

# 2018 Annual Report

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# 102.5%

The plan is 102.5 per cent funded as at December 31, 2017, with a surplus of \$644 million. See “Actuarial valuation” on page 8.

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# At 90, the plan has another reason to celebrate



April 1, 2019, was a big day for the Teachers' Pension Plan: the plan's 90th birthday! It capped off a 13-month period in which two significant announcements to plan members and employers were made:

- In March 2018, we announced the preliminary 2017 actuarial valuation results. We told members the positive results meant their pension accrual rate would improve, the plan would implement a new default (normal form) pension, and more money would be allocated to pay cost-of-living adjustments (COLAs) for retired members into the future.
- In fall 2018, with the final valuation results showing a strong surplus, we announced a reduction in contribution rates for both members and employers effective January 1, 2019. The member rate was reduced from 12.92 per cent of salary to 11.17 per cent of salary. The employer rate was reduced from 13.32 per cent of salary to 11.30 per cent of salary.

**1929:** April 1, 2019, marks the 90th anniversary of BC's *Teachers' Pension Act*. The act was the first in BC to provide pension benefits to teachers and is predecessor of the current pension plan.

## Why were the contribution rates reduced?

It's uncommon to hear about a pension plan reducing contribution rates. As the Teachers' Pension Board of Trustees, we were honoured to make this unique announcement to members and employers. We know it is the strength of our investments and many years of consistent contributions from members and employers that have brought us to this positive place in the plan's history.

The most prominent factor in allowing us to reduce contribution rates was the plan's strong investment returns. The valuation showed the plan's basic account has actuarial assets of \$26.8 billion and actuarial liabilities of \$26.2 billion. This means the plan is 102.5 per cent funded as at December 31, 2017, with a surplus of \$644 million. These figures consider the plan improvements discussed on page 1.

The surplus will make up a new rate stabilization account (RSA), created in accordance with the *Pension Benefits Standards Act* rules about plan surpluses. Funds in the RSA will help mitigate increases to contribution rates that may result from future valuations.

You may wonder why employer contribution rates decreased more significantly than member contribution rates. This came from specific instructions outlined in the Teachers' Pension Plan Joint Trust Agreement (JTA), a document jointly managed by the partners, British Columbia Teachers' Federation and the provincial government.

When there is a valuation surplus, the JTA requires the plan to use this surplus toward balancing employer and member contribution rates—a goal of the JTA. With the new rates, employers now contribute the same amount as members toward the basic account. Employers still contribute 0.13 per cent of salary more than members toward the plan's inflation adjustment account, the account used to provide cost-of-living adjustments for retired members. Employers have been paying this additional amount since 1994 to cover medical and extended health coverage subsidies previously paid from the provincial government's general revenue. The JTA considers this 0.13 per cent to be exempt from the balancing provisions.

## What is a valuation?

A valuation is the most important measurement of plan health. Using a series of economic and demographic assumptions, it determines how much money the plan needs to pay current and future pensions. An independent actuary—a professional with specialized training in financial modelling, laws of probability and risk management—performs a valuation at least every three years.

## And... happy 90th birthday, Teachers' Pension Plan!

Back in 1929, BC's *Teachers' Pension Act* was passed, allowing teachers to receive an annual pension of \$25 (about \$370 in today's money) for every year of service. Even when inflation over the years is considered, we've come a long way.

Part of our evolution over nine decades includes the regular transition of the plan's trustees on and off the board. Through a quirk of timing, over the last year and a half, three of our longest-serving trustees stepped down from the board to move into retirement or other roles. Joan Axford, Dale Lauber and Linda Watson each spent almost two decades as trustees of the plan, contributing their knowledge, advice and direction to the plan's well-being. We thank them for their many years of service and wish them luck in their future endeavours.

Today, the Teachers' Pension Plan is one of the largest and healthiest pension plans in Canada, and we look forward to the challenges and opportunities of the next 90 years!



**1929:** BC's *Teachers' Pension Act* was passed, allowing teachers to receive an annual pension of \$25 (about \$370 in today's money) for every year of service.

# Executive summary

## Net assets

2018

\$28.4  
billion

2016

\$25.5  
billion

2014

\$22.7  
billion

## Membership

The plan has more than

98,800  
members

Active members  
outnumber  
retired members

1.2:1  
down from  
1.3:1  
in 2014

## Benefits

The plan paid out

\$1.2 billion  
in benefits in 2018

2.3%

2018 annual rate of return  
beat the performance  
benchmark by

+ 1.5%

As at December 31, 2018,  
there were

38,465

pensions  
being paid

## Performance

8.9%

10-year annualized rate of  
return beat the performance  
benchmark by

+ 1.1%



Teachers'  
Pension Plan

# Plan financials

## Highlights of 2018

- The plan investment portfolio earned 2.3 per cent after fees during 2018, exceeding the performance benchmark of 0.8 per cent.
- Plan investments of \$28.1 billion at December 31, 2018, were relatively unchanged over investments of \$28.0 billion at December 31, 2017.
- Over the rolling five-year period, the plan investment portfolio exceeded the actuarial return target by 3.8 per cent.
- Performance breakdown:
  - The plan's combined public equities returned -3.1 per cent; investor sentiment waned in the fourth quarter over concerns of a global economic slowdown.
  - Global equities and emerging markets equities earned 0.3 per cent and -8.8 per cent, respectively; they were challenged by rising interest rates and persistent global trade tensions.
  - In Canada, poor performance from energy, health care, and consumer-discretionary sectors contributed to a combined equity return of -9.3 per cent.
  - Canadian real estate earned 6.7 per cent; demand in Vancouver and Toronto was the biggest contributor and there was modest improvement in Alberta.
  - The combined fixed-income portfolio, which includes money market, bonds and mortgages, returned 1.8 per cent as interest rates rose.
  - Private markets contributed 2.4 per cent to the total fund return.

## 2.3%

The plan investment portfolio earned 2.3% after fees during 2018, above the performance benchmark of 0.8%

## Investment overview

The board oversees an investment portfolio of more than \$28 billion for the benefit of plan members. The board's primary financial objective is to ensure the long-term sustainability of the plan, which depends on several factors. These include generating sufficient returns over a long-term horizon. The Statement of Investment Policies and Procedures outlines the board's investment strategy and overall framework for managing plan assets. The board approves the long-term asset mix policy, recognizing diversification of investments as a key principle in managing risk. Short-term volatility is monitored, and in part managed, through longer-term investment objectives.

Investments are held across a range of asset classes (fixed income; mortgages; public and private equity; real estate; infrastructure and renewable resources), industry sectors and global markets. The board oversees the management of plan assets through its investment management agent, British Columbia Investment Management Corporation (BCI).

Risk management is a fiduciary responsibility of the board and BCI. The actions of anticipating risk and taking appropriate steps to limit exposure or capitalize on opportunities are essential to BCI's business plan and risk-management activities.

# Report on investments

During 2018, the market value of the plan's investments remained relatively unchanged at \$28.1 billion. The plan's investment portfolio earned 1.6 per cent after fees for 2018, outperforming the performance benchmark by 0.8 per cent. Over the last ten years, which included the global financial crisis, the investment portfolio earned 8.9 per cent on an annualized basis, exceeding the performance benchmark of 7.8 per cent.

The year 2018 was one of transition in financial markets. It marked the end of a period of stability that had persisted since the global financial crisis of 2008. In 2018, strong financial performance and global economic growth were evident for much of the year—against a backdrop of increasing political uncertainty. Global equity markets finally responded to these pressures in late 2018, with U.S. markets leading the way lower. Combined public equities ended the year with a return of -3.1 per cent.

There were several key contributors to the market correction that occurred in late 2018, including the potential for a global trade war, falling energy prices and deterioration of global economic indicators (a pronounced slowing of the Chinese domestic economy). Global and emerging equity markets, which returned 0.3 per cent and -8.8 per cent, respectively, reflected the uncertainty of the market. Canadian equities returned -9.3 per cent, with the fall in oil prices weighing heavily on overall economic sentiment and a fall in commodity prices coinciding with a slowing of Canadian consumer spending.

The combined fixed income portfolio, which includes money market, bonds and mortgages, earned 1.8 per cent in an environment of rising interest rates; the Bank of Canada increased rates three times over the year.

Canadian real estate returned 6.7 per cent for the year. Demand in most Canadian office and industrial markets remained robust, except in Calgary, where occupancy improved modestly. Vancouver and Toronto continued to have the strongest markets.

# Responsible investing

Responsible investing is an integral part of the plan's investment approach. The board and BCI believe assessing and managing risk over the long term—the cornerstone of responsible investing—is a fundamental way to meet the mandate to grow and protect the value of the plan's fund. Taking environmental, social and governance (ESG) matters into account enables us, as investors, to better understand, manage and mitigate risks associated with long-term investments. We believe that companies that employ robust ESG practices are better positioned to generate long-term value for investors than similar companies with less favourable practices. As significant ESG risks vary between asset classes, regions, sectors and companies, BCI adapts its approach and strategy to what is appropriate for each investment. Examples of issues BCI may assess and monitor are environmental impacts, labour practices and corporate governance. Plan members can learn more about responsible investing activities on the BCI website at [BCI.ca](https://www.bci.ca).

ESG considerations are integrated into investment analysis, decisions and processes. As an active owner, BCI monitors ESG factors and engages with companies to raise awareness that good corporate governance is the overarching framework for effective management of risks. ESG considerations are integrated into investment analysis, decisions and processes. BCI uses its influence as a shareholder to encourage companies to manage and report on ESG risks.

Collaborating with like-minded investors and organizations to enhance governance practices and standards is important to the board. BCI is a signatory to the Principles for Responsible Investment (PRI), an international network of investors coordinated by the UN that share the goal of incorporating ESG elements into the processes and activities of institutional investors. BCI's and the board's approach for responsible investing is aligned with the PRI, which provides a set of principles for institutional investors to consider as they integrate ESG factors into their investment processes and analysis, ownership activities, and interactions with long-term investors.

In addition, the board supports BCI in responsible investing as a member of the steering committee for the 30% Club, which advocates for companies to enhance gender diversity, and the Sustainability Accounting Standards Board, which has a mandate to promote standards of sustainability reporting. BCI collaborates with several organizations, including the International Corporate Governance Network, CDP (formerly Carbon Disclosure Project) and Investment Network on Climate Risk.

Climate change continues to be a growing concern for the board, plan members and global investors. To mitigate some potential challenges of investing with respect to climate risk, BCI introduced a four-part climate action plan to address investment issues related to climate change. The climate action plan focuses on ways to manage investment risks, integrate climate considerations into investments, seek low-carbon investment opportunities, engage, and advocate with portfolio companies as part of the investment manager's overall investment strategy. By measuring the exposure to climate-related risks, assessing market trends and managing investments, BCI is able to limit its climate change risk.

## Actuarial valuation: the plan's report card

Every three years, an independent actuary assesses the long-term financial health of the plan. The valuation produced is like a report card showing whether the plan is on track to meet its financial goals.

Working from a number of assumptions, the actuary compares current assets, future contributions and investment returns against the money to be paid out in the future for pension benefits. If the assets are the same as or more than the liabilities, the plan is fully funded. If there is a shortfall in assets, this is called an unfunded liability. The board must address an unfunded liability by adjusting contribution rates for members and employers.

The actuarial valuation, measured as at December 31, 2017, showed the plan is 102.5 per cent funded. The valuation showed the plan's basic account has actuarial assets of \$26.8 billion and actuarial liabilities of \$26.2 billion, with a surplus of \$644 million. These figures consider the plan improvements outlined in the trustees' message.

\$ 26.8

The plan has \$26.8 billion in actuarial assets

\$ 26.2

and \$26.2 billion in actuarial liabilities as at December 31, 2017

### Valuation history (\$ millions) as at December 31

	Basic pension benefit surplus (unfunded liability)		
	2017	2014	2011
For funding purposes (entry-age basis)	\$ 644	\$ 449	\$ (855)
Funding ratio	102.5%	102.0%	96.0%

## Managing investment costs

BCI operates on a cost-recovery, not-for-profit basis. Its large asset size provides access to substantial economies of scale. Managing investment costs is important to the board, and BCI's fees continue to be lower than those available both in the private sector and among BCI's Canadian public sector investment peers. The board focuses on overall net returns, as these returns contribute to the plan's long-term sustainability.

# Tables, charts & graphs

## Investment asset mix and performance (%)

as at December 31, 2018

	Approved range	Target asset mix market value	Actual asset mix market value	Rate of return	Performance benchmark
<b>Fixed income</b>					
Short term	0–10	2	2.5	2.3	1.4
Mortgages	0–10	5	3.0	4.5	2.9
Bonds	5–25	15	14.1	1.2	1.4
	<b>12–32</b>	<b>22</b>	<b>19.6</b>	<b>1.8</b>	<b>1.7</b>
<b>Public equity</b>					
Canadian equities	2–15	5	4.7	(9.3)	(8.9)
Global equities	15–35	25	27.5	0.3	(0.1)
Emerging markets	5–15	10	10.1	(8.8)	(6.9)
	<b>30–60</b>	<b>40</b>	<b>42.3</b>	<b>(3.1)</b>	<b>(3.0)</b>
<b>Real estate<sup>1</sup></b>	<b>2–18</b>	<b>16</b>	<b>16.3</b>	<b>6.7</b>	<b>6.0</b>
<b>Private equity<sup>2</sup></b>	<b>5–20</b>	<b>10</b>	<b>9.3</b>	<b>18.5</b>	<b>17.8</b>
<b>Infrastructure and renewable resources<sup>2</sup></b>	<b>5–20</b>	<b>12</b>	<b>11.2</b>	<b>12.7</b>	<b>7.0</b>
<b>Other</b>	<b>0–5</b>	<b>0</b>	<b>1.3</b>	<b>4.6</b>	<b>0.3</b>
<b>Total asset mix</b>			<b>100.0</b>	<b>2.3</b>	<b>0.8</b>

1 Real estate returns are for Canada only; real estate composite returns are not available

2 The illiquid assets are valued only once a year as of December 31; the rates of return for real estate, private equity, and infrastructure and renewable resources reflect the December 31, 2017, internal rates of return

## Investment performance (%)

year ended December 31, 2018

	Market value rates of return	
	Investment returns	Performance benchmark
<b>Annual rates</b>		
<b>2018</b>	<b>2.3</b>	<b>0.8</b>
2017	11.8	10.5
2016	6.0	6.4
2015	9.3	7.5
2014	11.6	10.1
<b>Five-year annualized rates</b>		
<b>2018</b>	<b>8.2</b>	<b>7.0</b>
2017	10.6	9.3
<b>Ten-year annualized rates</b>		
<b>2018</b>	<b>8.9</b>	<b>7.8</b>
2017	7.2	6.6

**Five-year financial summary** (\$ millions)  
for the year ended December 31

	2018	2017	2016	2015	2014
<b>Increase in assets</b>					
<b>Investment income</b>	<b>\$ 720</b>	<b>\$ 3,038</b>	<b>\$ 1,488</b>	<b>\$ 2,149</b>	<b>\$ 2,424</b>
Contributions					
Members	404	381	362	356	303
Employers	413	392	403	418	357
Transfers from other plans	6	10	9	4	8
<b>Total increase in assets</b>	<b>1,543</b>	<b>3,821</b>	<b>2,262</b>	<b>2,927</b>	<b>3,092</b>
<b>Decrease in assets</b>					
Pension benefits	1,203	1,166	1,124	1,093	1,046
Transfers to other plans	9	7	7	7	5
Investment and administration costs	81	61	62	56	46
<b>Total decrease in assets</b>	<b>1,293</b>	<b>1,234</b>	<b>1,193</b>	<b>1,156</b>	<b>1,097</b>
<b>Increase in net assets</b>	<b>250</b>	<b>2,587</b>	<b>1,069</b>	<b>1,771</b>	<b>1,995</b>
<b>Net assets available for benefits at beginning of year</b>	<b>28,116</b>	<b>25,529</b>	<b>24,460</b>	<b>22,689</b>	<b>20,694</b>
<b>Net assets available for benefits at end of year</b>	<b>\$ 28,366</b>	<b>\$ 28,116</b>	<b>\$ 25,529</b>	<b>\$ 24,460</b>	<b>\$ 22,689</b>
<b>Investment and administration costs as a percentage of net assets (%)<sup>1,2</sup></b>					
Investment management <sup>1,2</sup>	0.35	0.29	0.26	0.22	0.20
Benefits administration	0.05	0.05	0.06	0.05	0.05

1 Investment costs as a percentage of net assets include certain external investment management costs totalling \$32.0 million (2017—\$28.7 million; 2016—\$15.0 million; 2015—\$10.6 million; 2014—\$10.7 million) that are netted against investment income; they are not included in investment and administration costs in the financial statements

2 Investment costs as a percentage of net assets exclude external indirect investment management costs netted against investment income on the statement of changes in net assets available for benefits; this is consistent with current industry practice: including these costs using the budgeted amount would have increased investment management costs as a percentage of net assets by an estimated 24 basis points in 2018; external indirect investment management costs include limited partnership management fees and other fees principally incurred within investments held in the private equity, infrastructure and global real estate asset classes

## Investments held

as at December 31, 2018

	Market value (\$ millions)	Asset mix market value (%)
<b>Short term</b>		
Money market	\$ 466	1.7
Bonds (1–5 years)	227	0.8
	<b>693</b>	<b>2.5</b>
<b>Bonds</b>		
Global government	—	0.0
Nominal	3,391	12.1
High yield	552	2.0
Segregated	11	0.0
	<b>3,954</b>	<b>14.1</b>
<b>Mortgages</b>	<b>839</b>	<b>3.0</b>
<b>Canadian equities</b>		
Indexed	563	2.0
Active	766	2.7
	<b>1,329</b>	<b>4.7</b>
<b>Global equities</b>		
Global indexed	4,583	16.3
Global active	2,119	7.5
U.S. indexed	422	1.5
U.S. active	175	0.6
Europe active	241	0.9
Asian active	186	0.7
	<b>7,726</b>	<b>27.5</b>
<b>Emerging markets</b>	<b>2,828</b>	<b>10.1</b>
<b>Real estate<sup>1</sup></b>	<b>4,595</b>	<b>16.3</b>
<b>Private equity<sup>1</sup></b>	<b>2,611</b>	<b>9.3</b>
<b>Infrastructure and renewable resources</b>		
Infrastructure	2,531	9.0
Renewable resources	622	2.2
	<b>3,153</b>	<b>11.2</b>
<b>Other</b>	<b>357</b>	<b>1.3</b>
<b>Total investments</b>	<b>28,085</b>	<b>100.0</b>
<b>2015 comparison</b>	<b>\$ 28,041</b>	

<sup>1</sup> Asset classifications vary from the financial statements for the purpose of performance reporting on strategic investments and infrastructure

**Top 25 public equity exposures<sup>1</sup>**

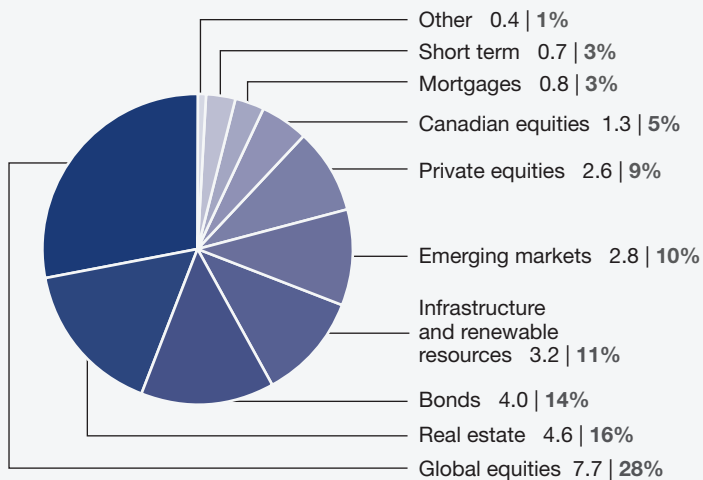
as at December 31, 2018

Company	% of portfolio	% of public equity	Total exposure (\$ millions)
Chinese state-controlled companies <sup>2</sup>	0.9	2.2	\$ 256
Microsoft Corp.	0.6	1.4	165
Alphabet Inc.	0.5	1.3	149
Apple Inc.	0.5	1.1	130
Tencent Holdings Ltd.	0.5	1.1	127
Amazon.com Inc.	0.4	1.0	120
Taiwan Semiconductor Manufacturing	0.4	0.9	104
Alibaba Group Holding Ltd.	0.3	0.8	94
Samsung Electronics Co. Ltd.	0.3	0.8	94
Royal Bank of Canada	0.3	0.7	83
Toronto-Dominion Bank	0.3	0.7	83
Johnson & Johnson	0.3	0.6	77
Housing Development Finance Corp. Ltd.	0.2	0.5	65
Royal Dutch Shell Plc	0.2	0.5	63
Facebook Inc.	0.2	0.5	62
Exxon Mobil Corp.	0.2	0.5	59
Procter & Gamble Co.	0.2	0.5	55
JPMorgan Chase & Co.	0.2	0.5	55
MasterCard Inc.	0.2	0.5	54
Roche Holding AG	0.2	0.5	53
Nestle SA	0.2	0.4	53
Visa Inc.	0.2	0.4	52
AIA Group Ltd.	0.2	0.4	52
UnitedHealth Group Inc.	0.2	0.4	52
Enbridge Inc.	0.2	0.4	51
<b>Total top 25</b>	<b>7.9</b>	<b>18.6</b>	<b>2,208</b>
<b>Total public equity</b>			<b>11,883</b>
<b>Total portfolio</b>			<b>\$ 28,085</b>

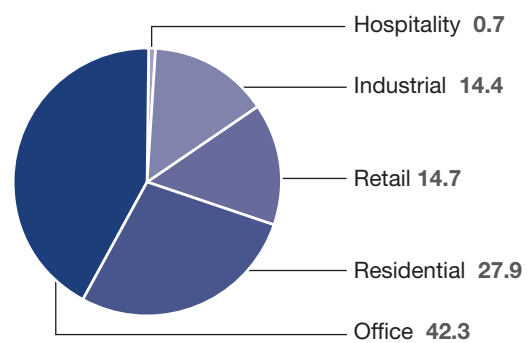
<sup>1</sup> Company regional exposures are based on pool fund asset class designations, per the Statement of Investment Policy and Procedures

<sup>2</sup> Company exposures are based on the ultimate parent company exposure regardless of where the security is listed or traded; as a result, the above exposure report shows Chinese state-controlled companies as one of the top exposures because the ultimate parent company for many companies in China is the Chinese government

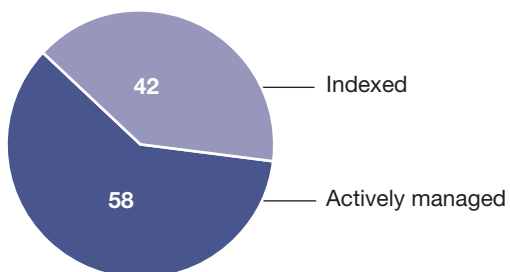
**Investment holdings (\$ billions)**  
market value as at December 31, 2018



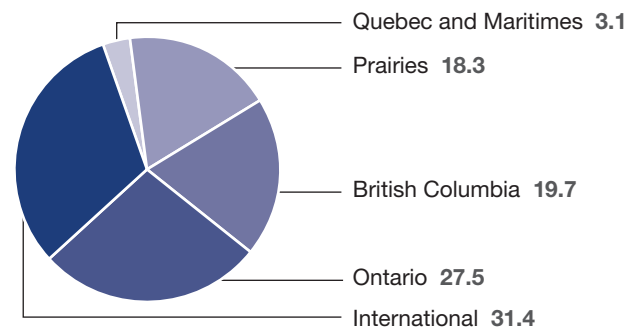
**Domestic real estate, by type (%)**  
as at December 31, 2018



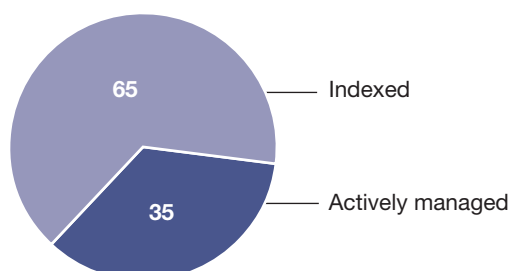
**Canadian equities (%)**  
market value as at December 31, 2018



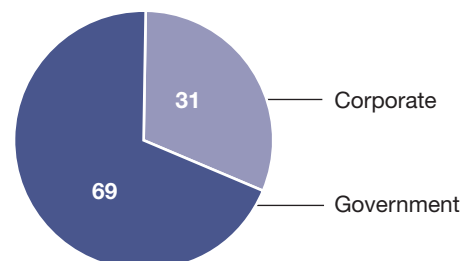
**Real estate, by location (%)**  
as at December 31, 2018



**Global equities (%)**  
market value as at December 31, 2018

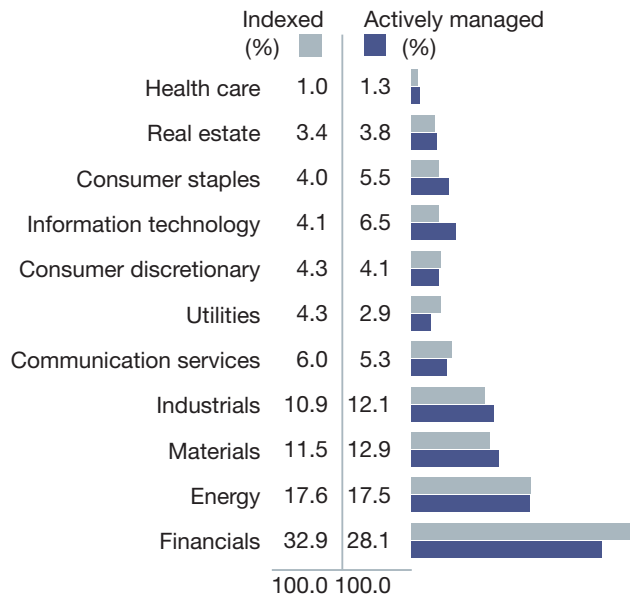


**Bonds (%)**  
market value as at December 31, 2018

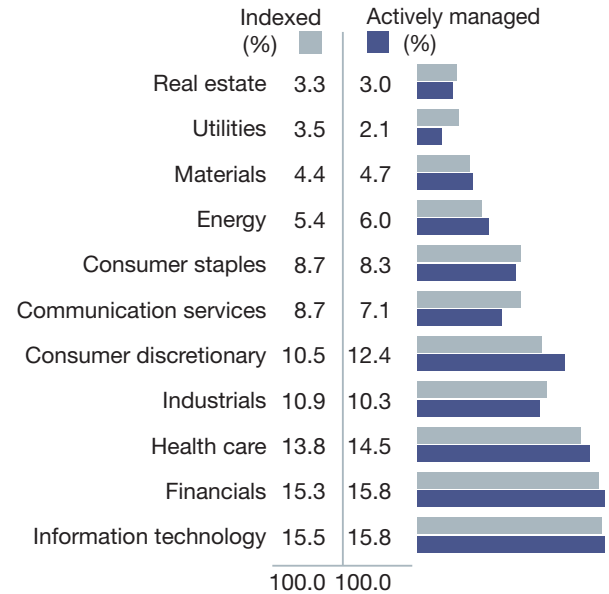


**Canadian equities, by sector**

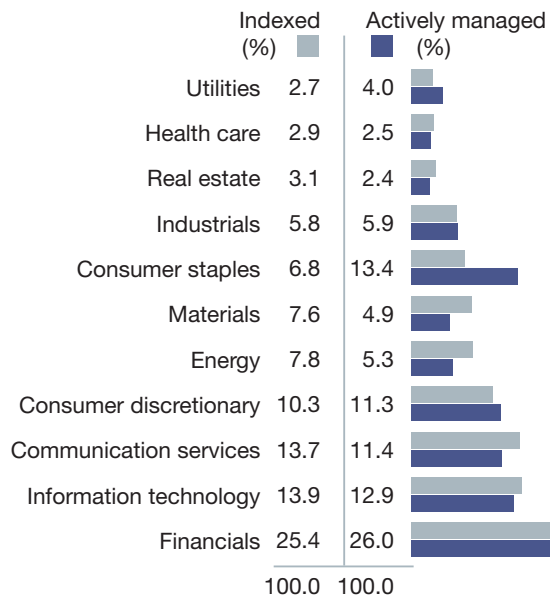
as at December 31, 2018

**Global equities, by sector**

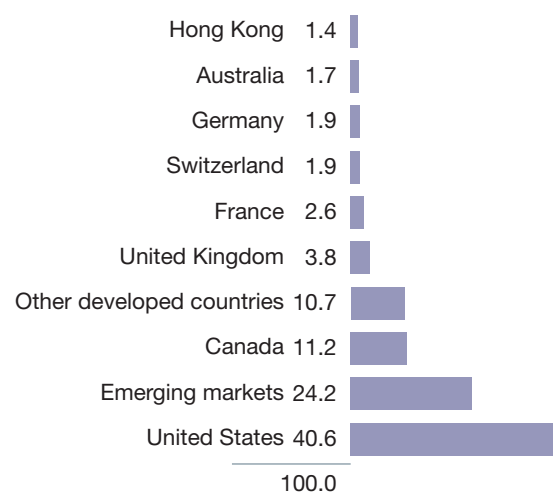
as at December 31, 2018

**Emerging markets equities, by sector**

as at December 31, 2018

**Public equities, by country (%)**

as at December 31, 2018



# Meet the trustees

## The 2018 Teachers' Pension Board of Trustees



BACK ROW (LEFT TO RIGHT)  
**Chris Skillings**, appointed by BC government; **Rob Taylor**, appointed by BCTF; **Wayne Jefferson**, vice-chair, appointed by BC government; **Reg Bawa**, appointed by BC government; **Brad Underwood**, appointed by BC government

FRONT ROW (LEFT TO RIGHT)  
**Chung Yan Ip**, appointed by BCTF; **Liz Baverstock**, appointed by BCTF; **Ken Tannar**, chair, appointed by BCTF; **Joan Axford**, appointed by BC government; **Dale Lauber**, appointed by BCTF

NOT IN GROUP PHOTO:



**Cheryl Eason**,  
appointed by  
BC government

The plan is jointly managed by trustees appointed by the employer partner, Province of British Columbia, and the member partner, BC Teachers' Federation (BCTF). The trustees themselves appoint a board chair and vice-chair.

The board aims to meet the pension goals of providing retirement income to plan members.

The board also appoints directors to the boards of British Columbia Investment Management Corporation, which provides investment management services, and British Columbia Pension Corporation, which provides pension administration services.

## Trustee remuneration

The plan compensates trustees or their employers for time spent on board business. Guidelines and rates are set out in the board's remuneration policy. Under the policy, remuneration may be adjusted annually by an amount equal to the cost-of-living adjustments made to pension payments.

### Trustee remuneration

year ended December 31, 2018

Board member	Meeting days	Per diem (\$402/meeting)	Annual stipend	Chair and vice-chair remuneration	Total payments	Paid to
Ken Tannar (chair)	44.5	\$ 18,190.00	\$ 8,176.00	\$ 4,088.00	\$ 30,454.00	Ken Tannar
Wayne Jefferson (vice-chair)	27.0	11,043.00	6,132.00	2,044.00	19,219.00	Wayne Jefferson
Joan Axford	16.5	6,748.50	4,088.00	—	10,836.50	Joan Axford
Elizabeth Baverstock	17.0	6,953.00	4,088.00	—	11,041.00	Richmond Teachers' Association
Reg Bawa	20.0	7,940.00	3,972.00	—	11,912.00	Minister of Finance
Cheryl Eason <sup>1</sup>	8.0	3,272.00	3,066.00	—	6,338.00	Royal Roads University
Chung Yan Ip	23.5	9,611.50	—	—	9,611.50	BC Teachers' Federation
	—	—	4,088.00	—	4,088.00	Chung Yan Ip
Dale Lauber	20.5	8,384.50	4,088.00	—	12,472.50	Dale Lauber
Chris Skillings <sup>2</sup>	2.0	818.00	1,023.00	—	1,841.00	Minister of Municipal Affairs and Housing
Rob Taylor	24.5	10,020.50	4,088.00	—	14,108.50	Rob Taylor
Brad Underwood	17.5	7,157.50	4,088.00	—	11,245.50	Public Sector Employers' Council Secretariat
Linda Watson <sup>2</sup>	1.0	409.00	1,023.00	—	1,432.00	Linda Watson
<b>Total</b>		<b>\$ 87,311.00</b>	<b>\$ 48,036.00</b>	<b>\$ 6,132.00</b>	<b>\$ 141,479.00</b>	

<sup>1</sup> Cheryl Eason joined the board midway through 2018

<sup>2</sup> Chris Skillings and Linda Watson were members of the board during 2018 and left before December 31

## Trustee activities

During 2018, the board held seven meetings over 12 days. Trustees also participated in standing and ad hoc committees, and attended a number of conferences, including the annual BC Public Sector Pension Conference. In addition to scheduled training sessions, individual trustees participated in educational opportunities to increase their effectiveness on the board.

# Teachers' Pension Board of Trustees committees

## BENEFITS AND COMMUNICATIONS COMMITTEE

Provides advice and recommendations to the board on benefit and communication issues, and makes decisions under authority delegated by the board. It meets to address the following:

- Post-retirement group benefits
- Plan rule amendments
- Reciprocal transfer agreements
- Communications products, including *Report to Members*, *Pension Life* newsletter for retired members and the annual report

This committee met four times in 2018.

## GOVERNANCE COMMITTEE

Assists the board in fulfilling its governance responsibilities by considering issues that include the following:

- Risk-management review
- Board strategic planning mechanisms
- Development of the board's assessment tools
- Any other item referred by the board

This committee met three times in 2018.

# Interplan committees

## EXECUTIVE FORUM

This group of board chairs, vice-chairs and senior administrators from the College, Municipal, Public Service and Teachers' boards of trustees meets to discuss areas of common interest; these meetings provide opportunities for all to keep up with the activities of the other boards.

The forum met two times in 2018.

### INTERPLAN AUDIT COMMITTEE

This committee meets on behalf of the College, Municipal, Public Service and Teachers' boards of trustees to help provide the following:

- A timely and cost-effective system of accounting and reporting
- Financial statements conforming with generally accepted accounting principles
- An independent audit of the financial statements
- An annual report with audited financial statements

This committee met three times in 2018.

### INTERPLAN EXECUTIVE COMMITTEE

Board chairs, vice-chairs and senior administrators from the College, Public Service and Teachers' boards of trustees meet to discuss common interests and keep up to date on board activities.

This committee met eight times in 2018.

### INTERPLAN INVESTMENT COMMITTEE

This committee examines investment issues common to the College, Public Service and Teachers' boards of trustees; it makes recommendations to each board on generic investment policy and procedure statements, and on investment issues identified by a board, BCI or the committee itself. It considers the following:

- Investment industry trends
- Regulatory and legal developments
- Responsible-investing issues
- Asset class reviews
- Updates on capital markets
- New investment products

This committee met four times in 2018.

### INTERPLAN TRUSTEE EDUCATION COMMITTEE

This is a forum for the College, Municipal, Public Service and Teachers' boards to develop trustee knowledge and skills, work together on common educational issues, and provide information on trends in a variety of jurisdictions (e.g., benefits, pensions, investments). This group organizes the annual BC Public Sector Pension Conference.

This committee met three times in 2018.

## Agents and service providers

**British Columbia Investment Management Corporation (BCI)** provides investment management services to the plan.

As a global investor supported by industry-leading investment expertise and as one of Canada's largest investment managers, BCI offers fund-management services for all major asset classes, including real estate and infrastructure investments. It manages almost \$150 billion in net assets on behalf of public sector pension plans, the Province of British Columbia, publicly administered trust funds and public bodies.

**British Columbia Pension Corporation** provides professional pension services to the Teachers' Pension Board of Trustees.

One of Canada's largest pension service providers, the corporation serves the largest public sector pension plans in British Columbia, representing almost 600,000 members and their employers. Services include providing plan information to members and employers; managing contributions and member records; paying pensions; and providing policy, financial and communication services to the board.

**Eckler Ltd.** serves as the plan's independent actuary. Eckler conducts an actuarial valuation on the plan's funding every three years and supports the board in its decision making as appropriate. The next valuation will be as at December 31, 2020, and published in 2021.

**Green Shield Canada** provides retired plan members access to voluntary group extended health care and dental coverage.

**KPMG LLP** provides external audit services to the plan.

**Lawson Lundell LLP** is the plan's legal counsel.



For more on BCI's investment management services, go to [BCI.ca](https://www.bci.ca)



For more on BC Pension Corporation, go to [bcpensioncorp.ca](https://www.bcpensioncorp.ca)

# Plan details

## How the plan works

- Plan members and employers contribute to the plan. Their contributions, along with income earned from investing the contributions, make up the plan's financial assets.
- BCI, the plan's investment management agent, determines how best to invest the plan's financial assets within guidelines determined by the plan's board of trustees.
- Over time, long-term investments form the basis of the plan's financial health, making up the largest portion of the money needed to pay pensions. Around 80 per cent of a member's pension is generated from investments.
- A member's basic pension payment is calculated using their highest average salary, years of pensionable service and age at retirement. The basic pension payment is secure, dependable and paid for as long as the member lives. The pension payment may, depending on choices made at retirement, continue to the member's spouse or beneficiary(ies) after the member dies.
- Over and above basic pensions, the plan may also grant cost-of-living adjustments (COLAs). COLAs are not guaranteed; however, once granted, each year's COLA becomes part of the basic lifetime pension. Retired plan members also have access to unsubsidized extended health care and dental coverage. More information about COLAs and post-retirement group health benefits is available on the plan website.
- An independent actuary regularly monitors the plan's financial health and ensures contributions and investment income are sufficient to pay out pensions to all plan members. If the actuary finds that contributions and income are insufficient, they must recommend increased contributions.

## Why the plan is valuable

- The benefit for members—a lifetime income for them, and possibly for their loved ones, after retirement—exceeds the cost. The average retired member receives far more in pension payments than they contributed (plus interest) during their teaching career.
- The plan has substantial value for members and employers. It employs a long-term investment strategy that provides financial security for members and their families. It does this by making use of BCI's strong in-house financial management capabilities and large cost efficiencies.
- Employers that offer the promise of secure retirement income to employees are employers of choice; the plan enables employers to offer retirement security without high investment management and administration fees.
- Investments help the plan to secure its long-term sustainability and to offer lifetime retirement income, which could not be achieved by member and employer contributions alone.
- The plan collects and “grows” money in a structured way so all members can have a secure, predictable retirement income.



The plan is a highly efficient retirement savings option with low fees

## Did you know?

- The plan is a highly efficient retirement savings option with low fees.
- The plan is well funded, which means it is sustainable.
- Member lifetime pensions are pre-funded; the plan is designed fairly to ensure each generation pays in advance for its own benefits.
- The plan enables more than 98,000 members (active, inactive and retired) to count on a predictable income in retirement.
- Approximately 80 per cent of the cost of pensions is paid by plan investments; the remainder comes from member and employer contributions.
- Members have two key options for maximizing the value of their pension:
  - transferring service—moving pensionable service from one plan to another
  - buying periods of service—paying for periods of employment not already counted as service with the plan (e.g., parental leave)

# Tables, charts & graphs

## Average and median pensions in pay<sup>1</sup>

as at December 31, 2018

Number of pensions	38,465
Average value <sup>2</sup>	\$31,495
Median value <sup>3</sup>	\$31,535

<sup>1</sup> Includes bridge benefit for those receiving the pension before age 65

<sup>2</sup> The average value reflects the total value of all pensions paid by the plan divided by the total number of recipients in the plan

<sup>3</sup> The median value denotes the halfway point: half of the pensions paid by the plan are greater than this amount and half are smaller

## Contribution rates as a percentage of salary

	Effective July 1, 2016		Effective January 1, 2018
	Up to YMPE <sup>1</sup>	Over YMPE	Flat rate on all
Member	12.50	14.00	12.92
Employer	12.81	14.31	13.23
<b>Total</b>	<b>25.31</b>	<b>28.31</b>	<b>26.15</b>

<sup>1</sup> Year's maximum pensionable earnings—a salary amount set by the federal government each year to determine the maximum annual contribution to the Canada Pension Plan

## Pensions 2009–2018

year ended December 31

	New pensions during year	Pension terminations	In force at end of year	Basic pensions paid (\$ millions)	Inflation supplements paid (\$ millions)	Total pensions paid (\$ millions)
<b>2018</b>	<b>1,333</b>	<b>438</b>	<b>38,465</b>	<b>\$ 969.9</b>	<b>\$ 206.0</b>	<b>\$ 1,175.9</b>
2017	1,586	526	37,570	938.9	194.9	1,133.8
2016	1,518	607	36,510	906.2	187.8	1,094.0
2015	1,432	488	35,599	877.4	184.2	1,061.6
2014	1,687	482	34,655	846.7	171.4	1,018.1
2013	1,651	363	33,450	810.9	167.4	978.3
2012	1,544	365	32,162	773.6	162.3	935.9
2011	1,574	412	30,983	739.3	140.9	880.2
2010	1,631	331	29,821	700.9	137.9	838.9
2009	1,627	327	28,521	662.8	143.2	806.0

**Average value of new pensions<sup>1</sup>**

year ended December 31, 2018

Service (years)	Total new pensions	Average annual salary base	Average annual pension	Median annual pension	Average present value	Total present value of new pensions (\$ millions)
< 10	120	\$ 67,000	\$ 6,400	\$ 4,500	\$ 101,000	\$ 12.1
10 < 15	116	77,000	17,200	16,800	298,000	34.6
15 < 20	163	82,000	25,100	25,200	449,000	73.2
20 < 25	251	83,000	33,500	35,000	598,000	150.1
25 < 30	344	86,000	42,900	43,500	770,000	264.9
30 < 35	240	88,000	52,000	51,700	960,000	230.4
≥ 35	99	91,000	53,800	52,800	957,000	94.7
<b>Total</b>	<b>1,333</b>	<b>\$ 83,000</b>	<b>\$ 35,900</b>	<b>\$ 37,400</b>	<b>\$ 642,000</b>	<b>\$ 860.0</b>

<sup>1</sup> Average values reflect the total value of new pensions granted during the year divided by the total number of recipients—in the case of median pensions, half of retirees receive more than this amount and half receive less; pensions started before age 65 typically include a bridge benefit, which ends at age 65

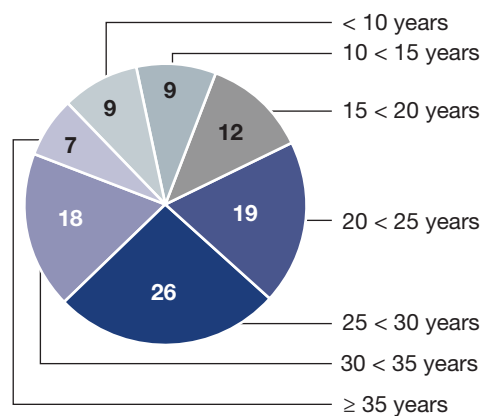
**New pensions, by age at retirement**

year ended December 31, 2018

Years of service	< 55	55 < 60	60 < 65	≥ 65	Total
< 10	2	35	43	40	<b>120</b>
10 < 15	1	44	37	34	<b>116</b>
15 < 20	3	71	62	27	<b>163</b>
20 < 25	1	120	99	31	<b>251</b>
25 < 30	4	156	152	32	<b>344</b>
30 < 35	1	148	72	19	<b>240</b>
≥ 35	1	9	54	35	<b>99</b>
<b>Total</b>	<b>13</b>	<b>583</b>	<b>519</b>	<b>218</b>	<b>1,333</b>
Average service	21	24	24	22	<b>24</b>
<b>Average age</b>					<b>60</b>

**New pension recipients, by years of service (%)**

as at December 31, 2018

**New pensions, by type<sup>1</sup>**

year ended December 31

	Regular	Limited members <sup>1</sup>	Survivor	Disability	LTD <sup>2</sup> to pension	Deferred	Total
<b>2018</b>	<b>1,080</b>	<b>38</b>	<b>17</b>	—	<b>82</b>	<b>116</b>	<b>1,333</b>
2017	1,317	49	16	—	98	106	1,586
2016	1,256	36	12	—	92	122	1,518
2015	1,148	50	13	1	114	106	1,432
2014	1,421	54	13	—	108	91	1,687
2013	1,334	70	13	—	113	121	1,651
2012	1,278	37	19	1	117	92	1,544
2011	1,389	—	22	1	108	54	1,574
2010	1,428	—	12	—	115	76	1,631
2009	1,387	—	20	—	133	87	1,627

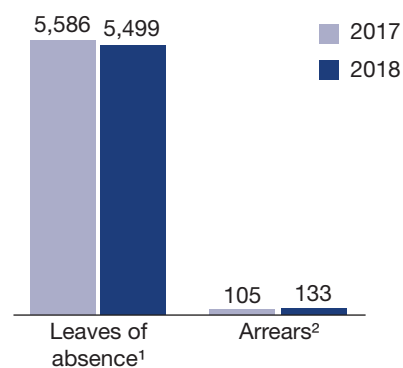
<sup>1</sup> Prior to 2012, new limited members were included as part of new regular pensions

<sup>2</sup> Long-term disability

**Value of purchases of service**

(\$ thousands)

year ended December 31

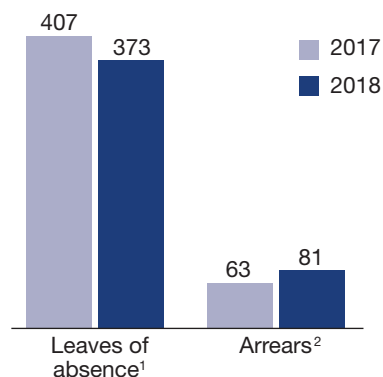


1 A leave of absence is an employer-approved absence from work

2 Arrears occur when contributions should have been made on a member's behalf but were not

**Number of purchases of service**

year ended December 31



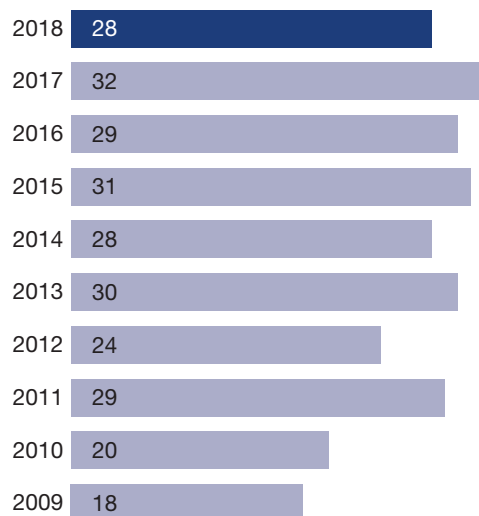
1 A leave of absence is an employer-approved absence from work

2 Arrears occur when contributions should have been made on a member's behalf but were not

**Value of termination and refund benefits<sup>1</sup> paid<sup>2</sup>**

(\$ millions)

year ended December 31

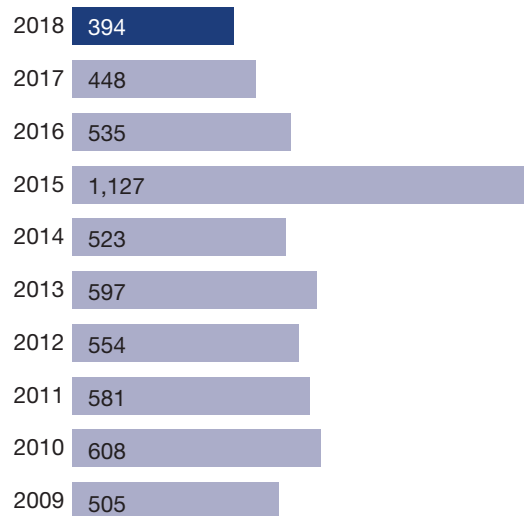


1 A member who ends their participation in the plan may, if eligible, choose to receive a refund or termination benefit

2 Includes death benefits paid

**Number of termination and refund benefits<sup>1</sup> paid<sup>2</sup>**

year ended December 31



1 A member who ends their participation in the plan may, if eligible, choose to receive a refund or termination benefit

2 Includes death benefits paid

# Plan membership

Plan membership is open to the following:

- Members of:
  - BC Principals' and Vice-Principals' Association
  - BC School Superintendents Association
  - BC Teachers' Federation
- Associated professionals appointed by a board of education in BC's public school system
- Eligible employees of employers approved by the board

New employees are immediately enrolled in the plan and cannot opt out.

## Types of members

- **Active members** currently contribute to the plan, receive benefits from an approved group disability plan or are on an approved leave of absence. There are 47,849 active members in the plan—a 3.0 per cent increase from 2017.
- **Inactive members** have ended their employment with a plan employer but are entitled to receive a benefit from the plan because they have chosen to leave their contributions in the plan. They may be eligible for a pension in the future. Those who aren't eligible may become eligible if they return to work for a plan employer, make contributions and accrue additional service. There are 12,491 inactive members in the plan—a 0.7 per cent increase from 2017.
- **Retired members** are those who receive a pension, including a survivor pension. For the purposes of this report, members receiving disability benefits are also counted in this group. There are 38,465 retired plan members—a 2.4 per cent increase from 2017.
- **Limited members** are the former spouses of plan members; a limited member is entitled to a portion of a plan member's pension (once they have or the plan member has submitted the proper forms and paid an administrative fee) and are not yet receiving a pension. Note that limited membership requires an application, whereas enrolment in other membership types is automatic (based on a member's stage of employment).

+3.0%

There are 47,849 active members in the plan—a 3.0 per cent increase from 2017

## Employers

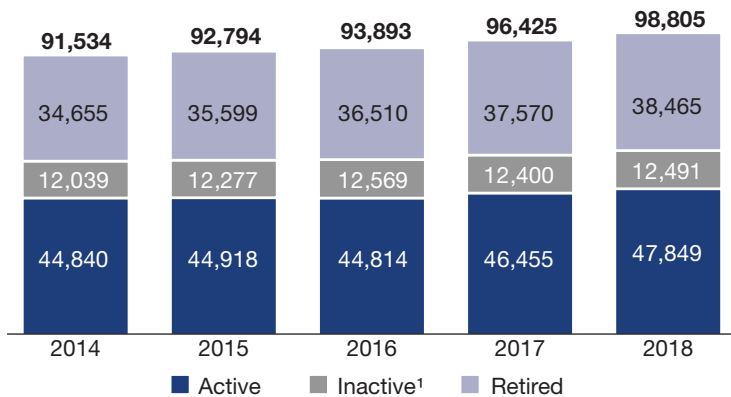
The following are the plan employers:

- School districts, including the Conseil scolaire francophone de la Colombie-Britannique
- BC Principals' and Vice-Principals' Association
- BC Public School Employers' Association
- BC School Superintendents Association
- BC Teachers' Federation
- Teacher Qualification Service (BC)

# Tables, charts & graphs

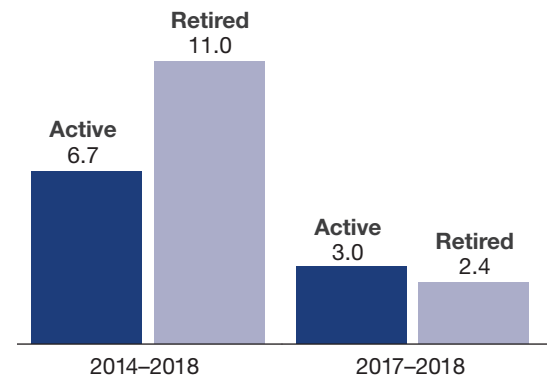
## Number of members

as at December 31



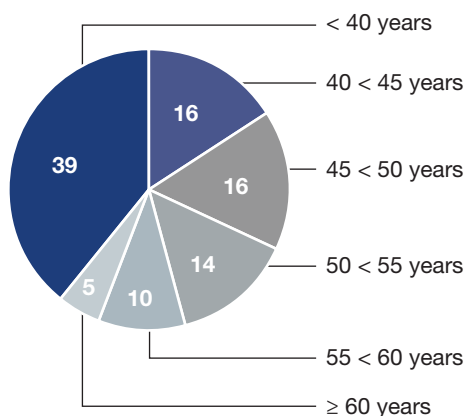
## Membership growth,

active versus retired (%)


<sup>1</sup> Members no longer employed with a plan employer but with money in the plan

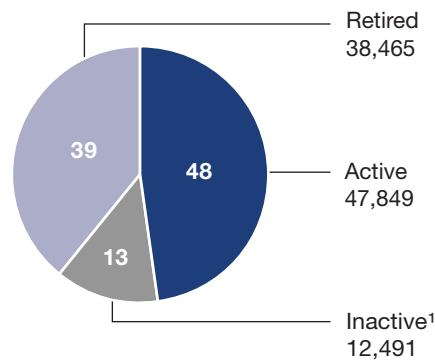
## Active members, by age (%)

as at December 31, 2018



## Membership profile (%)

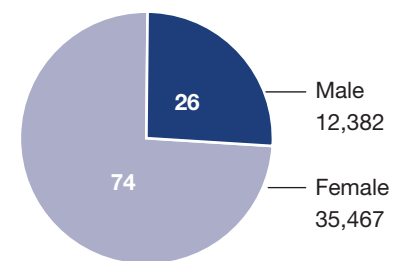
as at December 31, 2018


<sup>1</sup> Members no longer employed with a plan employer but with money in the plan

## Active members,

by gender (%)

as at December 31, 2018



# Plan rule changes

[EFFECTIVE 2017, 2018 AND 2019]

## CHANGES TO MEMBER AND EMPLOYER CONTRIBUTION RATES

[EFFECTIVE JANUARY 1, 2019]

As a result of the December 31, 2017, actuarial valuation, contribution rates were reduced effective January 1, 2019. For more information, please read the trustees' message in this report or refer to the October 15, 2018, board communique at [tpp.pensionsbc.ca](http://tpp.pensionsbc.ca).

### How will this affect members?

Members will now pay less money to the plan.

## CHANGES TO ACCRUAL RATE AND DEFAULT PENSION OPTION

[EFFECTIVE JANUARY 1, 2019]

Last spring, the board announced significant upcoming changes to the plan, including improvements to the accrual rate and default pension option. In addition, the account that funds non-guaranteed COLAs for retired members was strengthened effective January 1, 2019.

### How will this affect members?

If a member's pension is effective on or after January 1, 2019, it will be higher than it would have been before the improvements were made. For more information, read the *2017 Report to Members*, available at [tpp.pensionsbc.ca](http://tpp.pensionsbc.ca).

## PLAN MODERNIZATION AND EQUITABILITY FOR MEMBERS

[EFFECTIVE JANUARY 1, 2018]

In 2016, the board first announced changes to modernize the plan and make it more equitable for members. The changes came into effect January 1, 2018, and include new contribution rates, updated reduction rules and a new accrual rate.

### How will this affect members?

Members' pensions will be affected for pensionable service earned on or after January 1, 2018. The changes will mean different things to different members. For full details, read the *2016 Report to Members*, available at [tpp.pensionsbc.ca](http://tpp.pensionsbc.ca).

In addition, the following administrative changes were made to the plan rules:

- Updates to align terminology with the *Pension Benefits Standards Act* (PBSA) definition of "pension" as a lifetime benefit [EFFECTIVE DECEMBER 4, 2018]
- Updates in response to changes in BC's *Employment Standards Act* [APPROVED DECEMBER 4, 2018; RETROACTIVELY EFFECTIVE MAY 17, 2018]
- Improvements to clarity, and updates to references to BC's *School Act* and PBSA, as well as related terminology [EFFECTIVE JANUARY 1, 2018]
- Amendments to the board's criteria for group disability plan approval to make it consistent with the January 1, 2018, plan rule changes [EFFECTIVE JANUARY 1, 2018]
- Updates regarding the annual transfer of excess investment returns from the basic account to the inflation adjustment account [APPROVED MARCH 12, 2018; RETROACTIVELY EFFECTIVE JANUARY 1, 2017]

# Financial statements



June 13, 2019

**Re: Teachers' Pension Plan  
Administrative Agent's Responsibility for Financial Reporting**

The financial statements of the Teachers' Pension Plan (Plan) were prepared by the British Columbia Pension Corporation (Pension Corporation), the administrative agent for the Teachers' Pension Board of Trustees (Board), in accordance with Canadian accounting standards for pension plans. The Board is responsible for approving the financial statements of the Plan. The Board is assisted by the Interplan Audit Committee (Committee) which is made up of representatives from the Board, the Municipal Pension Board of Trustees, Public Service Pension Board of Trustees, and College Pension Board of Trustees. As part of their responsibility, the committee reviews the financial statements, and performs such steps and procedures necessary, prior to recommending them to the Board for approval.

Pension Corporation prepares the financial statements and is responsible for the integrity and fairness of the data presented, including significant accounting judgments and estimates. This responsibility includes selecting appropriate accounting policies consistent with Canadian accounting standards for pension plans. In discharging its responsibility, Pension Corporation maintains a system of internal controls designed to provide reasonable assurance transactions are properly authorized, reliable financial records are maintained, and assets are adequately safeguarded ensuring the fair presentation of the financial statements. Pension Corporation has assessed that the Plan will continue as a going concern, and ensured that other financial information contained in the *Teachers' Pension Plan Annual Report* is consistent with these financial statements.

The Board appointed KPMG LLP as the independent auditor to the Plan. The role of the auditor is to perform an independent audit of the financial statements of the Plan in accordance with Canadian generally accepted auditing standards. The resulting audit opinion is set out in the independent auditor's report attached to these financial statements.

 A stylized handwritten signature in black ink.
 

**Trevor Fedyna, CPA, CGA, C. Dir.**

Vice President, Corporate Services  
and Chief Financial Officer  
British Columbia Pension Corporation

 A handwritten signature in black ink that reads "Kevin Craig".
 

**Kevin Craig, CPA, CA**

Director, Financial Services  
British Columbia Pension Corporation

Executive Offices

Mail: PO Box 9460  
Victoria, BC V8W 9V8

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Canada  
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Fax (604) 691-3031

## INDEPENDENT AUDITORS' REPORT

To the Members of the Teachers' Pension Plan

### *Opinion*

We have audited the financial statements of Teachers' Pension Plan (the "Plan"), which comprise:

- the statement of financial position as at December 31, 2018
- the statement of changes in net assets available for benefits for the year then ended
- the statement of changes in accrued pension benefits for the year then ended
- and notes to the financial statements, including a summary of significant accounting policies and other explanatory information.

(Hereinafter referred to as "the financial statements").

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Plan as at December 31, 2018, and the changes in its net assets available for benefits and the 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. Our responsibilities under those standards are further described in the "**Auditors' Responsibilities for the Audit of the Financial Statements**" section of our auditors' report.

We are independent of the Plan 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 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 the Plan's 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 the Plan or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Plan's financial reporting process.

### ***Auditors' 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 auditors' 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 generally accepted auditing standards 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 the financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, 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 the Plan's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.



Teachers' Pension Plan  
Page 3

- 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 the Plan's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' 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 auditors' report. However, future events or conditions may cause the Plan 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.
- 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.

*KPMG LLP*

Chartered Professional Accountants

Vancouver, Canada  
June 13, 2019

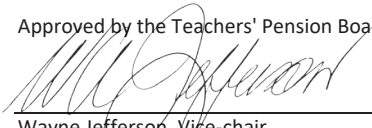


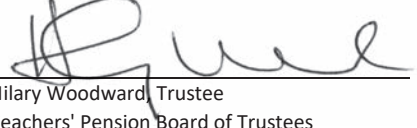
**TEACHERS' PENSION PLAN**  
**STATEMENT OF FINANCIAL POSITION**  
(\$ millions)


As at December 31	Note	2018	2017
<b>Assets</b>			
Investments	3a	\$ 28,085	\$ 28,041
Directly held derivatives	3b	3	60
Receivables			
Due from sale of investments		484	4
Members' contributions		26	25
Employers' contributions		26	26
		536	55
<b>Total assets</b>		<b>28,624</b>	<b>28,156</b>
<b>Liabilities</b>			
Payable for purchase of investments		145	26
Directly held derivatives	3b	109	10
Accounts payable and accrued expenses		4	4
<b>Total liabilities</b>		<b>258</b>	<b>40</b>
<b>Net assets available for benefits</b>		<b>\$ 28,366</b>	<b>\$ 28,116</b>
<b>Accrued pension obligations</b>			
Accrued basic pension obligation	4a	\$ 20,716	\$ 19,351
Non-guaranteed pension obligation	4b	5,321	5,197
<b>Accrued pension obligations</b>		<b>26,037</b>	<b>24,548</b>
<b>Surplus</b>			
Funding surplus	5a	631	2,334
Measurement differences between funding and accounting positions	5a	1,698	1,234
<b>Surplus</b>		<b>2,329</b>	<b>3,568</b>
<b>Accrued pension obligations and surplus</b>		<b>\$ 28,366</b>	<b>\$ 28,116</b>

All accompanying notes are an integral part of the financial statements including:  
Commitments (note 14)

Approved by the Teachers' Pension Board of Trustees:

  
Wayne Jefferson, Vice-chair  
Teachers' Pension Board of Trustees

  
Hilary Woodward, Trustee  
Teachers' Pension Board of Trustees

  
Leslie Roosa, Trustee  
Teachers' Pension Board of Trustees



**TEACHERS' PENSION PLAN**  
**STATEMENT OF CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS**  
(\$ millions)

For the year ended December 31	Note	Basic account	Inflation adjustment account	Supplemental benefits account	Totals	
					2018	2017
<b>Increase in assets</b>						
Investment income	8	\$ 585	\$ 135	\$ -	\$ 720	\$ 3,038
Contributions						
Members	9	312	92	-	404	381
Employers	9	316	96	1	413	392
		628	188	1	817	773
Transfers from other plans		5	1	-	6	10
<b>Total increase in assets</b>		<b>1,218</b>	<b>324</b>	<b>1</b>	<b>1,543</b>	<b>3,821</b>
<b>Decrease in assets</b>						
Benefits	10	1,198	4	1	1,203	1,166
Transfers to other plans		8	1	-	9	7
Investment and administration costs	11	69	12	-	81	61
<b>Total decrease in assets</b>		<b>1,275</b>	<b>17</b>	<b>1</b>	<b>1,293</b>	<b>1,234</b>
(Decrease) increase in net assets before transfers		(57)	307	-	250	2,587
Account transfers	12	183	(183)	-	-	-
<b>Increase in net assets</b>		<b>126</b>	<b>124</b>	<b>-</b>	<b>250</b>	<b>2,587</b>
Nets assets available for benefits beginning of year		22,919	5,197	-	28,116	25,529
<b>Nets assets available for benefits     end of year</b>		<b>\$ 23,045</b>	<b>\$ 5,321</b>	<b>\$ -</b>	<b>\$ 28,366</b>	<b>\$ 28,116</b>

The accompanying notes are an integral part of the financial statements.



**TEACHERS' PENSION PLAN**  
**STATEMENT OF CHANGES IN ACCRUED PENSION OBLIGATIONS**  
(\$ millions)

For the year ended December 31	Note	2018	2017
<b>Increase in accrued pension obligations</b>			
Interest on accrued pension obligations		\$ 1,192	\$ 1,203
Benefits accrued		531	450
Changes in actuarial assumptions		881	-
Benefit improvements		59	-
Account transfers		183	144
<b>Total increase in accrued pension obligations</b>		<b>2,846</b>	<b>1,797</b>
<b>Decrease in accrued pension obligations</b>			
Experience gains		259	-
Benefits paid		1,222	1,180
<b>Total decrease in accrued pension obligations</b>		<b>1,481</b>	<b>1,180</b>
<b>Net increase in accrued pension obligations</b>		<b>1,365</b>	<b>617</b>
Accrued basic pension obligations, beginning of year		19,351	18,734
Accrued basic pension obligations, end of year	4a	20,716	19,351
Non-guaranteed pension obligations			
Increase in non-guaranteed pension obligations	4b	124	583
Non-guaranteed pension obligations, beginning of year		5,197	4,614
Non-guaranteed pension obligations, end of year	4b	5,321	5,197
<b>Total accrued pension obligations</b>		<b>\$ 26,037</b>	<b>\$ 24,548</b>

The accompanying notes are an integral part of the financial statements.

**TEACHERS' PENSION PLAN  
NOTES TO THE FINANCIAL STATEMENTS  
FOR THE YEAR ENDED DECEMBER 31, 2018**

\$ millions except as otherwise noted

**1. DESCRIPTION OF THE TEACHERS' PENSION PLAN**

The following description of the Teachers' Pension Plan (Plan) is a summary provided for general information only. For more information, please refer to the Joint Trust Agreement (Agreement) and the Teachers' Pension Plan Rules (pension plan rules).

**a) General**

The Plan is a jointly trustee pension plan continued under joint trust agreement authorized by the *Public Sector Pension Plans Act*, SBC 1999, c. 44 (Act). The Act enabled the establishment of the Agreement. Joint trusteeship was established effective April 5, 2001. The partners to the Agreement are the Provincial Government and the B.C. Teachers' Federation (Partners). The Agreement describes the composition, appointment, powers, functions and duties of the Teachers' Pension Board of Trustees (Board) and provides the authority for the Board to make the pension plan rules.

The Plan is registered with the Superintendent of Pensions, who administers and enforces the Pension Benefits Standards Act (PBSA). PBSA governs employment pension plans registered in British Columbia that have active, inactive and retired members.

Membership in the Plan is mandatory for all certified teachers (including teachers teaching-on-call), principals, vice-principals, superintendents, assistant superintendents, directors of instruction, associated professionals and certified professionals who are appointed by a board of education in the British Columbia public school system.

**b) Roles and responsibilities**

Partners

The Partners representing the plan members and employers are responsible for appointing 10 trustees to the Board. The Partners have responsibility for resolving trustee disputes and, if certain conditions are met, may direct amendments to the pension plan rules.

Board

The Board is responsible for the management of the Plan, including the investment of assets and administration of the Plan. The Board may amend the pension plan rules as long as changes can be funded by the Plan's surpluses or are cost-neutral to the Plan (subject to transitional funding provisions in note 5a). Unless required to ensure compliance with regulatory enactments applicable to the Plan, only the Partners can initiate pension plan rule changes that result in contribution rate increases. The Chair and Vice-chair are appointed by the trustees.

British Columbia Pension Corporation (Pension Corporation)

Pension Corporation provides benefit administration services as an agent of the Board. The Board appoints two members to the eight-member board of directors of Pension Corporation.

British Columbia Investment Management Corporation (BCI)

BCI provides investment management services including the valuation of investments as an agent of the Board. The Board appoints one member to the seven-member board of directors of BCI.

**TEACHERS' PENSION PLAN  
NOTES TO THE FINANCIAL STATEMENTS  
FOR THE YEAR ENDED DECEMBER 31, 2018**

\$ millions except as otherwise noted

**1. DESCRIPTION OF THE TEACHERS' PENSION PLAN (continued)**

**c) Funding**

Contributions and investment earnings fund plan benefits. Contributions are made by active members and employers of the Plan. The determination of the value of the benefits and required contributions is based on periodic actuarial valuations for funding purposes.

The Board's funding policy is intended to secure the pension benefit obligation and achieve long-term stability in contribution rates for both employers and members.

**d) Contributions**

Basic Account

Members contributed 9.97% (8.17% effective January 1, 2019) of salaries and employers contributed 10.15% (8.17% effective January 1, 2019) of salaries, less amounts allocated to the Supplemental Benefits Account.

Prior to January 1, 2018, members contributed 9.55% up to and including the Canada Pension Plan Year's Maximum Pensionable Earnings (YMPE) (2017: \$55,300 dollars) and 11.05% of salaries over YMPE, less amounts allocated to the Supplemental Benefits Account.

Prior to January 1, 2018, employers contributed 9.73% of salaries up to and including YMPE and 11.23% of salaries over YMPE, less amounts allocated to the Supplemental Benefits Account.

Inflation Adjustment Account and Supplemental Benefits Account

Members contributed 2.95% (3.00% effective January 1, 2019) of salaries to the Inflation Adjustment Account (IAA). Employers contributed 3.08% (3.13% effective January 1, 2019) of salaries to the IAA, less amounts allocated to the Supplemental Benefits Account.

**e) Pension benefits**

All members are eligible for a pension benefit.

For service up to December 31, 2017, members are eligible for unreduced pension benefits

- at age 65;
- at age 60, with at least two years contributory service; or
- at age 55 or older, with age plus years of contributory service totaling 90 or more.

Other retiring members have a reduction formula applied to their pensions.

Also for service up to December 31, 2017, the defined basic plan benefit is integrated with the Canada Pension Plan. As a result, the Plan provides an unreduced benefit of 1.3% of pensionable earnings up to YMPE and 2.0% of pensionable earnings over YMPE for each year of pensionable service (to a maximum of 35 years). Pensionable earnings are based on the member's highest five-year average annual salary (HAS). The Plan provides a bridge benefit payable to age 65 (or the date of death, if earlier). The bridge benefit is 0.7% of the lesser of YMPE or HAS for each year of pensionable service.

**TEACHERS' PENSION PLAN  
NOTES TO THE FINANCIAL STATEMENTS  
FOR THE YEAR ENDED DECEMBER 31, 2018**

\$ millions except as otherwise noted

**1. DESCRIPTION OF THE TEACHERS' PENSION PLAN (CONTINUED)**

**e) Pension benefits (continued)**

For service on or after January 1, 2018, the Plan provides a defined basic plan benefit of 1.85% of pensionable earnings for each year of pensionable service with no maximum. The defined basic plan benefit increased to 1.90% effective January 1, 2019. From January 1, 2018, onward, the increased rate applies to all service, but only for members who remain active on or after January 1, 2019.

For accrued service after January 1, 2018, members will be eligible for unreduced pension benefits

- at age 65;
- at age 61, with at least two years contributory service; or
- at age 55 or older, with at least 35 years of contributory service.

The early retirement reduction applicable for service accrued after 2017 will be 4.5% for each year where members do not meet the unreduced pension benefit criteria above.

Effective January 1, 2019, the default normal form of the pension changed from single-life no guarantee to single-life 10 year guarantee, but only for members who remain active on or after January 1, 2019.

Future cost-of-living adjustments are not guaranteed. These adjustments are granted at the discretion of the Board and may not exceed the annual increase in the Canada Consumer Price Index as at the previous September 30, subject to the availability of funds in the IAA. Any cost-of-living adjustment the Board grants is applied in January. The Board annually considers relevant factors to determine if an adjustment will be granted.

**f) Termination and portability benefits**

A terminating member who is eligible for a pension, but has not reached the earliest retirement age, may choose

- a deferred pension, or
- a transfer of the commuted value of the pension benefit (the minimum value is the member's contributions with interest) to a locked-in retirement vehicle or similar tax-sheltered plan.

A terminating member may also choose to leave monies on deposit in anticipation of future re-employment with a plan employer.

Where there are portability arrangements between the Plan and other pension plans, members may be able to transfer certain pension rights.

**TEACHERS' PENSION PLAN  
NOTES TO THE FINANCIAL STATEMENTS  
FOR THE YEAR ENDED DECEMBER 31, 2018**

\$ millions except as otherwise noted

**1. DESCRIPTION OF THE TEACHERS' PENSION PLAN (CONTINUED)**

**g) Other benefits**

Disability and survivor benefits are also available under the Plan. A disability benefit is available to a member under age 61 who has terminated employment, becomes totally and permanently disabled as defined by the Plan, has at least two years of contributory service, is not eligible to receive benefits from an approved long-term group disability plan and meets other eligibility requirements. Prior to January 1, 2018, members were eligible for a disability benefit if they became totally and permanently disabled before reaching age 60 and had at least two years of contributory service.

The disability benefit is calculated using a member's years of pensionable service to the date of termination of employment and HAS. Disability benefits continue for the member's lifetime unless the member is no longer totally and permanently disabled before age 61 (age 60 prior to January 1, 2018) or returns to work.

A death benefit may be available to a surviving spouse or designated beneficiary upon the death of an active member. Depending on eligibility requirements, the benefit may be paid in the form of a survivor pension or lump-sum payment.

**h) Tax registration**

The Plan is a Registered Pension Plan (RPP) as defined in the *Income Tax Act* (Canada) (Tax Act) (registration number 0227462), except for any supplemental benefits, which are funded in addition to the RPP. The Plan is not subject to income tax but is subject to indirect taxes, including British Columbia provincial sales tax (PST) and Canadian federal goods and services tax (GST). The Plan receives a 33% rebate of GST paid.

**2. SIGNIFICANT ACCOUNTING POLICIES**

**a) Basis of presentation**

These financial statements are prepared on the going-concern basis in accordance with Canadian generally accepted accounting principles (GAAP) for pension plans, Part IV of the *Chartered Professional Accountants of Canada (CPA Canada) Handbook*, and present the Plan as a separate financial reporting entity, independent of the Plan's contributing employers and members, and any associated retired member group benefit plans.

Accounting standards for private enterprises in Part II of the CPA Canada handbook have been chosen for accounting policies that do not relate to the Plan's investment portfolio or accrued pension obligations.

**b) Investments**

Investments are stated at fair value. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

Investment purchases and sales are recorded on the trade date (the date upon which the substantial risks and rewards of ownership have been transferred).

**TEACHERS' PENSION PLAN  
NOTES TO THE FINANCIAL STATEMENTS  
FOR THE YEAR ENDED DECEMBER 31, 2018**

\$ millions except as otherwise noted

**2. SIGNIFICANT ACCOUNTING POLICIES (continued)**

**c) Accrued pension obligations**

Accrued pension obligations are determined based on an actuarial valuation prepared by an independent actuarial consulting firm. The valuation of accrued pension obligations is based on data extrapolated to the financial statement date. The valuation uses the projected benefit method prorated on service that incorporates the independent actuary's estimate of various economic and non-economic assumptions. These assumptions are the same as those used in the determination of the actuarial position of the Plan for funding purposes.

**d) Investment income**

Income from investments is recorded on the accrual basis and represents pooled investment portfolio income attributable to the Plan as a unit holder and income from directly held investments. The current period change in fair value includes realized and unrealized gains and losses that are included in investment income.

Within the pools, dividends are accrued on the ex-dividend date and interest is recognized on an accrual basis. Gains and losses on derivative contracts are recognized concurrently with changes in their fair values.

**e) Foreign currency translation**

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

**f) Use of estimates**

The preparation of financial statements, in conformity with Canadian GAAP for pension plans, requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of increases and decreases in assets and liabilities during the period. Significant areas requiring the use of management estimates relate to the valuation of investments based on unobservable inputs as further described in note 7 and the calculation of the accrued pension obligations of the Basic Account for accounting and funding purposes as further described in notes 4 and 5. Actual results could differ materially from these estimates.

**TEACHERS' PENSION PLAN  
NOTES TO THE FINANCIAL STATEMENTS  
FOR THE YEAR ENDED DECEMBER 31, 2018**

\$ millions except as otherwise noted

**3. INVESTMENTS**

**a) Investments**

Fair value of investment holdings	2018			2017		
	Basic account	Inflation adjustment account	Total	Basic account	Inflation adjustment account	Total
Short-term	\$ 564	\$ 129	\$ 693	\$ 861	\$ 193	\$ 1,054
Bonds	3,511	800	4,311	3,417	766	4,183
Canadian equities	1,083	246	1,329	2,091	468	2,559
U.S. equities	486	111	597	1,413	316	1,729
International equities	8,110	1,847	9,957	7,660	1,716	9,376
Mortgages	683	156	839	476	107	583
Real estate	3,742	853	4,595	3,209	719	3,928
Private equity	2,127	484	2,611	1,439	322	1,761
IRR*	2,568	585	3,153	2,343	525	2,868
	<b>\$ 22,874</b>	<b>\$ 5,211</b>	<b>\$ 28,085</b>	<b>\$ 22,909</b>	<b>\$ 5,132</b>	<b>\$ 28,041</b>

\* Infrastructure and renewable resources

Plan investments consist primarily of direct ownership in units of pooled investment portfolios. Each unit gives its holder a proportionate share in the value of the net assets of the pooled investment fund. The Basic and IAA accounts are combined for investment management purposes.

One or more pooled investment portfolios exist for different types of investments, such as short-term investments; bonds; Canadian, U.S. and international equities; mortgages; real estate; private equity; and infrastructure and renewable resources. While the purpose of each fund is to invest in a particular type of investment, at any time, given the timing of trading activities, the fund may hold a certain amount of cash, short-term investments, accrued interest income and net accounts receivable or payable from outstanding sales and purchases of investments.

Short-term investments consist of Canadian and U.S. money market securities such as treasury bills with maturities of 15 months or less, and short-term bonds with one to five year terms. Short-term investments are valued using current market yields.

Bonds consist of government bonds, investment grade and non-investment grade corporate bonds, and debentures. Bonds are valued based on current market yields and, in some cases, quoted market prices. Equities consist primarily of publicly traded shares and are valued based on quoted market prices on the primary exchanges on which they are traded.

Mortgages consist mainly of Canadian construction, commercial and multi-family residential mortgages. The mortgages are secured by real estate and valued using current market yields. Real estate investments consist mainly of diversified Canadian and U.S. income-producing properties. Real estate investments are valued quarterly by external investment managers and, at least once every 10 to 18 months, by accredited independent appraisers to establish current market values.

**TEACHERS' PENSION PLAN  
NOTES TO THE FINANCIAL STATEMENTS  
FOR THE YEAR ENDED DECEMBER 31, 2018**

\$ millions except as otherwise noted

**3. INVESTMENTS (continued)**

**a) Investments (continued)**

Private equity consists mainly of long-term debt or equity investments made outside the structure of public markets. Private equity is valued annually based on audited financial statements from external investment managers using a market approach or net asset value method. Interim quarterly valuations for private equity investments are based on the annual valuations and adjusted for subsequent cash flows and changes in foreign exchange rates for investments outside Canada.

Infrastructure and renewable resources consist of privately owned and managed infrastructure assets, as well as timber, agriculture and other renewable assets. Infrastructure and renewable resources investments are valued annually using a market approach or net asset value method, and adjusted quarterly for subsequent cash flows and changes in foreign exchange rates for investments outside Canada.

**b) Derivatives**

Derivatives contracts are directly and indirectly held by the Plan. The details of these contracts are as follows:

Fair value of derivative contracts	2018		2017	
	Positive fair value	Negative fair value	Positive fair value	Negative fair value
<b>Directly held</b>				
Foreign currency forwards	\$ 3	\$ (109)	\$ 60	\$ (10)
	<b>\$ 3</b>	<b>\$ (109)</b>	<b>\$ 60</b>	<b>\$ (10)</b>
<b>Indirectly held in pooled investment portfolios</b>				
Foreign currency forwards	\$ -	\$ (15)	\$ 4	\$ (1)
Futures	1	-	1	-
Options	-	-	-	-
Interest rate swaps	-	(9)	-	-
Total return swaps	57	(111)	24	(8)
	<b>\$ 58</b>	<b>\$ (135)</b>	<b>\$ 29</b>	<b>\$ (9)</b>
<b>Total derivatives</b>	<b>\$ 61</b>	<b>\$ (244)</b>	<b>\$ 89</b>	<b>\$ (19)</b>
<b>Derivatives by investment asset classification</b>				
Bonds	\$ 1	\$ (21)	\$ 9	\$ (1)
Canadian equities	2	(6)	3	-
U.S. equities	2	(1)	-	-
International equities	52	(113)	21	(8)
Mortgages	-	(8)	1	-
Real estate	-	(42)	18	(2)
Private equity	-	-	-	-
IRR*	4	(53)	37	(8)
<b>Total derivatives</b>	<b>\$ 61</b>	<b>\$ (244)</b>	<b>\$ 89</b>	<b>\$ (19)</b>

\*Infrastructure and renewable resources

**TEACHERS' PENSION PLAN  
NOTES TO THE FINANCIAL STATEMENTS  
FOR THE YEAR ENDED DECEMBER 31, 2018**

\$ millions except as otherwise noted

**3. INVESTMENTS (continued)**

**b) Derivatives (continued)**

Derivative contracts consist of foreign currency forward contracts, options, futures, interest rate swaps and total return swaps held directly by the Plan or indirectly through various pooled investment portfolios. Directly held and indirectly held derivative contracts are reflected at fair value based on expected settlement amounts at the date of the Statement of Financial Position. Directly held derivatives are disclosed on the face of the Statement of Financial Position while indirectly held derivatives are included in investments.

A foreign currency forward contract is a privately negotiated contractual obligation to exchange one currency for another at a specified price for settlement on a predetermined date in the future. Foreign currency forward contracts are held by the Plan to manage exposure to foreign currency risk.

Options are contracts that give the buyer the right, but not the obligation, to buy or sell a certain security or index at an agreed-upon price on or before a specified date. Futures contracts are exchange-traded contractual obligations to take or make delivery of an asset at a predefined price and date in the future. Options and futures are held for synthetic indexing, a modern technique used to replicate the performance of a security or index without directly purchasing or selling the underlying assets.

An interest rate swap is an agreement between two counterparties in which one stream of future interest payments is exchanged for another based on a specified principal amount. Interest rate swaps usually involve the exchange of a fixed interest rate for a floating interest rate, or vice versa, to reduce or increase exposure to fluctuations in interest rates or to obtain a marginally better interest rate than would have been possible without the swap.

A total return swap is a swap agreement in which one party makes payments based on a set rate, either fixed or variable, while the other party makes payments based on the return of an underlying asset, including both the income it generates and any capital gains. In total return swaps, the underlying asset (referred to as the reference asset) is usually an equity index or basket of equity securities. Interest rate swaps and total return swaps are held indirectly through various pooled investment portfolios for synthetic indexing purposes.

Derivative transactions are supported with collateral to mitigate counterparty credit risk. A single net fair value amount is used to determine the value of collateral with each counterparty. Collateral approximately equal to the positive fair value of each derivative contract is provided by counterparties, and collateral approximately equal to the negative fair value of each derivative contract is delivered to counterparties. Acceptable forms of collateral include Canadian federal or provincial bonds, and U.S. federal government treasury bills and bonds.

**TEACHERS' PENSION PLAN  
NOTES TO THE FINANCIAL STATEMENTS  
FOR THE YEAR ENDED DECEMBER 31, 2018**

\$ millions except as otherwise noted

**3. INVESTMENTS (continued)**

**b) Derivatives (continued)**

The notional value of derivatives is the total value of a position, how much value a position controls, or an agreed upon amount in a contract.

Notional value of derivatives			2018		2017			
Term to maturity	Within 1		Total	Total	Total	Total		
	year	1 to 5 years						
Derivatives by type of contract								
Foreign currency forwards	\$	3,852	\$	-	\$	3,852	\$	2,497
Futures		49		-		49		67
Options		2		-		2		-
Interest rate swaps		559		976		1,535		16
Total return swaps		4,515		-		4,515		1,381
	\$	8,977	\$	976	\$	9,953	\$	3,961
Derivatives by investment asset classification								
Bonds	\$	825	\$	-	\$	825	\$	427
Canadian equities		222		47		269		186
U.S. equities		122		30		152		8
International equities		4,755		899		5,654		1,210
Mortgages		240		-		240		61
Real estate		1,267		-		1,267		869
Private equity		-		-		-		4
IRR*		1,546		-		1,546		1,196
	\$	8,977	\$	976	\$	9,953	\$	3,961

\* Infrastructure and renewable resources

**4. ACTUARIAL VALUATION OF THE BASIC ACCOUNT FOR ACCOUNTING PURPOSES**

**a) Basic Account**

In accordance with the Agreement and PBSA, an actuarial valuation is performed at least every three years. Its primary objective is to assess the financial position and adequacy of funding for the Basic Account of the Plan as described in note 5a. As part of the actuarial valuation, the actuary also calculates values, for accounting purposes, of the basic account assets as at, and pension liabilities accrued to, the financial statement date. For this purpose, contributions and benefits for future service are not included, in contrast to their inclusion in the valuation for funding purposes as described in note 5a.

Also for accounting purposes, the full impact of investment fair value changes is reflected in the financial statements as at the financial statement date compared with the deferral and amortization of fair value gains or losses in the valuation for funding purposes. The liability for accrued basic pension obligations at the valuation date is determined using the projected benefit method prorated on service.

**TEACHERS' PENSION PLAN  
NOTES TO THE FINANCIAL STATEMENTS  
FOR THE YEAR ENDED DECEMBER 31, 2018**

\$ millions except as otherwise noted

**4. ACTUARIAL VALUATION OF THE BASIC ACCOUNT FOR ACCOUNTING PURPOSES (continued)**

**a) Basic Account (continued)**

The latest full actuarial valuation was prepared as at December 31, 2017, by Eckler Ltd. This valuation calculated the liability for accrued basic pension obligations for financial statement purposes to be \$20,032 (2014:\$17,526).

Between valuations, an estimate of the actuarial position is required. This estimate, called an extrapolation, has been made to December 31, 2018, using the following long-term actuarial assumptions:

- Annual investment return 6.00% (2014: 6.50%)
- Annual salary escalation rate 3.25% (2014: 3.75%)

The extrapolation calculated the liability for accrued basic obligations to be \$20,716 (2017: \$19,351).

In 2018 the extrapolation reflected assumption changes made during the 2017 valuation that resulted in an increase in the 2017 accrued benefit liability of \$881, primarily due to changes in economic assumptions. Further, the 2017 valuation accrued pension benefit liabilities were \$259 lower than anticipated by the 2018 extrapolation as a result of experience gains, primarily salary increases being lower than the actuarial assumption. The 2017 accrued benefit liability also increased by \$59 due to benefit improvements.

Extrapolations may not be reliable indicators of the next valuation results, nor do they necessarily reflect the overall trend of results. Between valuations, actual wage increases, investment earnings and the incidence of retirements, withdrawals and changes in other factors may vary significantly from the long-term assumptions used in the extrapolation. In the event of a major change to the Plan, a new valuation or review of assumptions may be required.

The next full actuarial valuation will be carried out as at December 31, 2020 with the results included in the December 31, 2021 financial statements.

Actuarial liabilities are also affected by changes in the assumed investment return. Based on the actuarial valuation completed as at December 31, 2017, a reduction in the investment return assumption from 6.00% to 5.75% would have increased the December 31, 2018 liability for accrued basic obligations of \$20,716 by \$624 or 3.01%. Changes to assumptions included in the actuarial valuation are interrelated and the cumulative impact of changed assumptions may be offsetting.

**b) Inflation Adjustment Account (IAA), non-guaranteed pension obligations**

No unfunded liability exists for the IAA, since the obligation for future cost-of-living adjustments is limited to the amount of the available assets in the account. There is no minimum level of inflation adjustment required to be paid under the pension plan rules, nor is there any Plan provision to fund the IAA to any minimum level of future potential inflation adjustments (note 5b). The non-guaranteed pension obligations is therefore equal to the net assets available for benefits in the IAA, 2018: \$5,321 (2017: \$5,197). The net increase of \$124 (2017: \$583) in the IAA balance consists of employee and employer contributions, investment income and net transfers reduced by payments out of the account. (See note 12 for details on amounts transferred.)

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**5. ACTUARIAL VALUATION OF THE BASIC ACCOUNT FOR FUNDING PURPOSES**

**a) Basic Account**

The Basic Account is the account from which the defined basic benefits of the Plan are paid. In accordance with the Agreement and PBSA, an actuarial valuation of the Plan's assets and pension obligations is performed at least every three years by an independent actuary to determine an appropriate combined employer and member contribution rate to fund the Basic Account. For this purpose, the Plan's actuary values both accrued assets and accrued pension obligations to the financial statement date, and contributions and benefits for future service. The contribution requirements are calculated by the actuary using the entry-age normal cost method (entry-age method). This method produces the long-term rate of member and employer contributions sufficient to provide benefits for the average future new entrants to the Plan. This rate may be adjusted for the amortization of any actuarial funding surplus and will be adjusted for the amortization of any unfunded actuarial liability. Future contribution rate determinations will exclude consideration of the assets in the rate stabilization account (RSA); if contribution rate increases are considered, funds will be transferred from the RSA to keep the rate at its current level or to minimize the increase.

The Basic Account is also the account from which any cost-of-living adjustments that have been granted to retired members are paid. Future cost-of-living adjustments are not guaranteed within the Plan provisions and are granted to retired members only to the extent that sufficient assets are available from the IAA to fund those benefits (note 5b). As cost-of-living adjustments are granted, the Basic Account receives from the IAA the present value funding necessary for the cost-of-living adjustments granted. Therefore, accrued basic pension obligations for valuation purposes include the liability for all cost-of-living adjustments granted to the date of the valuation, but not for as-yet-unknown future cost-of-living adjustments.

Actuarial valuation

The latest full actuarial valuation for funding purposes was prepared as at December 31, 2017, by the independent actuary. The 2017 valuation showed there was sufficient surplus to improve the benefit and reduce the basic contribution rate pursuant to the Agreement's funding arrangement for the transition period. Accordingly, the benefits were improved as described in Note 1 and the employer basic contribution rate decreased by 1.98% effective January 1, 2019 with a concurrent increase in the employer IAA contribution rate of 0.05%. Further, effective January 1, 2019, the member basic contribution rate decreased by 1.80% with a concurrent increase in the member IAA contribution rate of 0.05%.

After these adjustments, the valuation indicated a basic account actuarial surplus of \$644 on the entry-age method. As permitted by the Agreement, the Board agreed to transfer this surplus to an RSA effective January 1, 2018. Interest is added to the RSA at the smoothed investment return rate.

An estimate of the actuarial position of the Plan for funding purposes has been made to December 31, 2018, using the following long-term actuarial assumptions:

- Annual investment return                      6.00% (2014: 6.50%)
- Annual salary escalation rate                3.25% (2014: 3.75%)

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**5. ACTUARIAL VALUATION OF THE BASIC ACCOUNT FOR FUNDING PURPOSES (continued)**

**a) Basic Account (continued)**

This estimate, called an extrapolation, produced an estimated funding surplus of \$631 as at December 31, 2018 (2017: \$2,334 surplus), as follows:

<b>Funding extrapolation</b>	<b>2018</b>	<b>2017</b>
Net assets available for basic pension benefits	\$ 23,045	\$ 22,919
Actuarial asset value adjustment	(447)	(1,703)
Smoothed assets for basic pension benefits	22,598	21,216
Rate stabilization account	(699)	-
Smoothed assets excluding rate stabilization account	21,899	21,216
Present value of future contributions (entry-age method)	6,046	5,163
Present value of future amortization	-	943
Net actuarial assets for basic pension benefits	27,945	27,322
Actuarial liability for accrued and future basic pension benefits	(27,314)	(24,988)
<b>Entry-age method actuarial surplus</b>	<b>\$ 631</b>	<b>\$ 2,334</b>

<b>Changes in the extrapolated entry-age method funded status</b>	<b>2018</b>	<b>2017</b>
Extrapolated entry-age method actuarial surplus, beginning of year	\$ 2,334	\$ 1,413
Adjustment to reflect triennial actuarial valuation and plan amendments	(1,690)	-
Transfer to the rate stabilization account	(644)	-
Extrapolated change in actuarial liability for accrued and future basic pension benefits	(1,110)	(1,092)
Extrapolated change in actuarial assets for basic pension benefits	1,741	2,013
<b>Extrapolated entry-age method actuarial surplus, end of year</b>	<b>\$ 631</b>	<b>\$ 2,334</b>

Extrapolations may not be reliable indicators of the next valuation results nor do they necessarily reflect the overall trend of results. Between valuations, various factors including actual wage increases, investment earnings, and the incidence of retirements and withdrawals may vary significantly from the long-term assumptions used in the extrapolation.

Measurement difference between funding and accounting positions

The primary components of the measurement differences between the extrapolated entry-age method funding surplus and the financial statement surplus are as follows:

<b>Measurement difference between funding and accounting position</b>	<b>2018</b>	<b>2017</b>
Entry-age method actuarial surplus	\$ 631	\$ 2,334
Actuarial asset value adjustment	447	1,703
Rate stabilization account	699	-
Difference in actuarial methods – present value of future contributions	(6,046)	(5,163)
Difference in actuarial methods – present value of future amortization	-	(943)
Difference in actuarial methods – present value of future liabilities	6,598	5,637
Measurement differences between funding and accounting positions	1,698	1,234
<b>Surplus for financial statement purposes</b>	<b>\$ 2,329</b>	<b>\$ 3,568</b>

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**5. ACTUARIAL VALUATION OF THE BASIC ACCOUNT FOR FUNDING PURPOSES (continued)**

**a) Basic Account (continued)**

Actuarial asset value adjustment

For the purposes of determining the entry-age method surplus for funding purposes, the actuarial value of net assets available for benefits is determined on an adjusted value basis that smooths the difference between the actual investment return and the expected return based on a long-term real return rate over a five-year period.

The funding policy requires that the value of the assets be smoothed within a certain corridor. In the 2017 valuation, the corridor required that the smoothed value be no more than 108% and no less than 92% of the market value of the assets. The smoothed value of the assets at December 31, 2018, was 98.1% of the market value of the assets (2017: 92.6%).

The following schedule indicates the year the components of the actuarial asset value adjustment will be recognized in the entry-age method actuarial surplus. The amounts are based on that proportion of the total fund related to the basic account assets.

<b>Actuarial asset value adjustment</b>	<b>2018</b>	<b>2017</b>
2018	\$ -	\$ 680
2019	313	457
2020	157	301
2021	120	265
2022	(143)	-
<b>Total adjustment</b>	<b>\$ 447</b>	<b>\$ 1,703</b>

Rate stabilization account

The Agreement allows a contribution rate stabilization account to be established. If an actuarial funding valuation identifies a surplus and the transitional funding arrangements of the Agreement have been satisfied, any surplus assets can be transferred to the RSA.

As a result of the December 31, 2017 actuarial funding valuation, \$644 of assets was transferred to the RSA that is held notionally within the Basic Account. Interest on the RSA is determined by applying the smoothed rate of return to the fiscal year-end balance. For 2018, \$55 of interest was transferred from the Basic Account to the RSA based on the 2018 smoothed rate of return of 8.49%.

<b>Rate stabilization account</b>	<b>2018</b>
Opening balance	\$ 644
Interest applied to opening balance	55
<b>Ending balance</b>	<b>\$ 699</b>

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**5. ACTUARIAL VALUATION OF THE BASIC ACCOUNT FOR FUNDING PURPOSES (continued)**

**a) Basic Account (continued)**

Difference in actuarial methods

While the accrued pension obligations liability for financial statement purposes uses the projected benefit method pro-rated on service, the pension liability for funding purposes uses an entry-age funding method, where the present value of future normal cost contributions, basic pension benefits for future service and future amortization amounts are included in the determination of the funded status of the Plan.

Transitional period

The Agreement specified a transitional period during which the rebalancing of member and employer contribution rates and specified benefit improvements would be achieved.

During this transitional period, if surplus assets or actuarial gains occurred, they were to be used to achieve the following objectives in order of priority:

- Eliminating any unfunded liability
- Rebalancing member and employer basic account contribution rates
- Providing specified benefit improvements

The transition period of the Agreement was completed following the 2017 valuation.

If an actuarial valuation indicates that increased basic contribution rates are required, the increase must be shared equally by members and employers. The Agreement also describes the manner in which the Board can elect to apply surplus assets.

**b) Inflation Adjustment Account (IAA)**

No unfunded liability exists for the IAA, since the obligation for future cost-of-living adjustments is limited to the amount of the available assets in the account. As cost-of-living adjustments are granted to retired members, funding for the granted cost-of-living adjustments on a net present value basis is transferred from the IAA to the Basic Account, from which the pensions are paid. There is no minimum level of cost-of-living adjustment required to be paid under the pension plan rules, nor is there any Plan provision to fund the IAA to any minimum level of future potential cost-of-living adjustments.

The Board annually considers all relevant factors and its IAA funding policy to determine if a cost-of-living adjustment will be granted on pensions in pay and the amount of the cost-of-living adjustment, if any.

As a result of the 2017 actuarial valuation of the Basic Account, and pursuant to the Agreement's funding arrangement for the transition period, the Board increased the member and employer IAA contribution rate by 0.05% each effective January 1, 2019

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**6. FINANCIAL RISK MANAGEMENT**

The Board approves the long-term asset mix policy for investment assets through its Statement of Investment Policies and Procedures (SIPP) and oversees the management of these assets through the Board's investment management agent, BCI. The SIPP requires diversification of investments among asset classes, sets guidelines on investment categories, and limits the exposure to individual investments and counterparties.

Significant risks are regularly monitored and managed by BCI, and actions are taken when appropriate, according to the Plan's SIPP. In addition, these risks are reviewed periodically with the Board. Such risks include liquidity risk, as well as other financial risks, which comprise currency risk, interest rate risk, other price risk and credit risk.

Financial risks are disclosed on a unit-of-account basis (note 6b), which represents the legal ownership of securities held, and at the underlying securities level (note 6c), which provides additional insight to other risks that may impact the financial instruments of the Plan. Both forms of disclosure provide valuable perspectives into the financial risks that may directly or indirectly impact the financial statements and the funded status of the Plan. These two forms of risk disclosure are not additive to each other.

**a) Liquidity risk**

Liquidity risk is the risk of not being able to meet the Plan's cash requirements in a timely and cost-effective manner. Expenditures relate primarily to pensions, termination and refund benefits, and investment and administration costs. The Plan's approach to mitigating liquidity risk is to forecast its cash requirements over the near and long term to determine whether sufficient funds are available. The Plan's primary source of liquidity is income generated from the Plan's investments, and employer and employee contributions. Investments are primarily held in pooled funds, and the securities held are traded in active markets and can be readily sold, and where the pooled fund units can thereby be redeemed to fund cash requirements. Accounts payable of \$4 (2017: \$4) and payable for purchase of investments of \$145 (2017: \$26) are generally due within one month. Derivatives payable of 109 (2017: \$10) are due within the next fiscal year.

**b) Financial risks on a unit-of-account basis**

Plan investments consist primarily of direct ownership in units of pooled investment portfolios managed by BCI. Each unit gives its holder a proportionate interest in the value of the net assets of the respective pooled investment fund. The unit of account for the majority of the Plan's investments is the units of the pooled investment funds.

<b>Investments by unit-of-account</b>	<b>2018</b>	<b>%</b>	<b>2017</b>	<b>%</b>
Pooled investment fund units	\$ 27,487	97.9	\$ 27,521	98.1
Directly held equity	501	1.8	413	1.5
Directly held bonds and debt	97	0.3	107	0.4
<b>Investments</b>	<b>\$ 28,085</b>	<b>100.0</b>	<b>\$ 28,041</b>	<b>100.0</b>

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**6. FINANCIAL RISK MANAGEMENT (continued)**

**b) Financial risks on a unit-of-account basis (continued)**

Market risk is the risk that the fair values of an investment will fluctuate as a result of changes in market conditions, whether those changes are caused by factors specific to the individual investment or factors affecting all securities traded in the market. Market risk consists of currency risk, interest rate risk and other price risks.

Currency risk

Currency risk is the risk that the value of financial instruments denominated in currencies other than the functional currency of the fund will fluctuate due to changes in foreign exchange rates. The Plan holds primarily Canadian dollar denominated investment pooled fund units and is exposed to currency risk through holdings of small amounts of foreign currency denominated private equity, agricultural, bond and debt investments. See note 6c for currency exposure related to underlying securities.

**Foreign denominated investments held as a percentage of the fund**

	<b>2018</b>	<b>%</b>	<b>2017</b>	<b>%</b>
United States	\$ 565	2.0%	\$ 367	1.3
Australia	86	0.3%	91	0.3
	<b>\$ 651</b>	<b>2.3%</b>	<b>\$ 458</b>	<b>1.6</b>

As at December 31, 2018, if the Canadian dollar strengthened or weakened by 10 per cent in relation to all foreign currencies, with all other factors remaining constant, net assets available for benefits would have decreased or increased by approximately \$65 (2017: \$46).

Interest rate risk

Interest rate risk is the risk that the fair value or future cash flows of plan investments will change as a result of future fluctuations in market interest rates. The majority of the Plan's investment assets are non-interest bearing and not subject to interest rate risk. See note 6c for interest rate risk related to underlying securities.

Other price risk

Other price risk is the risk that the fair value of a financial instrument will fluctuate because of changes in market prices (other than those arising from currency risk or interest rate risk), whether those changes are caused by factors specific to the individual financial instrument, its issuer, or factors affecting all similar financial instruments traded in the market. The Plan's investments are subject to other price risk through its public equity investments and private market investments, including equity in real estate companies, held directly and through pooled investment portfolios. This risk is managed by diversifying investments across asset classes based on criteria established in the SIPP.

As at December 31, 2018, if the pooled investment fund unit and directly held equity prices increased or decreased by 10%, with all other factors remaining constant, net assets available for benefits would have increased or decreased by approximately \$2,799 (2017: \$2,793).

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**6. FINANCIAL RISK MANAGEMENT (continued)**

**b) Financial risks on a unit-of-account basis (continued)**

Credit risk

Credit risk is the risk that the counterparty to a financial instrument will fail to discharge an obligation or commitment it has entered into, resulting in a financial loss to the Plan. The majority of the Plan's investments are held in securities that are not subject to credit risk. See note 6c for credit risk related to underlying securities.

Credit exposure exists for members' and employers' contributions receivable directly held by the Plan totaling \$52 (2017: \$51), for the derivatives \$3 (2017: \$60) and for the due from sale of investments of \$484 (2017: \$4).

**c) Financial risks of underlying securities held through pooled investment funds**

Pooled investment funds exist for different types of investments, such as short-term investments; bonds; Canadian, U.S. and international equities; mortgages; real estate; private equity; and infrastructure and renewable resources. Examining the risks of the underlying securities contained in pooled investment funds provides additional disclosure to assess the overall financial risks of the plan investments. Viewing the financial risks of underlying securities is an alternative way of disclosing financial risks from the unit-of-account basis in note 6b. These risks are not considered additive to the financial risks already disclosed in note 6b.

Market risks are reduced through asset class diversification, diversification within each asset class and credit quality requirements on investments.

Currency risk

Currency exposure also arises from foreign currency denominated investments held directly and from underlying investments held indirectly in pooled investment funds. BCI has currency exposure management programs under which it enters into economic hedges of foreign currency exposure through the use of forward and future foreign currency contracts.

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**6. FINANCIAL RISK MANAGEMENT (continued)**

**c) Financial risks of underlying securities held through pooled investment funds (continued)**

The Plan's total direct and indirect currency exposure, the impact of economic hedging and trading activities, and its net exposure as at December 31 are as follows:

(Cdn dollar equivalent)	<b>Total exposure</b>	<b>Economic hedging</b>	<b>Net exposure</b>	<b>% of total</b>
<b>2018</b>				
United States	\$ 8,219	\$ 2,979	\$ 5,240	49%
Asia-Pacific, excluding Japan	2,181	296	1,885	18%
Euro countries	1,736	249	1,487	14%
Other	893	-	893	8%
Japan	599	10	589	6%
Other Europe	466	-	466	4%
United Kingdom	448	318	130	1%
	<b>\$ 14,542</b>	<b>\$ 3,852</b>	<b>\$ 10,690</b>	<b>100%</b>
<b>2017</b>				
United States	\$ 8,260	\$ 1,811	\$ 6,449	55%
Asia-Pacific, excluding Japan	2,046	211	1,835	16%
Euro countries	1,489	236	1,253	11%
Japan	855	-	855	7%
Other	582	42	540	5%
Other Europe	422	2	420	4%
United Kingdom	437	194	243	2%
	<b>\$ 14,091</b>	<b>\$ 2,496</b>	<b>\$ 11,595</b>	<b>100%</b>

The net foreign currency exposure of its underlying investments represents 38% (2017: 41%) of the Plan's total investments.

Interest rate risk

The Plan's pooled investment funds hold interest-bearing financial instruments in short-term investments, bonds and mortgages. The risk of adverse changes in interest rates is reduced within the underlying investment pools through management of duration in exposure to fixed income securities, the use of floating rate notes and interest rate swaps, and general diversification by security type and geographic region.

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**6. FINANCIAL RISK MANAGEMENT (continued)**

**c) Financial risks of underlying securities held through pooled investment funds (continued)**

The terms to contractual maturity of interest-bearing financial instruments held directly and through pooled investment, portfolios, as at December 31, are as follows:

**Terms to maturity of interest-bearing financial instruments**

	Within 1 year	1 to 5 years	6 to 10 years	Over 10 years	Total	Effective yield to maturity
<b>2018</b>						
Short-term	\$ 475	\$ 218	\$ -	\$ -	\$ 693	2.32%
Bonds	195	1,527	1,404	1,175	\$ 4,301	3.17%
Real return bonds*	-	-	-	10	\$ 10	1.52%
Mortgages	314	424	101	-	\$ 839	3.16%
Debt	-	-	86	-	\$ 86	6.41%
	<b>\$ 984</b>	<b>\$ 2,169</b>	<b>\$ 1,591</b>	<b>\$ 1,185</b>	<b>\$ 5,929</b>	
<b>2017</b>						
Short-term	\$ 948	\$ 106	\$ -	\$ -	\$ 1,054	1.35%
Bonds	76	1,839	977	1,275	4,167	2.33%
Real return bonds*	-	-	-	16	16	1.33%
Mortgages	123	451	9	-	583	3.16%
Debt	-	-	91	-	91	6.43%
	<b>\$ 1,147</b>	<b>\$ 2,396</b>	<b>\$ 1,077</b>	<b>\$ 1,291</b>	<b>\$ 5,911</b>	

\*Effective yield to maturity percentages are only the real return; inflation has not been considered.

As at December 31, 2018, if the prevailing interest rates increased or decreased by 1%, assuming a parallel shift in the yield curve, with all other variables remaining constant, the fair value of interest-bearing financial instruments and net assets available for benefits would have decreased or increased by approximately \$320 (2017: \$329).

Other price risk

Other price risk associated with the underlying investments held in pooled investment funds is consistent with that described earlier in note 6b, which describes financial risks on a unit-of-account basis.

Credit risk

The Plan's underlying investment assets held in pooled investment funds attract credit risk. This is the risk that a loss may occur from the failure of another party to perform according to the terms of a contract. It's also the risk of losses when issuers and debtors are downgraded by credit rating agencies, usually leading to a fall in the market value of the debtors' obligations.

Credit risk is managed by establishing specific investment criteria, such as minimum credit ratings for investees and counterparties, and maximum concentration limits with given counterparties.

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**6. FINANCIAL RISK MANAGEMENT (continued)**

**c) Financial risks of underlying securities held through pooled investment funds (continued)**

Credit risk (continued)

Credit risk ratings on financial instruments (short-term investments, bonds, mortgages and debt) held directly and through pooled investment portfolios are as follows:

<b>Credit rating of financial instruments</b>	<b>2018</b>		<b>2017</b>	
AAA/AA	\$ 2,484	42%	\$ 2,931	50%
A	1,316	22%	1,726	29%
BBB	552	9%	381	6%
Non-investment grade	462	8%	164	3%
	4,814	81%	5,202	88%
Unrated	1,115	19%	709	12%
	<b>\$ 5,929</b>	<b>100%</b>	<b>\$ 5,911</b>	<b>100%</b>

The ratings used are defined by Standard & Poor's rating agency. Obligations rated AAA/AA have the highest rating assigned. The lender's capacity to meet its financial commitment on the obligation is very strong. Bonds rated A, BBB or non-investment grade are weaker, with the BBB rating denoting an obligation with adequate protection parameters and a non-investment grade rating denoting major ongoing uncertainties or exposure to adverse business, financial or economic conditions that could lead to the debtor's inadequate capacity to meet its financial commitment on the obligation. Unrated financial instruments consist mainly of mortgages secured by real estate, debt, and some corporate bonds.

**7. FAIR VALUE OF FINANCIAL INSTRUMENTS**

**a) Fair value hierarchy**

Fair value measurements of the investment assets and liabilities are based on inputs from one or more levels of a fair value hierarchy. Each level is based on the transparency of the inputs used to measure the fair values of assets and liabilities. The three levels of the fair value hierarchy are as follows:

Level 1

Inputs that are unadjusted quoted prices in active markets for identical assets or liabilities

Level 2

Inputs other than quoted prices that are observable for the asset or liability either directly or indirectly

Level 3

Inputs that are not based on observable market data

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**7. FAIR VALUE OF FINANCIAL INSTRUMENTS (continued)**

**a) Fair value hierarchy (continued)**

Plan investments are carried at fair value in the financial statements. The following table details the classification of the Plan's investments based on the fair value hierarchy as at December 31:

<b>Fair value hierarchy</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Total</b>
<b>2018</b>				
Pooled fund units	\$ 466	\$ 19,760	\$ 7,261	\$ 27,487
Directly held equity	-	-	501	501
Directly held bond and debt	-	11	86	97
<b>Investments</b>	<b>\$ 466</b>	<b>\$ 19,771</b>	<b>\$ 7,848</b>	<b>\$ 28,085</b>
<b>Derivatives</b>	<b>\$ -</b>	<b>\$ (106)</b>	<b>\$ -</b>	<b>\$ (106)</b>
<b>2017</b>				
Pooled fund units	\$ 1,011	\$ 21,333	\$ 5,177	\$ 27,521
Directly held equity	-	-	413	413
Directly held bond and debt	-	16	91	107
<b>Investments</b>	<b>\$ 1,011</b>	<b>\$ 21,349</b>	<b>\$ 5,681</b>	<b>\$ 28,041</b>
<b>Derivatives</b>	<b>\$ -</b>	<b>\$ 50</b>	<b>\$ -</b>	<b>\$ 50</b>

During 2018 and 2017, there were no significant transfers of investments between levels.

The following table reconciles the Plan's level 3 fair value measurements:

<b>Level 3 fair value hierarchy</b>	<b>Pooled fund units</b>	<b>Direct equity</b>	<b>Direct debt</b>	<b>Total</b>
<b>2018</b>				
Balance, beginning of year	\$ 5,177	\$ 413	\$ 91	\$ 5,681
Net gains included in investment income	656	83	(2)	737
Purchases	2,194	30	4	2,228
Sales	(766)	(25)	(7)	(798)
<b>Balance, end of year</b>	<b>\$ 7,261</b>	<b>\$ 501</b>	<b>\$ 86</b>	<b>\$ 7,848</b>
Total unrealized gain (loss) included in investment income	\$ 345	\$ 75	\$ (1)	\$ 419
<b>2017</b>				
Balance, beginning of year	\$ 4,443	\$ 347	\$ 86	\$ 4,876
Net gains included in investment income	361	36	1	398
Purchases	1,259	33	4	1,296
Sales	(886)	(3)	-	(889)
<b>Balance, end of year</b>	<b>\$ 5,177</b>	<b>\$ 413</b>	<b>\$ 91</b>	<b>\$ 5,681</b>
Total unrealized (loss) gain included in investment income	\$ (65)	\$ 30	\$ 1	\$ (34)

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**7. FAIR VALUE OF FINANCIAL INSTRUMENTS (continued)**

**b) Valuation models**

The objective of valuation techniques is to arrive at a fair value measurement that reflects the price that would be received to sell the asset or paid to transfer the liability in an orderly transaction between market participants at the measurement date.

BCI uses widely recognized valuation methods for determining the fair value of common and less complex financial instruments such as investments in pooled funds, where fair value is based on the underlying net asset value of the respective pooled fund as determined by the underlying fund manager. Observable prices and model inputs are usually available in the market for listed equity and debt securities, simple derivatives such as forward or future currency contracts, and pooled funds. The availability of observable market prices and model inputs reduces the need for management judgment and estimation, and reduces the uncertainty associated with the determination of fair values. The availability of observable market prices and inputs varies depending on the financial instrument and is subject to change based on specific events and general conditions in the financial markets.

For more complex financial instruments, such as direct private equity investments held by the Plan, BCI uses proprietary valuation models, which are usually developed from recognized valuation models. Some or all of the significant inputs into these models may not be observable in the market and are derived from market prices or rates, or estimated based on assumptions.

Valuation models that employ significant unobservable inputs require a higher degree of judgment and estimation in the determination of fair value. BCI's judgment and estimation are usually required for the selection of the appropriate valuation model to be used, determination of expected future cash flows of the financial instrument being valued, determination of the probability of counterparty default and prepayments, and selection of appropriate discount rates.

Fair value estimates obtained from models are adjusted for any other factors, such as liquidity risk or model uncertainties, to the extent that BCI believes that a third-party market participant would take them into account in pricing a transaction. Fair values reflect the credit risk of the instrument and include adjustments to take account of the credit risk of the Plan and the counterparties where appropriate.

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**7. FAIR VALUE OF FINANCIAL INSTRUMENTS (continued)**

**c) Valuation framework**

BCI has an established framework with respect to the measurement of fair values of financial instruments. Where possible, for direct private equity investments held by the Plan, external independent valuation specialists are engaged annually to assist in the determination of fair value.

In those circumstances where BCI is reliant on the third-party manager for the determination of fair value, BCI reviews the appropriateness of such valuations using audited financial statements of the underlying investments, where available, and other information from the underlying third-party manager or other sources.

In addition, BCI applies the following specific controls in relation to the determination of fair values:

- Verification of observable pricing inputs.
- Appraisal of domestic real estate properties once every 10 to 18 months by accredited independent appraisers
- Analysis and investigation of significant valuation movements.
- Review of unobservable inputs and valuation adjustments.

When third-party information such as broker quotes or pricing services is used to measure fair value, BCI assesses and documents the evidence obtained from the third parties to support the conclusion that such valuations are appropriate. This includes:

- Verifying that the broker or pricing service is approved by BCI for use in pricing the relevant type of financial instrument
- Understanding how the fair value has been arrived at and the extent to which it represents actual market transactions.
- Understanding how the fair value has been determined when a number of quotes for similar financial instruments have been obtained.
- Understanding how prices for similar financial instruments used to measure fair value have been adjusted to reflect the characteristics of the financial instrument subject to measurement.

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**7. FAIR VALUE OF FINANCIAL INSTRUMENTS (CONTINUED)**

**d) Significant unobservable inputs used in measuring fair value**

The following table sets out information about significant unobservable inputs used at year-end in measuring financial instruments categorized as level 3 in the fair value hierarchy.

**Significant unobservable inputs used in measuring fair value**

Description	Fair value	Valuation technique	Unobservable input	Amount / range	Sensitivity to change in significant unobservable input
<b>2018</b>					
<i>The estimated fair value would increase if:</i>					
Pooled fund units	\$ 7,261	Net asset value	Net asset value	\$ 7,261	The net asset value increased
Direct private equity	\$ 366	Market approach	Multiple of EBITDA	11.5x	The multiple of EBITDA increased
Direct private agriculture investments	\$ 135	Net asset value	Net asset value	\$ 135	The net asset value increased
Direct debt	\$ 86	Market approach	Multiple of EBITDA	11.5x	The multiple of EBITDA increased
<b>2017</b>					
<i>The estimated fair value would increase if:</i>					
Pooled fund units	\$ 5,177	Net asset value	Net asset value	\$ 5,177	The net asset value increased
Direct private equity	\$ 301	Market approach	Multiple of EBITDA	9.3x	The multiple of EBITDA increased
Direct private agriculture investments	\$ 112	Net asset value	Net asset value	\$ 112	The net asset value increased
Direct debt	\$ 91	Market approach	Multiple of EBITDA	11.7x	The multiple of EBITDA increased

**Net asset value**

Net asset value is determined by BCI based on the fair value of assets less liabilities. Such investments are closed funds with significant restrictions on redemptions and accordingly, BCI is unable to dispose of the pooled fund investment until the maturity or wind-up and liquidation of the respective pooled fund. In such cases, it is the Plan's policy to categorize the pooled fund investment as level 3 within the fair value hierarchy.

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**7. FAIR VALUE OF FINANCIAL INSTRUMENTS (continued)**

**d) Significant unobservable inputs used in measuring fair value (continued)**

Multiple of EBITDA

Enterprise value (EV) represent amounts market participants would use when pricing direct equity investments and direct private debt. Earnings before interest, tax, depreciation and amortization (EBITDA) multiples are selected from comparable public companies based on geographic location, industry, size, target markets, and other factors that BCI management considers to be reasonable. The traded multiples for the comparable companies are determined by dividing the EV of the company by its EBITDA and further discounted for considerations such as the lack of marketability and other differences between the comparable peer group and specific company.

**e) Effects of unobservable input on fair value measurement**

The use of different methodologies or assumptions could lead to different measurements of fair value. For fair value measurements in level 3, changing one or more of the assumptions used for a reasonable alternative assumption would have the following effects on net assets attributable to holders of redeemable units.

**Effects of unobservable input on level 3 fair value measurement**

	<b>2018</b>		<b>2017</b>	
	<b>Favourable</b>	<b>Unfavourable</b>	<b>Favourable</b>	<b>Unfavourable</b>
Pooled fund units	\$ 726	\$ (726)	\$ 518	\$ (518)
Direct private equity	23	(23)	18	(18)
Direct private agriculture investments	14	(14)	11	(11)
Direct debt	9	(9)	9	(9)
	<b>\$ 772</b>	<b>\$ (772)</b>	<b>\$ 556</b>	<b>\$ (556)</b>

The pooled fund units, direct private agriculture investments and direct debt investments were valued based on information received from BCI, the manager of the respective investments. The fair value of these investments fluctuates in response to changes to specific assumptions for these particular investments, as determined by BCI. The favorable and unfavorable effects of reasonable alternative assumptions for the valuation of pooled fund units, direct private agriculture investments and direct debt investments have been calculated by adjusting the respective underlying net asset value by 10% or adjusting the multiple.

For direct private equity investments, BCI engages third-party independent valuers to estimate the fair market value. The valuers produce comprehensive reports for each applicable investment. The favorable and unfavorable effects of reasonable alternative assumptions for the valuation of direct investments have been calculated by recalibrating the model values using unobservable inputs based on the upper and lower threshold of the respective investment's range of possible estimates.

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**7. FAIR VALUE OF FINANCIAL INSTRUMENTS (continued)**

**f) Financial instruments not measured at fair value**

The carrying value of members' contributions receivable, employers' contributions receivable, due from sale of investments, accounts payable and accrued expenses, and payable for purchase of investments approximate their fair value given their short-term nature. These financial instruments are classified as level 2 in the fair value hierarchy because, while prices are available, there is no active market for these instruments.

**8. INVESTMENT INCOME**

	2018			2017		
	Income allocation	Change in fair value	Total	Income allocation	Change in fair value	Total
Short-term	\$ 14	\$ 3	\$ 17	\$ 7	\$ (1)	\$ 6
Bonds	129	(49)	80	89	(12)	77
Canadian equities	34	(184)	(150)	86	171	257
U.S. equities	12	44	56	44	213	257
International equities	244	(450)	(206)	173	1,399	1,572
Mortgages	30	28	58	18	1	19
Real estate	89	342	431	150	37	187
Private equity	204	119	323	241	37	278
IRR*	161	127	288	227	69	296
	917	(20)	897	1,035	1,914	2,949
Directly held derivatives	-	(177)	(177)	-	89	89
	<b>\$ 917</b>	<b>\$ (197)</b>	<b>\$ 720</b>	<b>\$ 1,035</b>	<b>\$ 2,003</b>	<b>\$ 3,038</b>

\* Infrastructure and renewable resources

Investment income represents realized and unrealized pooled investment portfolio income attributable to the Plan, as a unit holder, and income from directly held investments. Income allocation is composed of interest, dividends and other investment payments. Change in fair value is composed of realized gains and losses on the disposal of investments and derivatives, and unrealized gains and losses on investments and derivatives held at year-end. All income earned within a pooled investment portfolio is reinvested within the portfolio.

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**9. CONTRIBUTIONS**

	Basic account	Inflation adjustment account	Supplemental benefits account	Total
<b>2018</b>				
<b>Members' contributions</b>				
Regular	\$ 309	\$ 91	\$ -	\$ 400
Past service purchases	3	1	-	4
	312	92	-	404
<b>Employers' contributions</b>				
Regular	314	95	1	410
Past service purchases	2	1	-	3
	316	96	1	413
	<b>\$ 628</b>	<b>\$ 188</b>	<b>\$ 1</b>	<b>\$ 817</b>
<b>2017</b>				
<b>Members' contributions</b>				
Regular	\$ 291	\$ 86	\$ -	\$ 377
Past service purchases	3	1	-	4
	294	87	-	381
<b>Employers' contributions</b>				
Regular	299	90	1	390
Past service purchases	1	1	-	2
	300	91	1	392
	<b>\$ 594</b>	<b>\$ 178</b>	<b>\$ 1</b>	<b>\$ 773</b>

Member and employer contributions are as defined under the pension plan rules. Members' past service purchases are voluntary contributions.

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**10. BENEFITS**

	Basic account	Inflation adjustment account	Total
<b>2018</b>			
Regular pension benefits	\$ 970	\$ -	\$ 970
Indexing – regular pension benefits	206	-	206
Termination and refund benefits	14	3	17
Death benefit payments	9	1	10
	<b>\$ 1,199</b>	<b>\$ 4</b>	<b>\$ 1,203</b>
<b>2017</b>			
Regular pension benefits	\$ 939	\$ -	\$ 939
Indexing – regular pension benefits	195	-	195
Termination and refund benefits	14	3	17
Death benefit payments	14	1	15
	<b>\$ 1,162</b>	<b>\$ 4</b>	<b>\$ 1,166</b>

**11. INVESTMENT AND ADMINISTRATION COSTS**

	<b>2018</b>	<b>2017</b>
Investment management	\$ 66.8	\$ 47.9
Benefit administration	13.6	12.3
Board secretariat costs	0.4	0.3
Other professional services	0.2	0.2
Board remuneration and expenses	0.2	0.2
Actuarial and audit	0.2	0.1
	<b>\$ 81.4</b>	<b>\$ 61.0</b>

BCI and Pension Corporation are related parties to the Plan. The Board appoints members to each of the respective corporate boards. Investment management and benefit administration costs are approved by the Board.

Investment management costs represent amounts charged to recover internal and external management costs incurred by BCI, except those external management fees related to investments managed by an underlying external manager, where management fees are embedded in the net assets of the respective investment. Underlying external investment management fees of \$32.0 (2017: \$28.7) were netted against investment income.

Benefit administration costs represent amounts charged to recover benefit administration costs incurred by Pension Corporation. These transactions are in the normal course of operations and are measured at the exchange amount of consideration established and agreed to by the related parties.

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**11. INVESTMENT AND ADMINISTRATION COSTS (continued)**

Board secretariat costs represent amounts directly incurred by the Board for costs associated with supporting the Board.

Other professional services costs include insurance and legal fees incurred directly by the Plan.

Board remuneration and expenses represent amounts for trustee compensation and direct expenses.

**12. ACCOUNT TRANSFERS**

	2018		2017	
	Basic	Inflation	Basic	Inflation
	account	adjustment	account	adjustment
		account		account
Indexing supplements	\$ 181	\$ (181)	\$ 142	\$ (142)
Indexing deferred pensions	2	(2)	2	(2)
	<b>\$ 183</b>	<b>\$ (183)</b>	<b>\$ 144</b>	<b>\$ (144)</b>

The IAA is a separate account that is maintained for funding current and future cost-of-living adjustments. The IAA is funded through a portion of ongoing contributions from employers and members, investment income earned and excess investment return earned in the Basic Account.

Cost-of-living adjusted pension payments are made from the Basic Account. Each year, if members' pension payments are adjusted for the current cost-of-living adjustment, monies are transferred from the IAA to the Basic Account to cover the present value of all future payments arising from the current cost-of-living adjustment. The Board considers all relevant factors and its IAA funding policy to determine if a cost-of-living adjustment will be granted on pensions in pay and the amount of the cost-of-living adjustment, if any. As at January 1, 2018, retired members received a cost-of-living adjustment of 1.6% (2017: 1.3%), and indexing supplements were transferred.

When a deferred pension is paid, the present value of the cost-of-living adjustments during the deferral period is transferred from the IAA to the Basic Account. Approximately \$26 (2017: \$23) of the current IAA balance is for cost-of-living adjustments already granted for deferred pensions but not yet transferred to the Basic Account.

Prior to December 31, 2017, when investment earnings in the Basic Account were in excess of the actuarial assumption regarding investment rates of return, the excess investment return was transferred from the Basic Account to the IAA. In March 2018, the Board revised the Plan rules to allow the positive excess investment return transfer to occur at the discretion of the Board, effective January 1, 2017.

Excess investment return is based on investment income earned on those assets in the Basic Account required for pensions currently being paid, approximately \$12.5 billion of assets for 2018 (2017: \$11.6 billion). The excess investment return rate is determined by taking the difference between the actual five-year annualized market rate of return (8.2%) and the rate of return used by the actuary (6.0%) in valuing the Plan's liabilities. The calculated excess investment return rate for 2018 was 2.2 % (2017: 4.1%), resulting in a positive excess investment return amount of \$274 (2017: \$475).

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**12. ACCOUNT TRANSFERS (continued)**

Should the excess investment return calculation ever result in a non-zero balance, it will be carried forward cumulatively with interest and offset against future excess return. The excess investment interest is an amount determined by applying the five-year annualized market rate of return to the fiscal year opening balance. This component of the calculation is the opportunity cost related to the opening cumulative return balance.

<b>Excess investment return</b>	<b>2018</b>	<b>2017</b>
Cumulative excess investment return, beginning of year	\$ 475	\$ -
Interest applied to beginning of year amount	39	-
Excess investment return	274	475
<b>Cumulative excess investment return, end of year</b>	<b>\$ 788</b>	<b>\$ 475</b>

**13. SUPPLEMENTAL BENEFITS ACCOUNT**

The Supplemental Benefits Account is the account through which certain supplemental benefits are funded. For example, pension benefits that exceed Tax Act limits for registered pension plans are paid through this account.

**14. COMMITMENTS**

The Plan participates in private equity, international real estate, mortgages and infrastructure and renewable resource pools. As at December 31, 2018, the Plan's share of commitments for future investment contracts in these pools over the next several years is approximately \$4,372 (2017: \$2,891).

**15. CAPITAL DISCLOSURES**

Capital is defined as the funded status (surplus or deficit) of the Plan as determined by the actuary. The Plan's objective for managing capital is to ensure that the assets of the Plan are invested prudently and effectively, and with contributions adequate to meet the obligations of the Plan. Management of the Plan's funded status is achieved by adjusting member and employer contribution rates, through implementation of the SIPP, which affects the earnings of the Plan, and, in the case of the IAA, by changing the benefits paid. The Board has a funding policy that outlines the principles that provide guidance in managing this process. The investment performance of the Plan's assets is reviewed by the Board on a regular basis compared to relevant industry benchmarks. Benefit entitlement is based on the provisions of the Agreement and the pension plan rules. Funding deficits must be funded over a period not to exceed 15 years.

An actuarial valuation must be prepared at least once every three years. The latest actuarial valuation for funding purposes was prepared as at December 31, 2017, and has two components: the basic account non-indexed benefits and, by considering the valuation of the entire Plan, the non-guaranteed IAA. The next full actuarial valuation will be carried out as at December 31, 2020.

The Act and the Board's funding policy require that contribution rates comply with the going-concern requirements of PBSA.



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**MISSION STATEMENT**  
To fulfill the trust the partners have placed on us by  
effectively and efficiently meeting the pension promise  
to provide retirement income to plan members

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*The information in this booklet is based on legislation and Teachers' Pension Plan Rules in effect as of December 31, 2018, except where otherwise noted. In the event of any variation between the information in this booklet and the provisions of the statutes, regulations and plan rules that govern any benefits available under Teachers' Pension Plan, the latter will prevail.*