts	Less: Amounts offset	Net amount presented in note 2a	Amounts subject to netting agreements	Securities and cash collateral ¹³	Net Exposure	
Financial assets							
Securities purchased under agreements to resell	\$ 12,204	\$ (974)	\$ 11,230	\$ (7,121)	\$ (3,918)	\$ 191	
Derivative-related receivables	4,495	—	4,495	(1,608)	(1,600)	1,287	
	\$ 16,699	\$ (974)	\$ 15,725	\$ (8,729)	\$ (5,518)	\$ 1,478	
Financial liabilities							
Securities sold under agreements to repurchase	\$ (20,795)	\$ 974	\$ (19,821)	\$ 7,121	\$ 12,649	\$ (51)	
Derivative-related liabilities	(3,186)	—	(3,186)	1,608	1,454	(124)	
	\$ (23,981)	\$ 974	\$ (23,007)	\$ 8,729	\$ 14,103	\$ (175)	
(Canadian \$ millions)							2018
	Gross amounts	Less: Amounts offset	Net amount presented in note 2a	Amounts subject to netting agreements	Securities and cash collateral ¹³	Net Exposure	
Financial assets							
Securities purchased under agreements to resell	\$ 16,216	\$ (390)	\$ 15,826	\$ (13,476)	\$ (2,314)	\$ 36	
Derivative-related receivables	7,056	—	7,056	(4,489)	(1,284)	1,283	
	\$ 23,272	\$ (390)	\$ 22,882	\$ (17,965)	\$ (3,598)	\$ 1,319	
Financial liabilities							
Securities sold under agreements to repurchase	\$ (28,670)	\$ 390	\$ (28,280)	\$ 13,476	\$ 14,785	\$ (19)	
Derivative-related liabilities	(7,321)	—	(7,321)	4,489	2,461	(371)	
	\$ (35,991)	\$ 390	\$ (35,601)	\$ 17,965	\$ 17,246	\$ (390)	

¹³ Securities and cash collateral exclude over-collateralization and collateral in transit. See note 2i for the total amount of collateral.

NOTE 3. RECEIVABLE FROM THE PROVINCE OF ONTARIO

The receivable from the Province consists of required matching contributions and interest thereon.

As at December 31 (Canadian \$ millions)	2019	2018
Contributions receivable	\$ 3,110	\$ 3,184
Accrued interest receivable	36	40
	\$ 3,146	\$ 3,224

The receivable as at December 31, 2019, from the Province of Ontario consists of 1,565 million, which was received in January 2020, and an estimated \$1,581 million to be received with interest in January 2021. The receivable as at December 31, 2018, from the Province consisted of \$1,675 million, which was received in January 2019, and an initial estimate of \$1,549 million which was received in January 2020. The difference between the initial estimates and the actual amount received was due to interest.

NOTE 4. ACCRUED PENSION BENEFITS

(a) Actuarial assumptions

The actuarial assumptions used in determining the value of accrued pension benefits of \$224,669 million (2018 – \$192,281 million) reflect management’s best estimate of future economic events and involve both economic and non-economic assumptions. The non-economic assumptions include considerations such as mortality as well as withdrawal and retirement rates. The primary economic assumptions include the discount rate, the salary escalation rate and the inflation rate. The discount rate is based on market rates, as at the valuation date, of bonds issued by the Province of Ontario, which have characteristics similar to obligations under the Plan. The discount rate was determined by applying a weighted average discount rate that reflects the estimated timing and amount of benefit payments. The inflation rate is the geometric difference between the yield on Government of Canada long-term nominal bonds and Government of Canada real-return bonds. The salary escalation rate incorporates the inflation rate assumption and long-term expectation of growth in real wages.

A summary of the primary economic assumptions is as follows:

As at December 31	2019	2018
Discount rate	2.50%	3.20%
Salary escalation rate	2.35%	2.40%
Inflation rate	1.35%	1.40%
Real rate ¹	1.15%	1.80%

¹ Real rate shown as the geometric difference between the discount rate and the inflation rate.

The primary economic assumptions were changed as a result of changes in capital markets during 2019. These changes in economic assumptions resulted in a net increase in the value of accrued pension benefits of \$25,855 million (2018 – \$19,812 million decrease).

At the time these Financial Statements were approved, the collective bargaining process related to school years beginning September 1, 2019 onward was in progress. New salary contracts in effect for the length of the contract, the impact of which may be material, will be reflected in future valuations once known.

The non-economic assumptions were updated in 2019 to reflect recent experience of Plan members related to mortality rates, expected rates of improvement in future mortality, retirement, termination of plan membership and reinstatement rates (movement from inactive status back to active status). The changes in non-economic assumptions decreased the accrued pension benefits by \$340 million. There were no changes to the non-economic assumptions as at December 31, 2018.

The changes in economic and non-economic assumptions resulted in a net increase in the value of accrued pension benefits of \$25,515 million (2018 - \$19,812 million decrease).

(b) Indexation levels

Pension credit earned after December 31, 2009 is subject to conditional inflation protection as described in paragraph (f) of the Description of Plan note. Indexation levels vary between 50% and 100% of the change in the Consumer Price Index (CPI) for pension credit earned between January 1, 2010, and December 31, 2013, and vary between 0% and 100% of the change in the CPI for pension credit earned after 2013. Conditional inflation protection can only be invoked and changes to indexation levels can only be made when a funding valuation is filed. The Ontario government and designated employers participating in the Plan will make extra contributions to match the inflation protection benefits members forego up to a maximum foregone inflation of 50% of CPI.

For financial statement valuations, future pension payments are indexed at the levels stated in the most recent funding valuation filing. As a result, the December 31, 2019 accrued pension benefits reflect the indexation levels as stated in the January 1, 2018 funding valuation report.

As noted in the filed January 1, 2018 funding valuation, indexation levels are at 100% of CPI for pension credit earned after 2009. This level will remain in effect until the next actuarial valuation is filed with the regulatory authorities at which time the level may be reduced depending on the funded status of the Plan.

The indexation levels reflected in accrued pension benefits as at December 31 are as follows:

	2019 ²	2018 ²
Pension credit	Inflation protection level	Inflation protection level
Earned before 2010	100% of CPI	100% of CPI
Earned during 2010 - 2013	100% of CPI	100% of CPI
Earned after 2013	100% of CPI	100% of CPI

² Inflation protection levels per the January 1, 2018 funding valuation.

(c) Experience gains and losses

Experience losses on the accrued pension benefits of \$853 million (2018 – \$709 million losses) arose from differences between the actuarial assumptions and actual results.

NOTE 5. INVESTMENT IN REAL ESTATE

Ontario Teachers' real estate portfolio is comprised of real estate-related investments that are either owned or managed on behalf of Ontario Teachers' by The Cadillac Fairview Corporation Limited (CFCL), a wholly owned subsidiary. Ontario Teachers' consolidates the fair value of the assets and liabilities of CFCL and the investment holding companies managed by CFCL. Investment holding companies and investment entities, including the joint ventures, managed by external parties, are recognized as Ontario Teachers' investments measured at fair value and presented on a non-consolidated basis.

The tables below provide information on the real estate portfolio. Intercompany transactions and balances are eliminated upon consolidation. The first table presents major components of the net investment in real estate. The second table presents major components of net real-estate income:

As at December 31 (Canadian \$ millions)	2019		2018	
	Fair Value	Cost	Fair Value	Cost
Assets^{1,2}				
Real estate properties	\$ 29,604	\$ 17,193	\$ 27,276	\$ 15,652
Investments	3,812	3,902	3,742	3,386
Other assets	352	347	283	281
Total assets	33,768	21,442	31,301	19,319
Liabilities^{1,2}				
Long-term debt	4,057	3,937	2,907	2,853
Other liabilities	1,171	786	987	618
Total liabilities	5,228	4,723	3,894	3,471
Net investment in real estate	\$ 28,540	\$ 16,719	\$ 27,407	\$ 15,848

¹ U.S. Dollar, Mexican Pesos and Colombian Pesos net assets have been hedged by way of foreign currency forward contracts for a notional amount of \$769 million (2018 – \$1,120 million) with a combined fair value of \$4 million (2018 – \$(37) million).

² Joint ventures managed by external parties hold real estate properties and have liabilities. The net asset value of these joint ventures is included in investments, representing assets of \$1,729 million (2018 – \$1,215 million) and liabilities of \$590 million (2018 – \$548 million).

(Canadian \$ millions)	2019	2018
Revenue		
Rental	\$ 2,020	\$ 1,999
Investment and other	115	105
	2,135	2,104
Expenses		
Property operating	831	818
General and administrative	94	60
Other	25	24
	950	902
Operating income	1,185	1,202
Interest expense	(136)	(106)
Income	1,049	1,096
Net investment gain	475	335
Net real estate income (note 6)	\$ 1,524	\$ 1,431

NOTE 6. NET INVESTMENT INCOME

Net investment income is reported net of management fees, transaction costs, and is grouped by asset class. Net investment income, after giving effect to derivative contracts, for the year ended December 31, is as follows:

Net Investment Income								2019
(Canadian \$ millions)	Income ¹	Realized	Unrealized	Investment Income ²	Management Fees	Transaction Costs	Net Investment Income	
Equity								
Publicly traded								
Canadian	\$ 35	\$ (295)	\$ 479	\$ 219	\$ —	\$ (3)	\$ 216	
Non-Canadian	522	685	2,153	3,360	(68)	(35)	3,257	
Non-publicly traded								
Canadian	177	(1)	601	777	(48)	(41)	688	
Non-Canadian	846	2,490	(190)	3,146	(322)	(135)	2,689	
	1,580	2,879	3,043	7,502	(438)	(214)	6,850	
Fixed income								
Bonds	1,286	1,884	1,690	4,860	(1)	(18)	4,841	
Short-term investments	(5)	(130)	428	293	(2)	—	291	
Alternative investments	127	861	(852)	136	(101)	(1)	34	
Canadian real-rate products	475	46	1,020	1,541	—	—	1,541	
Non-Canadian real-rate products	147	512	654	1,313	—	—	1,313	
	2,030	3,173	2,940	8,143	(104)	(19)	8,020	
Inflation sensitive								
Commodities	(251)	128	1,417	1,294	—	(9)	1,285	
Timberland	66	—	(155)	(89)	—	—	(89)	
Natural resources	304	—	(41)	263	(4)	(3)	256	
	119	128	1,221	1,468	(4)	(12)	1,452	
Real assets								
Real estate (note 5)	1,074	213	262	1,549	(2)	(23)	1,524	
Infrastructure	550	(142)	330	738	(23)	(46)	669	
	1,624	71	592	2,287	(25)	(69)	2,193	
Overlay	(13)	1,036	647	1,670	—	—	1,670	
Total	\$ 5,340	\$ 7,287	\$ 8,443	\$ 21,070	\$ (571)	\$ (314)	\$ 20,185	

¹ Income includes interest, dividends, real estate operating income (net of interest expense), and other investment-related income and expenses.

² Net of certain management and performance fees.

Net Investment Income

2018

(Canadian \$ millions)	Income ³	Realized	Unrealized	Investment Income ⁴	Management Fees	Transaction Costs	Net Investment Income
Equity							
Publicly traded							
Canadian	\$ 35	\$ 114	\$ (403)	\$ (254)	\$ —	\$ (4)	\$ (258)
Non-Canadian	592	859	(2,803)	(1,352)	(60)	(68)	(1,480)
Non-publicly traded							
Canadian	152	16	250	418	(19)	(64)	335
Non-Canadian	868	3,323	1,516	5,707	(272)	(50)	5,385
	1,647	4,312	(1,440)	4,519	(351)	(186)	3,982
Fixed income							
Bonds ⁵	1,272	(1,076)	(436)	(240)	(1)	(39)	(280)
Short-term investments	(9)	(204)	(416)	(629)	(3)	(1)	(633)
Alternative investments	119	91	299	509	(21)	(2)	486
Canadian real-rate products	470	(26)	(470)	(26)	—	—	(26)
Non-Canadian real-rate products	167	1,275	(656)	786	—	—	786
	2,019	60	(1,679)	400	(25)	(42)	333
Inflation sensitive							
Commodities	(165)	322	(1,555)	(1,398)	—	(6)	(1,404)
Timberland	93	—	246	339	—	—	339
Natural resources	234	—	(102)	132	(3)	(2)	127
	162	322	(1,411)	(927)	(3)	(8)	(938)
Real assets							
Real estate (note 5)	1,120	(116)	451	1,455	(2)	(22)	1,431
Infrastructure	711	(64)	942	1,589	(24)	(43)	1,522
	1,831	(180)	1,393	3,044	(26)	(65)	2,953
Overlay ⁵	(8)	(987)	(102)	(1,097)	—	—	(1,097)
Total	\$ 5,651	\$ 3,527	\$ (3,239)	\$ 5,939	\$ (405)	\$ (301)	\$ 5,233

³ Income includes interest, dividends, real estate operating income (net of interest expense), and other investment-related income and expenses.

⁴ Net of certain management and performance fees.

⁵ The income associated with currency overlay has been reclassified from Bonds to a separate Overlay asset class to more appropriately reflect the nature of the underlying transactions. The restatement has no impact on the net investment income in 2018.

NOTE 7. INVESTMENT RETURNS AND RELATED BENCHMARK RETURNS

Investment returns and related benchmark returns by investment asset class for the year ended December 31 are as follows:

	2019		2018	
	Investment Returns	Investment Benchmark Returns	Investment Returns	Investment Benchmark Returns
Equity ¹	12.4%	17.0%	7.2%	(0.4)%
Fixed Income ¹	6.3	6.3	2.8	2.8
Inflation sensitive ¹	2.7	3.5	2.6	1.0
Real assets ¹	5.8	4.6	7.0	8.1
Credit ¹	7.3	8.3	6.3	4.7
Total fund net return ^{2,3}	10.4%	12.2%	2.5%	0.7 %

¹ Net of transaction costs and management fees but before Ontario Teachers' investment administration expenses.

² Absolute return strategies, Overlay and Money market are included in the total fund net return and not shown separately.

³ The total fund net return includes Ontario Teachers' investment administrative expenses.

Investment returns have been calculated using a time-weighted rate of return methodology.

Ontario Teachers' identifies benchmarks to evaluate the investment management performance. The performance of each asset class is measured against benchmarks that simulate the results based on the asset class.

The total fund net return is measured against a Canadian dollar-denominated composite benchmark produced by aggregating returns from each of the policy asset-class benchmarks.

NOTE 8. FUNDING VALUATIONS

Funding valuations are prepared annually and must be filed at least once every three years with the regulatory authorities. Once filed, these valuations are used to determine the funding requirements of the Plan. The Funding Management Policy established by the co-sponsors provides guidance for the co-sponsors in determining contributions and benefit levels.

Under the agreement described above between the co-sponsors, contribution rates for 2018 onwards are 10.40% of earnings below the CPP limit plus 12.00% of earnings above the CPP limit.

The actuarial methods used to prepare funding valuations are different than those used to prepare a financial statement actuarial valuation and the amounts included in these consolidated financial statements. The funding valuations use an actuarial valuation method which takes into account future benefits to be earned by Plan members and future contributions to be made by Plan members, the Province and designated employers as at the valuation date, whereas the accrued pension benefits recognized in the financial statements represent the actuarial present value of pension obligations in respect of service accrued to date for all members.

The most recent funding valuation that has been filed with regulatory authorities was prepared as at January 1, 2018, by Mercer (Canada) Limited and disclosed a funding surplus of \$10.3 billion. The co-sponsors allocated the surplus to a contingency reserve.

NOTE 9. CONTRIBUTIONS

(Canadian \$ millions)	2019	2018
Members		
Current service ¹	\$ 1,548	\$ 1,518
Optional credit	37	36
	1,585	1,554
Province of Ontario		
Current service	1,537	1,507
Interest	26	29
Optional credit	34	34
	1,597	1,570
Designated employers	34	33
Transfers from other pension plans	7	9
	41	42
	\$ 3,223	\$ 3,166

¹ Contributions past due are less than \$1 million in 2019 and 2018.

NOTE 10. BENEFITS

(Canadian \$ millions)	2019	2018
Retirement pensions	\$ 5,858	\$ 5,606
Death benefits	427	405
Disability pensions	24	25
Commuted value transfers	68	65
Family law transfers	28	28
Transfers to other plans	7	9
Benefits paid	\$ 6,412	\$ 6,138
Other payments ¹	3	3
	\$ 6,415	\$ 6,141

¹ Settlement or other claim-related payments to certain current and former beneficiaries determined on a case-by-case basis. Such payments do not reduce the accrued pension benefits.

NOTE 11. ADMINISTRATIVE EXPENSES

(a) Investment expenses

(Canadian \$ millions)	2019	2018
Salaries, incentives and benefits	\$ 387.2	\$ 343.9
Premises and equipment	60.8	60.0
Professional and consulting services	89.2	79.9
Information services	31.4	29.0
Communication and travel	21.4	19.9
Custodial fees	10.4	10.5
Statutory audit fees	3.1	2.9
Board and committee remuneration	1.2	1.1
Other	10.2	7.9
	\$ 614.9	\$ 555.1

(b) Member services expenses

(Canadian \$ millions)	2019	2018
Salaries, incentives and benefits	\$ 44.1	\$ 42.2
Premises and equipment	20.6	17.5
Professional and consulting services	10.1	7.0
Communication and travel	1.1	1.1
Statutory audit fees	0.1	0.1
Board and committee remuneration	0.2	0.2
Other	1.2	1.0
	\$ 77.4	\$ 69.1

(c) Compensation of key management personnel

Key management personnel are defined as those persons having authority and responsibility for planning, directing and controlling the activities of Ontario Teachers', being its board members, the executive team and the senior managing directors of the Investment Division.

The compensation of the key management personnel is included in the administrative expenses of Ontario Teachers'. There are no other related party transactions between the key management personnel and Ontario Teachers'.

The compensation of the key management personnel¹ as at December 31 is summarized below:

(Canadian \$ millions)	2019	2018
Short-term employee benefits	\$ 19.8	\$ 19.0
Post-employment benefits	5.4	2.5
Termination benefits	1.3	4.8
Other long-term benefits	19.6	15.8
	\$ 46.1	\$ 42.1

¹ The table does not include compensation of either officers or directors of The Cadillac Fairview Corporation Limited.

(d) Employees' post-employment benefits

The employees of Ontario Teachers' are members of the defined benefit plans, of either the Ontario Public Service Employees Union (OPSEU) Pension Plan or Public Service Pension Plan (PSPP). The expected contributions from Ontario Teachers' in 2020 are approximately \$15.7 million. Some employees are also members of the Public Service Supplementary Plan (PSSP). These three pension plans are sponsored by the Province of Ontario and information is available on www.optrust.com and www.opb.ca. As the employer, Ontario Teachers' matches the employees' contributions to these pension plans. Some senior management employees also participate in a non-registered, unfunded Supplemental Employee Retirement Plan (SERP) managed by Ontario Teachers' to provide the employees non-indexed retirement benefits equal to 2% of the employee's pensionable earnings times the number of years of service, less the initial annual pension to which the employee is entitled under the PSPP and PSSP, combined. The contributions expensed by Ontario Teachers' during the year were \$30.4 million (2018 – \$12.5 million). Contributions are included in the salaries, incentives and benefits expenses.

NOTE 12. CAPITAL

Funding valuation surpluses or deficits as determined by an independent actuary are considered Ontario Teachers' capital for the purposes of the consolidated financial statements. See note 8 for an explanation of the difference between the funding valuation and the financial statement valuation.

The funding valuation is used to measure the long-term health of the Plan assessing the Plan's ability to meet its obligations to all current members and their survivors. The objective of managing Ontario Teachers' capital is to ensure the Plan is sufficiently funded to pay benefits over the long term.

One of the most important assumptions in the funding valuation is the discount rate (set by the board) which is used to calculate the present value of future pension benefits the Plan expects to pay to members as well as the present value of contributions it anticipates receiving. The discount rate is derived from the expected rate of return on investments and takes into consideration the cost of running Ontario Teachers' and provisions for plan maturity as well as major adverse events, such as the 2008 financial crisis.

Preliminary funding valuation surpluses or deficits are determined annually. At least once every three years, a formal funding valuation report is required to be filed with the regulatory authorities. As stated in the Partners' Agreement¹, the Plan cannot be in a deficit position when such reports are filed². As a result, the formal report must include adjustments to benefit and / or contribution levels as necessary to eliminate any

preliminary valuation deficit. Any required adjustments are determined by the co-sponsors with guidance from the Funding Management Policy (Appendix A to the Partners' Agreement).

¹ The Partners' Agreement is the document which establishes the partnership between the co-sponsors and outlines the roles of Ontario Teachers', its board and co-sponsors.

² The formal funding valuation report must be actuarially balanced such that the sum of the funding liabilities (present value of future pension benefits), the present value of the reduction in cost due to providing indexation levels below 100% and any contingency reserve is equal to the sum of the Plan's market value of assets, asset smoothing adjustment (if applicable), present value of future contributions and present value of future matching of foregone inflation adjustments.

NOTE 13. RETIREMENT COMPENSATION ARRANGEMENT (RCA)

Restrictions in the ITA on the payment of certain benefits from an RPP for periods of service after 1991 may impact some Plan members. To address affected members, the RCA was established by agreement between the co-sponsors as a supplementary plan to provide these benefits.

The RCA is administered under a trust separate from the assets of Ontario Teachers'. Ontario Teachers' has been appointed by the co-sponsors to act as the trustee of the RCA.

Under the terms of the RCA, its net assets available for benefits and the value of accrued benefits and deficit (referred to below) must constitute a distinct fund held separate from the RPP, and are not included in the consolidated financial statements of Ontario Teachers'.

The RCA is funded primarily on a pay-as-you-go basis from a portion of the contributions made to the Plan by members, the Province and designated employers. The portion is based on a limit on contributions to the Plan with contributions above the limit being remitted to the RCA. The limit is determined annually by the board, after consulting the Plan's independent actuary. Ontario Teachers' objective is to ensure sufficient funds exist within the RCA to pay for several years (but not more than 10 years) of projected benefits following each valuation date. At the beginning of 2019, the limit was \$14,500 consistent with 2018. Due to the funding policy adopted by the co-sponsors, the net assets available for benefits will continue to be substantially less than the accrued benefits.

The RCA financial statements are in compliance with Section 4600 and IFRS. A summary of the financial statements for the RCA, is as follows:

As at December 31 (Canadian \$ thousands)	2019	2018
Statements of financial position		
NET ASSETS AVAILABLE FOR BENEFITS		
Assets	\$ 54,095	\$ 48,766
Liabilities	(3,298)	(2,143)
	\$ 50,797	\$ 46,623
ACCRUED PENSION BENEFITS AND DEFICIT		
Accrued pension benefits	\$ 463,446	\$ 420,807
Deficit	(412,649)	(374,184)
	\$ 50,797	\$ 46,623

For the year ended December 31 (Canadian \$ thousands)	2019	2018
Statements of changes in net assets available for benefits		
Contributions	\$ 14,283	\$ 10,756
Investment income	388	346
	14,671	11,102
Benefits paid	10,251	9,476
Expenses	246	144
	10,497	9,620
Increase in net assets available for benefits	\$ 4,174	\$ 1,482

The actuarial assumptions used in determining the value of accrued benefits are consistent with the Plan except that the assumed discount rate has been adjusted to reflect the impact of the 50% refundable tax applicable to the RCA.

The estimate of the value of accrued benefits is highly sensitive to salary increases, both actual and assumed. Any changes to the salary assumptions will have a significant effect on the liabilities for future benefits. In addition, significant uncertainty exists in projecting the liabilities of the RCA due to changes in the number of future participants as well as changes to the income tax regulations relating to pensions.

NOTE 14. COMMITMENTS

Ontario Teachers' has committed to enter into investment and other transactions, which may be funded over the next several years in accordance with the terms and conditions agreed to. As at December 31, 2019, these commitments totaled \$16,096 million (2018 – \$15,360 million).

NOTE 15. GUARANTEES AND INDEMNIFICATIONS

Guarantees

Ontario Teachers' provides guarantees to third parties related to certain companies Ontario Teachers' invests in and will be called upon to satisfy the guarantees if the companies fail to meet their obligations. Ontario Teachers' expects most guarantees to expire unused. No payments have been made by Ontario Teachers' in either 2019 or 2018 under these guarantees.

Ontario Teachers' guarantees loan and credit agreements which will expire by 2023. Ontario Teachers' maximum exposure is \$98 million as at December 31, 2019 (2018 – \$99 million). The companies have drawn \$33 million under the agreements (2018 – \$11 million).

Ontario Teachers' guarantees a lease agreement for an investment company which will expire by 2059. Ontario Teachers' maximum exposure is \$74 million as at December 31, 2019 (2018 – \$74 million). There were no default lease payments in either 2019 or 2018.

Ontario Teachers' also guarantees the ability of certain investee companies to settle certain financial obligations. Ontario Teachers' maximum exposure is \$94 million as at December 31, 2019 (2018 - \$96 million).

The Cadillac Fairview Corporation Limited manages the real estate investments and has provided construction completion and cost overrun guarantees, for which the maximum exposure cannot be determined because the projects are not yet complete. The guarantees on the related construction loans amounted to \$8 million as at December 31, 2019 (2018 – \$11 million) and have not been recognized in the real estate liabilities. These guarantees will expire by 2023.

Ontario Teachers' also guarantees the following obligations which are consolidated. The fair values of the obligations are included in Ontario Teachers' investment-related liabilities.

Ontario Teachers' guarantees the \$750 million 4.31% Series B Debenture issued by a real estate trust. No payments have been made by Ontario Teachers' into the real estate trust or related to the debenture. The debenture, maturing on January 25, 2021 may be redeemed by the issuer at any time prior to maturity.

Ontario Teachers' also guarantees commercial paper and term debt issued by Ontario Teachers' Finance Trust (OTFT) which Ontario Teachers' consolidates.

The term debt issued by OTFT, as shown in the table below, is not redeemable prior to maturity at the option of the trust or Ontario Teachers' except as described in their respective Offering Memoranda. OTFT and its affiliates may at any time and from time to time purchase the senior notes in the open market or otherwise.

Issuance	Currency	Principal Amount	Maturity	Coupon
September 2017	USD	\$1.75 billion	September 2022	2.125%
April 2018	USD	\$2.00 billion	April 2021	2.750%
September 2019	USD	\$1.75 billion	September 2024	1.625%

The commercial paper issued by OTFT is not redeemable prior to maturity or subject to voluntary prepayment, except as described in the U.S. Commercial Paper Private Placement Memorandum dated June 2017. The maturity terms for the commercial paper outstanding as at December 31, 2019 are up to 397 days from the date of issue in the U.S. and up to 364 days in Canada. The maximum aggregate principal amounts of the commercial paper outstanding at any one time do not exceed \$10 billion. As at December 31, 2019, commercial paper issued amounted to \$8,517 million (December 31, 2018 - \$8,726 million).

Indemnifications

Ontario Teachers' board members, employees and certain others are indemnified in relation to certain proceedings that may be commenced against them. In addition, in the normal course of operations, Ontario Teachers' may, in certain circumstances, agree to indemnify a counterparty. Under these agreements, Ontario Teachers', its subsidiaries and joint ventures may be required to compensate counterparties for costs incurred as a result of various contingencies such as legal claims or changes in laws and regulations. The number of such agreements, the variety of indemnifications and their contingent character prevents Ontario Teachers' from making a reasonable estimate of the maximum amount that would be required to pay all such counterparties.