2019 Annual Report

We lead
We learn
We last

>

Table of contents

PHOTOS

Page 3: Beth Tyndall, Chief People Officer; Stephen McLennan, Senior Managing Director, Total Fund Management

Page 4: Millan Mulraine, Director and Chief Economist, Total Fund Management

Page 5: (Left to right) Deborah Ng, Director, Responsible Investing, Strategy & Risk; Salman Bashir, Senior Principal, Strategy & Risk; Mark Blair, Director, Research & Analytics, Strategy & Risk

Page 6: Olivia Steedman, Senior Managing Director, Teachers' Innovation Platform; Vishhal Bhatt, Developer, Corporate Communications

Page 12: (Clockwise from top left) Jane Rowe, Executive Managing Director, Equities; David McGraw, Chief Financial Officer; Tracy Abel, Chief Pension Officer

Page 25: (Left to right) Merisa Gomez-Adams, Internal Communications Coordinator, Corporate Communications; Gillian Brown, Senior Managing Director, Capital Markets

Page 41: (Clockwise from top left) Cathy Cranston, Board Member; Steve McGirr, Chair; Bill Chinery, Board Member; Patti Croft, Board Member

Our strengths in action

Keep an eye out for these icons throughout the book. See page 10 for a complete description.

MEMBERS FIRST

IN-HOUSE TALENT

GLOBAL PRESENCE

STRATEGIC RELATIONSHIPS

TOTAL-FUND APPROACH

RESPONSIBLE INVESTING

$207.4B
Net assets

$20.2B
Net investment income (record high)

8.8/10
Quality Service Index Member Rating

We lead by example

At Ontario Teachers', we constantly challenge the status quo and strive towards excellence in everything we do.

One of **Canada's Best Employers**
Forbes 2019

Canadian HR Team of the Year
(500 employees or more)
2019 Canadian HR Awards

One of the **top 25 most responsible asset allocators**
Bretton Woods II Program

Recognized as a **global leader in member service**
CEM Benchmarking Inc.

We learn to grow

At Ontario Teachers', we're students of the world. We constantly find new ways to adapt our thinking, using the latest tools, insights and indicators to make the most of every opportunity.

10.4%
Total-fund net return

12.8%
Total-fund local return

Launched
new asset class
Teachers' Innovation Platform

Launched
Koru
A venture incubator for our portfolio companies

Published our first
Climate Change Report

PENSION FUNDING SOURCES

10%	Member contributions
11%	Government/designated employer contributions[1]
79%	Net investment income

[1] The additional 1% includes original plan deficit funding and contributions related to conditional inflation protection.

We're built to last

Our actions influence what the future becomes. We take the long view because we're deeply committed to serving our members and our partners with respect and dedication.

329,000
Total number of active members and pensioners

103%
Funded ratio

Institutional Investor of the Year, Global
Infrastructure Investor Magazine

A+ from Principles for Responsible Investment
Five consecutive years of recognition for Ontario Teachers' approach to responsible investing

Global investor
We trade in more than 50 countries across more than 150 marketplaces

Who we are

We are Ontario Teachers', the administrator of Canada's largest single-profession pension plan.

We actively invest on behalf of 329,000 active and retired Ontario teachers, and provide outstanding service and retirement security for our members – today and tomorrow.

Ontario Teachers' is a global, independent organization with offices in Toronto, Hong Kong and London.

The pension plan is governed by the *Teachers' Pension Act* (Ontario), the *Pension Benefits Act* (Ontario), the *Income Tax Act* (Canada), and laws in the various jurisdictions in which it invests and operates.

SPONSORS' ROLE

Ontario Teachers' Federation (OTF) and the Ontario government are the plan's joint sponsors. Together, OTF and the government ensure the plan remains appropriately funded to pay pension benefits, and decide:

- the contribution rate paid by working teachers (and matched by the government and designated employers);
- the benefits that members will receive, including inflation protection; and
- how to address any funding shortfall or apply any surplus.

BOARD'S ROLE

Our board, appointed by OTF and the government, oversees the management of Ontario Teachers' Pension Plan Board (Ontario Teachers'). Board members are required to:

- act independently of both the plan sponsors and management; and
- make decisions in the best interests of all plan beneficiaries.

MANAGEMENT'S ROLE

Management has three main responsibilities:

- invest plan assets to help pay pensions;
- administer the plan and pay pension benefits to members and their survivors; and
- report and advise on the plan's funding status and regulatory requirements.

Management sets long-term investment and service strategies that take member demographics, and economic, investment and market risks into account.

Report from the Chair

Leading governance practices

Ontario Teachers' faces imposing headwinds. Global diversification of our portfolio is taking place in an uncertain geopolitical environment. We grapple with disruption of traditional investments, a sustained low interest rate environment, the challenge of implementing technology to make Ontario Teachers' more agile and the potentially transformational risks posed by climate change. After years of strong financial market returns, the threat of an economic downturn is real.

We are guided by leading governance practices that take us beyond the four walls of the boardroom. Our board is an active one. Outside of the boardroom, we meet with companies in our portfolio, meet officials in the geographies where we operate and learn from thought leaders who can help us navigate difficulties.

At the same time, inside the boardroom we focus on instilling the right culture, technology and risk appetite for Ontario Teachers'.

We regularly improve our own practices. Many on the board are pursuing or already hold professional director designations, and our board members attend educational sessions here and through outside organizations. It is fitting that representatives of educators are constantly learning.

New leadership at Ontario Teachers'

One of the single most important roles entrusted to the board is the recruitment and selection of the president and CEO. In 2019, after a thorough and methodical search, the board selected Jo Taylor as the next leader of Ontario Teachers'. Jo assumed the role on January 1, 2020.

Preparations for the CEO succession involved a robust process that began in 2018. The board reviewed a broad and diverse set of candidates, both from within our organization and externally, and determined that the organization has an incredibly strong pipeline of internal talent.

Steve McGirr
Chair

We selected Jo because he will be an excellent driver of the Ontario Teachers' brand and advance the organization's global effectiveness. He will enhance the total-fund approach, address the challenges of today and tomorrow's investment landscape, and uphold the tradition of successfully delivering on the pension promise for our members.

Jo replaces Ron Mock, who was president and CEO for six years. Ron did a remarkable job of furthering Ontario Teachers' global mandate, and thanks to his leadership and vision, the organization is well positioned to sustainably meet its mission in the future.

Strong financial footing for members

The plan remains fully funded on prudent assumptions for the seventh straight year, with a funded ratio of 103% and a preliminary surplus of $6.1 billion as at January 1, 2020.

A fully funded status is the ultimate yardstick for defined benefit pension plans like ours, and I trust that Ontario's active and retired teachers are pleased with the health of their plan. It is no time to be complacent, though. The risks facing Ontario Teachers' are serious and complex. The board, for its part, is ready to meet these challenges.

I am honoured to lead a board that is so committed to upholding the highest standards of good governance and focused on protecting the retirement security of its members.

SR McGIRR

Steve McGirr
Chair

Report from the CEO

It is a prodigious time to step into the role of CEO at Ontario Teachers', as we celebrate our 30th year of successfully delivering a secure retirement to plan members. As its fourth CEO, I am honoured to be trusted with this important position, and grateful to have benefitted from the accumulated wisdom of those who have held the job previously. This is particularly true of our past CEO, Ron Mock, who gave strong guidance to me and shared reflections on how best to shape Ontario Teachers' future priorities. Each CEO of Ontario Teachers' has focused on specific areas during their tenure. This initially included setting up the right governance model to invest and deliver the necessary returns, and then managing through market fluctuations and a global financial crisis. For my role today, there are some challenging dynamics around funding cash flows, member demographics, a low-growth environment, climate change, highly competitive investment markets and now the COVID-19 pandemic.

I plan to focus on three key areas:

Growth and International. Assets are growing significantly, and we will have a large amount of capital to manage in a competitive environment. It will be crucial to find the right opportunities, and to expand our international footprint into the right territories.

Partnerships and Relationships. This has been one of our key strengths, involving the thoughtful selection of partners who we can learn from, and who value what we bring to the table. This extends to the huge importance placed on working with our stakeholders to deepen these relationships.

Talent and Culture. Ontario Teachers' has to look far into the future, ensuring it has the right skills in place. This means encouraging our agility in thinking and decision making, developing talent and integrating inclusion and diversity at all levels.

Growing assets, expanding our international footprint

I have set the challenge to colleagues to build a strategy to grow the plan's assets under management to $300 billion by the end of 2030. Investing this capital in a low-interest and lower-growth environment will require the team to have a bold and ambitious mindset. In 2019, we were able to design a clear international road map for our investment activities and identify where we needed to build execution capabilities. The expected outcome of this effort will be to rebalance our portfolio and returns more evenly between North America and the rest of the world.

The value of local expertise can't be overstated, which is something I can attest to, having formerly led both Ontario Teachers' London and Hong Kong offices. Careful consideration has been given to the value of having another office in Asia-Pacific, and given the uncertainties and challenges in Hong Kong, it is the right time for us to open a Singapore office, which we currently expect to be operational in the third quarter of this year. Latin America also remains an important region, and we will be exploring models to enhance our local execution capabilities there.

Selective partnerships and deeper relationships

Ontario Teachers' is distinct from most other investors in the way it approaches partnerships. This is because our model is highly focused with a select number of partners that we choose to work with. This allows us to be an active, value-added partner in each situation. Whether working with professional fund investors, corporates or family offices, Ontario Teachers' looks to take an active role. Our very careful approach to asset and partner selection means a preference for working with aligned investors and management teams where mutual value is placed on one another's skills, knowledge and expertise.

Our other important stakeholders include members, sponsors and regulators. Last year, Ontario Teachers' attained the rank of number one globally for member service, and received very high member satisfaction scores. Our team is still looking to build on these strong results, and is actively working to anticipate the future needs of our membership. Ontario Teachers' will continue to work closely with the plan's sponsors and regulators to ensure transparency and collaboration, and to bring value to those relationships wherever possible.

Agility, diversity and opportunity

Having a high-functioning team means encouraging agility in our thinking and decision making. The board has decisively supported this goal in many ways. One meaningful development is giving more delegated authority for investment decisions to the executive team. At the same time, we are pushing ourselves to have the right balance between building consensus while still maintaining agile decision making and appropriate accountability. A subset of this will be to evolve more of a "test and learn" culture designed to stimulate innovation.

Developing internal talent is of huge importance, and last year there were 46 promotions to senior positions. Giving employees a great experience means investing in a learning culture and better onboarding programs. Ontario Teachers' is also investing in mobility that allows our people to gain international experience and develop new skills. The health and performance of the plan depends on finding diverse voices and then ensuring that they are heard. This is a priority in our new recruitment efforts. Ontario Teachers' has also made significant progress on the diversity of the boards of our private, controlled investee companies. In 2020 and beyond, our focus will include reviewing the retention and progression of our senior women as a measure of the progress that we are making in this regard.

In conclusion

We are fortunate to have a very clear mandate, which is to serve current and retired teachers in the province of Ontario. It provides us with a laser focus in these uncertain times, in which COVID-19 is dramatically impacting the financial markets and all of our activities. We continue to have rigorous processes in place, shaped by robust governance and risk frameworks, and a team dedicated to serving the needs of our members. By sticking to our fundamentals, including strong liquidity, aligned partnerships and excellent talent, I am confident we will continue to deliver on our goals of first-class service and retirement security for our members over the long term.

Jo Taylor
President and CEO

Shaping a better future

Our actions have the potential to create lasting value for our members, our partners and the communities where we operate.

The competitive global investment markets have been impacted by lower returns, geopolitical instability and the long-term challenges of climate change. The complex regulatory environment, changes in technology, evolving member demographics and increased service demands are influencing how we administer pensions. In a rapidly changing business environment, it's critical that we build from our strengths to prepare for the future.

Our strengths in action

Keep an eye out for these icons throughout the book. They highlight where our strengths have played a role in contributing to our achievements throughout the year.

MEMBERS FIRST

We deliver service excellence and security

We strive to make everything related to our members' pensions as seamless as possible.

This means a focus on faster and more reliable functionality, with enhanced technology across service channels.

IN-HOUSE TALENT

Our best strive to be even better

Our talented team builds expertise and insights to make things more efficient and deliver higher net returns at a lower cost.

Finding and keeping great people and developing their potential will position us for continued success.

GLOBAL PRESENCE

We think globally and act locally

Our international offices, talent and partners allow us to develop insight into key global markets.

In addition to Toronto, London and Hong Kong, we plan to open an office in Singapore in 2020.

STRATEGIC RELATIONSHIPS

We're stronger together

We build genuine, global partnerships – across departments, asset classes and regions – to share success and grow a world of opportunities.

We'll continue to enhance our networks and explore creative ways to develop new partnerships.

TOTAL-FUND APPROACH

We manage the balance between risk and returns

We strive to effectively allocate resources across asset classes and departments, managing volatility and encouraging innovation.

A broad perspective ensures our teams share expertise and consider the exposure of the entire fund.

RESPONSIBLE INVESTING

We sustain success from the start

We continually improve our ability to recognize, evaluate and act on environmental, social and governance opportunities and risks.

This allows us to advance our processes and think critically at each stage of the investment lifecycle.

Empowering our people

Developing our talent for today and tomorrow

As we build our global capabilities, we're focused on hiring the right people to support this growth. Our goal is to attract, retain and develop diverse, high-calibre talent for all markets in which we operate worldwide.

Digital interviewing capabilities are helping us to reach a broader set of candidates around the world, while initiatives such as our Global Mobility Program are enabling our employees to develop through international experiences.

In 2019, we introduced the Talent Hub, a team of senior People & Culture professionals using cutting-edge tools and technologies to help identify and develop the next generation of leaders at Ontario Teachers'.

We're also actively building our talent pipeline by piloting a new graduate program to create meaningful entry-level career opportunities.

Inclusion and diversity

We recognize that an innovative and high-performing workforce is enabled through a culture that's inclusive – where employees can be themselves and bring diversity of thought for our collective success.

Our Inclusion & Diversity Leadership Council is helping to embed this in everything we do. The council's multi-year strategy focuses on engaging employees and enhancing learning opportunities around an inclusive culture, while expanding industry partnerships and collaboration with pension industry peers to drive collective change.

Throughout 2019, we hosted and participated in industry and academic events to inspire younger women to consider a career in investments or finance, as well as continuing our participation in industry programs such as Women in Capital Markets' *Return to Bay Street* – to help women re-launch careers in capital markets – and the 30% Club, which aims to achieve better gender balance at the board and senior management levels.

Our Employee Resource Groups connected people with shared characteristics, interests or experiences, and we celebrated our diversity and inclusion throughout the year with a variety of initiatives to mark International Women's Day, Mental Health Week, Pride Week and the Global Day of Inclusion.

50%
of Ontario Teachers' board members are female

3 of 5
investment departments are headed by women

34%
of leadership positions at Ontario Teachers' are held by women

21%
of the portfolio company board seats we solely or jointly control are held by women, which has increased from 11% in 2017

Recruiting global talent provides Ontario Teachers' with access to a deeper, wider pool of investment expertise to drive performance and create long-term value for the fund.

Management's Discussion & Analysis

Plan funding report

A look at the health of the pension

This section provides information on recent funding valuations, assumptions and related demographic and economic considerations that play a role in plan funding discussions. A funding valuation is an assessment of the financial health of a pension plan on a defined date. It determines whether the plan's projected assets are reasonably sufficient to pay all promised pensions in the future. A preliminary funding valuation is one that is not finalized or filed with the regulators.

FUNDING STATUS AS AT JANUARY 1, 2020

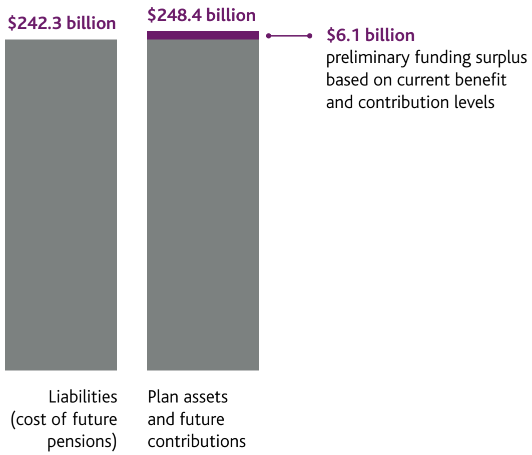
As at January 1, 2020, the plan had a preliminary surplus of $6.1 billion based on an average contribution rate of 11% and 100% inflation protection being provided on all pensions. The January 1, 2020, valuation is not required to be filed with the regulatory authorities; however, the sponsors may choose to do so, in which case the report would be filed prior to the end of September 2020. If the sponsors choose t o file this valuation, they will decide how to allocate the surplus.

The next required funding valuation is as at January 1, 2021.

Details are provided in the Funding Valuation Summary table on page 14.

FUNDING VALUATION

As at January 1, 2020

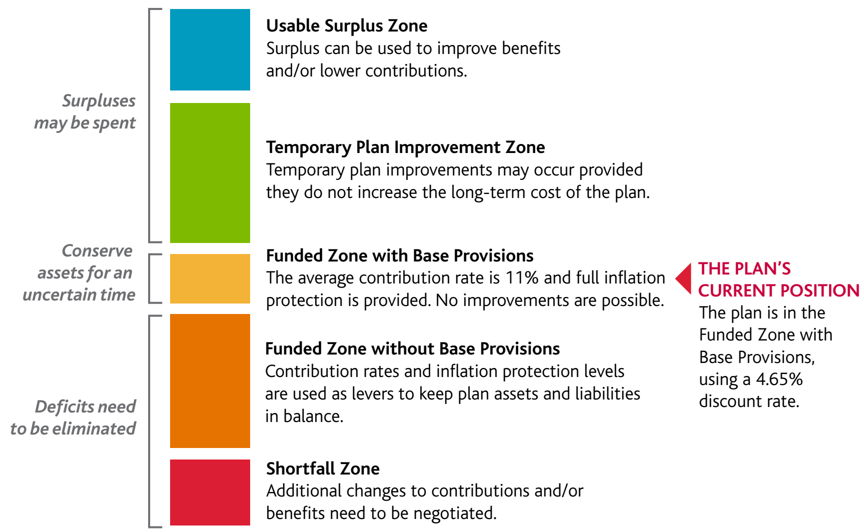


FUNDING MANAGEMENT POLICY

In 2003, the sponsors adopted the Funding Management Policy (FMP). The FMP is an important document that provides the sponsors with a guidance framework for decision making when there is a funding surplus or shortfall. A key component in the FMP is the concept of funding zones, each defined by a range. The funding zones provide a point of reference for whether action is required by the sponsors and, if so, guidance is provided on how to use any surplus funds or resolve any shortfall. Specifically, it is used to answer questions of when it is prudent to increase or decrease benefits, raise or lower contribution rates, or simply conserve assets for an uncertain time. The FMP outlines preferred mechanisms associated with its various funding zones, and it is ultimately the sponsors' responsibility to decide what actions to take.

The FMP has important implications from an investment perspective, adding clarity to our strategic asset allocation decisions with a key focus being on the plan's ability to absorb risk. In the absence of the FMP, this level of clarity would be difficult to achieve.

FUNDING MANAGEMENT POLICY ZONES



FUNDING VALUATION SUMMARY

As at January 1 (Canadian $ billions)

	2020	2019
Net assets available for benefits	$ 207.4	$ 191.1
Smoothing adjustment	(5.5)	0.2
Value of assets	**$ 201.9**	**$ 191.3**
Future basic contributions	46.5	44.6
Total assets	**$ 248.4**	**$ 235.9**
Liabilities (cost of future pensions)	(242.3)	(225.9)
Surplus[1]	6.1	10.0
Assumptions (percent)		
Inflation rate	2.00	2.00
Real discount rate[2]	2.60	2.75
Discount rate	4.65	4.80

1 If the sponsors choose to file a valuation as at January 1, 2020, they will decide how to allocate the surplus, including whether or not to classify the surplus as a contingency reserve.

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

SMOOTHING ADJUSTMENT

Smoothing is a common practice in funding valuations that is used to reduce short-term volatility. The plan's funding valuations smooth asset gains and losses over a three-year period, with one-third of gains and losses being recognized immediately and the remaining two-thirds being recognized in equal installments over the following two years. Gains and losses are determined by comparing the fund's actual total-fund return against the discount rate used for funding valuation purposes. By deferring recognition of gains and losses, the plan's funding ratio, contribution rates and benefit levels are less volatile. Without the use of smoothing, the sponsors might have to change contributions and benefits more frequently to achieve funding stability.

As noted in the Funding Valuation Summary, the plan's asset smoothing adjustment has gone from being a positive adjustment of $0.2 billion last year to a negative adjustment of $5.5 billion in this year's preliminary valuation. As at January 1, 2019, some prior losses were "held back," gradually recognized over time rather than all at once. The result was that the value of smoothed assets exceeded the market value. As at January 1, 2020, we have the opposite situation with some prior gains being held back, resulting in the value of smoothed assets being lower than the market value.

For a full view of how smoothing has affected earnings in recent years, please see the Filed Funding Valuation History on page 100.

SETTING ASSUMPTIONS – A RIGOROUS PROCESS

A funding valuation uses a number of actuarial assumptions to project the value of future pension plan liabilities and contributions. Assumptions, using professional judgment, are made about future inflation, salary increases, retirement ages, life expectancy and other variables.

One of the most important assumptions is the discount rate, which plays a key role in assessing whether the pension plan has enough assets to meet its future pension obligations. The discount rate is used to calculate the present value of future pension benefits the plan expects to pay to members as well as contributions it anticipates receiving. Plan liabilities are sensitive to changes in the discount rate, with a lower rate resulting in increased liabilities. The discount rate is derived from the expected rate of return on investments and takes into consideration the cost of running the plan and provisions for plan maturity as well as major adverse events, such as the 2008 financial crisis.

As noted in the Report from the Chair, Ontario Teachers' is facing imposing headwinds and after years of strong financial market returns, the threat of an economic downturn is real. In addition, there has been a sustained decline in long-term interest rates, reflecting a "low for longer" expectation. With these factors in mind, for the first time since 2016, the board decided to lower the real discount rate from 2.75% to 2.60%. This is a prudent decision, particularly given the maturing demographics of the plan's membership.

At Ontario Teachers', the assumption setting process is extremely robust and includes detailed stochastic analysis to support the board in setting the discount rate as well as an annual in-depth analysis of plan experience by the plan's external actuary. If assumptions show a pattern of deviating from actual experience, they are reviewed and may be adjusted. The external actuary works closely with the board to set assumptions and confirm they are appropriate. The Canadian Institute of Actuaries (CIA) Standards of Practice require that each assumption is independently reasonable and that assumptions are appropriate in aggregate.

The inflation and discount rate assumptions in the most recent valuations are shown in the Funding Valuation Summary table.

INTERGENERATIONAL EQUITY

The design and implementation of an innovative funding risk mitigant, conditional inflation protection (CIP), adds flexibility to the plan and promotes intergenerational equity. It recognizes and virtually neutralizes the impact of the changing ratio of active to retired plan members on the plan's funded status.

The plan sponsors prudently and proactively introduced CIP in 2008, recognizing that if significant investment losses or a funding shortfall occurred, an increase in contribution rates alone was unlikely to be sufficient, and increases would be borne solely by active plan members.

CIP allows flexibility in the amount of inflation increase provided to pensioners for benefits earned after 2009. The level of increase is a sponsor decision and is conditional based on the funded status of the plan. Pension credit that members earned before 2010 remains fully indexed to inflation. There are three levels of inflation protection for members, which are based on when pension credit was earned: before 2010, during 2010 to 2013, and after 2013.

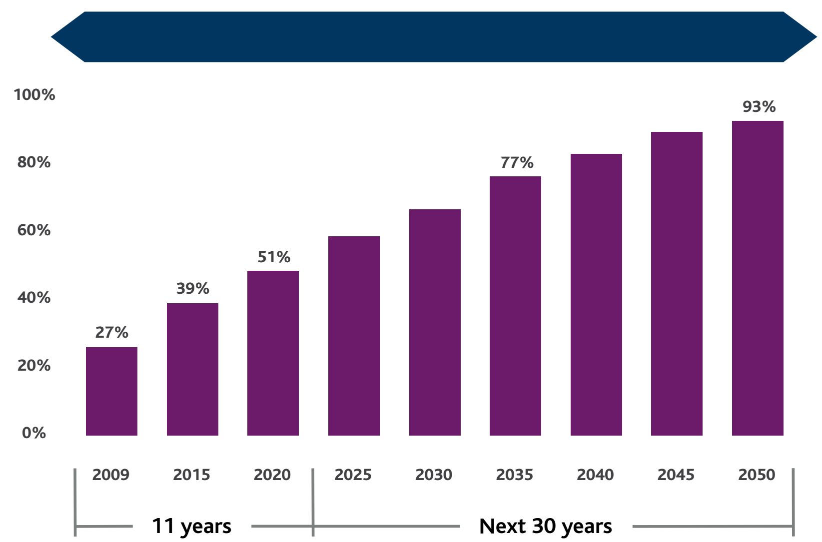
When pension credit was earned	Inflation protection level	What this means for members
Before 2010	100%	This portion of a member's pension will keep pace with annual increases in the Consumer Price Index (CPI).
During 2010–2013	50% to 100%	This portion of a member's pension will receive at least 50% and up to 100% of the annual increase in the CPI, depending on the plan's funded status.
After 2013	0% to 100%	This portion of a member's pension will receive from 0% to 100% of the annual increase in the CPI, depending on the plan's funded status.

CIP is an effective lever for mitigating funding risks while also promoting intergenerational equity. Over time, as more active members retire, the risk of significant investment losses or a funding shortfall is distributed more broadly among the membership – that is, risk is shared by more retired members.

CIP is becoming more powerful over time. The proportion of service that members have earned after 2009 continues to grow, while the proportion of service earned before 2010 (which is fully indexed to inflation) is in decline. These trends mean that, eventually, all pension benefits will be subject to CIP and that active and retired plan members will share the risk of a loss.

The graphic below illustrates the increasing impact of CIP risk sharing over time. Over the next 15 years, the percentage of the plan's total liability that is subject to CIP will increase from 51% to 77%. As CIP applies to more of the plan's total liability, it will be able to absorb a greater loss, making it an extremely effective risk management tool.

PERCENTAGE OF TOTAL LIABILITY SUBJECT TO CIP ON POST-2009 SERVICE



STRESS RESISTANT

As CIP applies to more pension beneficiaries, it will be able to absorb a greater loss, making it a more effective risk management tool.

	1990	2019	2029
Increase in contributions required for 10% loss in assets	1.9%	5.2%	5.6%
Decrease in level of CIP required for 10% loss in assets	n/a	30%	21%
Asset loss capable of being absorbed by fully invoked CIP (Canadian $ billions)	n/a	$43	$86

As an example, a 10% asset loss in 2029 could be absorbed by lowering inflation protection increases for benefits earned after 2009 from 100% to 79%. As another example, in the most extreme case, if CIP levels were lowered to 50% on benefits earned during 2010–2013 and to 0% on benefits earned after 2013, this funding lever would be powerful enough to absorb a 2029 asset loss of $86 billion.

Plan funding considerations

When making decisions on behalf of all beneficiaries, management and the sponsors consider demographic and economic factors and risks.

The Funding Variables table shows how some important variables have changed since Ontario Teachers' inception in 1990. It is followed by brief discussions of some key funding considerations. Ontario Teachers' has identified four main funding risks – longevity, interest rates, inflation and asset volatility – and seeks to manage intergenerational equity, given these risks.

FUNDING VARIABLES – PAST AND PRESENT

	2019	1990
Average retirement age	**59**	58
Average starting pension	**$49,300**	$29,000
Average contributory years at retirement	**26**	29
Expected years on pension	**32**	25
Number of pensioners aged 100 or more	**135**	13
Ratio of active teachers to pensioners	**1.3 to 1**	4 to 1
Average contribution rate	**11.0%**	8.0%

LONGEVITY RISK

Teachers in Ontario live longer than the general Canadian population and their life expectancy continues to increase. It costs more to pay lifetime pensions when members live longer. At the same time, members are contributing to the plan for fewer years than in the 1990s, and their retirement periods are longer. Given the longevity of the plan members, Ontario Teachers' uses plan-specific mortality tables and custom two-dimensional mortality improvement scales which are regularly reviewed and updated as warranted. The tables and scales were recently updated and have been used in the January 1, 2020, valuation.

INFLATION RISK

The plan seeks to provide retired members with annual pension increases to offset the impact of an increased cost of living (inflation). Inflation that is higher than assumed in the valuation increases the plan's liabilities, given the plan's inflation protection feature, while inflation that is lower than assumed reduces the plan's liabilities. The annual increase received by retirees on the portion of their pensions earned after 2009 is conditional on the plan's funded status.

ASSET VOLATILITY RISK

2019 marked both the longest U.S. economic recovery and the longest bull market in equities on record. The equity market upswing persisted even as economic growth slowed and corporate earnings disappointed, which suggests an elevated risk of a price correction if underlying fundamentals don't recover sufficiently to justify the high market valuations. A material drop in asset prices would negatively impact asset values. Currency volatility also has an impact on assets. Volatile asset markets can present opportunities for long-term investors such as Ontario Teachers', but they can also lead to investment losses that affect the plan's funded status.

Effective risk management is key to a pension plan's success. Ensuring the sustainability of the plan – and delivering on the pension promise – requires having a robust enterprise risk management program in place.

Managing risk to inform strategy

Operating strategically through enterprise risk management

Ontario Teachers' exists to provide pension benefits to its members for life. To deliver on our pension promise, we must effectively manage risks and be adequately compensated for taking them.

Risk management is an important capability at Ontario Teachers' and plays a key role in all our activities. The board, with the support of the executive team, helps establish a strong risk culture and sets the appetite for risk, including how much risk the organization is willing to accept to achieve our strategic objectives. Risk management is a responsibility shared by all of Ontario Teachers' employees.

Through enterprise risk management (ERM), management is able to understand important enterprise risks and how these risks are being managed against the established board risk appetite. Given the value and forward-looking, longer-term insight it provides, ERM has been further integrated into our strategic and operational planning decisions.

Key goals of ERM provide management with the tools to:

- manage risk and understand rapid changes to our business environment, including identifying emerging and rapid shifts to enterprise risks;
- establish a consistent framework to better understand and assess the broad range of enterprise risks we face, while also considering opportunities; and
- create a competitive advantage through a strong and agile risk-conscious culture and create value through a longer time horizon lens.

We consider risks in four categories: governance, strategic, investment and operational. We also consider reputational risk, which is seen as a second order impact or consequence of one of the four risk categories occurring, which is equally important.

ONTARIO TEACHERS' ENTERPRISE RISK CATEGORIES

Governance risk
Associated with the structure and functioning of Ontario Teachers', including the policies, laws and regulation affecting the plan.

Strategic risk
Associated with decision making for the long-term strategic direction of Ontario Teachers'.

Investment risk
Risk associated with effective management of the plan's assets, including market, credit, liquidity and geopolitical risk.

Operational risk
The risk of direct or indirect loss resulting from inadequate or failed internal processes, people or systems, or from external events. Cybersecurity is an example of this type of risk.

Reputational risk
The risk associated with a change in perception of Ontario Teachers' or its public image.

COUNTERPARTY CREDIT ANALYSTS BENEFIT FROM NEW TECHNOLOGY

An automated process has been developed that enables Ontario Teachers' counterparty credit analysts to quickly learn about news items that could potentially impact our banking relationships.

Ontario Teachers' has established relationships with banks around the world. We undertake derivative transactions with these banks according to the risk appetite established by our board and overseen by management. This risk appetite is informed through a scoring process that relies on quantitative factors, such as balance sheet and stock price information, as well as qualitative factors, such as regulatory and litigation issues. While the quantitative assessment is fully automated, the qualitative assessment has traditionally been entirely manual and requires significant time commitment from the counterparty credit analysts.

Through the use of machine learning and natural language processing techniques, counterparty credit analysts are now able to not only gain insights into the risks much faster but also broaden their scope and cover thousands of news sources and social media sites. Potential negative news items about a banking relationship are flagged and early risk warning indicators are provided. This has saved time and improved productivity for our counterparty credit analysts, who previously spent considerable time sifting through this information.

Below you'll find examples of key risk areas tied to enterprise strategy that management made progress on in 2019 to better position us for long-term success.

CYBERSECURITY RISK

Cybersecurity risk threatens our ability to implement our business strategy, and is therefore considered an enterprise risk. A dedicated team of cybersecurity professionals manages a comprehensive program to help protect the organization against cybersecurity breaches and other incidents by ensuring appropriate security controls are in place. The program is regularly assessed, and includes around-the-clock monitoring and alerting of potentially suspicious security events and incidents.

In 2019, Ontario Teachers' continued to implement its comprehensive cybersecurity program and ran table-top exercises to better prepare for unexpected events.

GEOPOLITICAL RISK

These are risks that are the result of shifting patterns of economic, political and social developments within and between countries and regions. Ontario Teachers' has a sharp focus on those countries where we need to continue to elevate and coordinate our efforts to manage these shifts and mitigate potential impacts to the fund. The goal is to bring together our internal capabilities with our key relationships globally to make us more agile and adaptable to the changing political landscape.

Strategic insights are provided through the creation of a Focus Country Forum with the support of knowledgeable country and regional specialists who enhance our network and information flows and who help identify opportunities. In addition to its offices in Hong Kong, London and Toronto, Ontario Teachers' is opening an office in Singapore. Ontario Teachers' continues to assess innovative ways to expand our global footprint, including deepening our engagement in Latin America.

Through the effective management of these risks, we're focused on one goal – protecting the interests of our members. Our members are our priority.

Enhancing member experiences

Providing the right service at the right time

At Ontario Teachers', we are committed to delivering a superior member experience. This means continually looking ahead to anticipate member needs and find better ways to serve them at every stage of their pension journey.

Our service philosophy continues to focus on three guiding principles: simplicity, personal and insightful. These principles help us meet the growing demand for easy, personalized and real-time access to information and services across multiple channels in an increasingly complex operating environment.

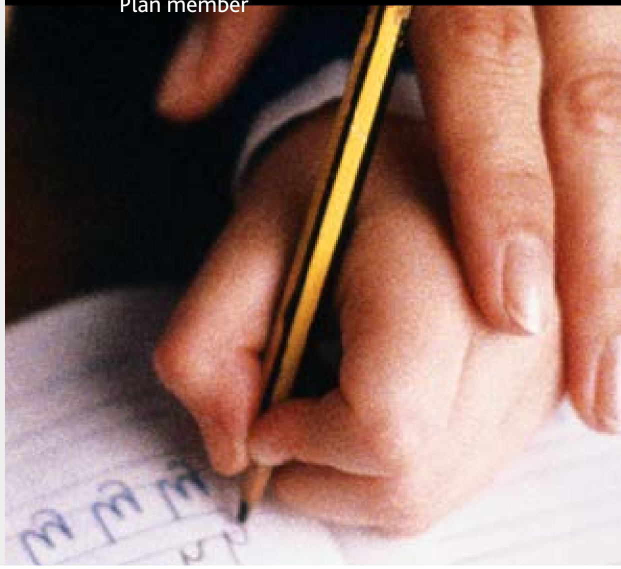
MEMBER PROFILE

184,000 Active members	145,000 Pensioners	329,000 Total number of active members and pensioners

26	32	59	135	2–112
Typical years of credit at retirement	Average years retirees are expected to collect a pension	Average retirement age	Pensioners over 100	Age range of pensioners
20	5,530	72	5,700	43
Pensioners in pay for more than 50 years	New retirement pensioners in 2019	Average age of pensioner	New members in 2019	Average age of active member

"All of the questions I have ever had have been answered. The website is easy to use. The customer service representatives are always friendly, knowledgeable and patient with my questions, regardless of what they are."

Ontario Teachers' Pension Plan member



Proactive, cost-effective digital service

Members are leading increasingly digital lives, both in the classroom and in retirement, which is why we continue to invest in our digital strategy. We're refining how we work to improve the member experience and we're taking bold steps to drive further modernization. We'll continue to leverage new and emerging technologies to efficiently deliver more digital services that solve problems, simplify information and elevate experiences.

1.5 million emails
SENT TO MEMBERS

454,000
SECURE WEB LOG-INS

▲25%
INCREASE IN SECURE DOCUMENTS VIEWED ONLINE

▲5%
INCREASE IN PENSION ESTIMATES GENERATED USING ONTARIO TEACHERS' PENSION CALCULATOR

▲28%
INCREASE IN DOCUMENTS UPLOADED

Powering the member experience

In 2019, we improved our systems and service channels to not only meet operational, regulatory and service requirements, but to lay the foundation that will enable Ontario Teachers' to deliver faster, better and more cost-effective service in the future.

FASTER

- Always looking for ways to make things easier for our members, we added electronic signatures and pre-filling capabilities to select online documents. The initial results were positive – we're saving members time and effort.
- Members told us they want to learn more about our investments, so we launched *Invested*, an email series and microsite dedicated to informing them about how our investments pay their pensions. Now members can easily and conveniently get the investment information they need, when they want it.

BETTER

- Our research uncovered that we needed to enhance awareness of the Canada Pension Plan bridge benefit and the fact that it ends at age 65. We now contact retirees shortly after they turn 63 to educate and prepare them for the upcoming dip in their pension income from Ontario Teachers'. We also added the bridge benefit estimator – an easy and interactive tool – on our public member website to help members assess the change. The results have been positive, with high email open rates and engagement with this new service.

MORE COST-EFFECTIVE

- We made further progress on our multi-year plan to replace old technology with upgraded, robust new pension administrative systems. Key to increasing cost effectiveness, this transformation has also enabled us to reduce risk, improve operations and advance data security.
- Every year, we print and mail several pension statements to former, retired and active members. In 2019, we cut printing costs by 82% by bringing the printing service in-house, with no disruption to members. We'll continue to print these statements in-house and will look for ways to digitize this process.

Proudly delivering outstanding service

In 2019, Ontario Teachers' commitment to service excellence was clear as members continued to give us high marks.

QUALITY SERVICE INDEX

	2019	2018	2017
Total QSI (on a scale of 0 to 10)	**8.8**	8.8	8.8
Percentage satisfied	**94**	94	93

The Quality Service Index (QSI), our primary performance measurement, evaluates the quality of our member experience, service and communications. It involves an independent survey of a sample of members throughout the year by email and telephone, regardless of whether they have had a recent service experience.

CEM BENCHMARKING

	2018	2017	2016	2015
Ontario Teachers'	**94**	94	95	93
Overall average	**77**	77	75	74
Peer group average	**81**	82	81	80
Canadian participants average	**79**	78	76	74

Note: Scores are based on current survey weights, so they may not match the results from prior years.

Ontario Teachers' service is also measured against leading pension plans in a global benchmarking assessment, conducted by CEM Benchmarking Inc., an independent research company that ranks plan performance in various categories.

For 2018, we were recognized as the global leader in our peer group with the highest pension service score in CEM's global database. CEM's score in 2018 was reported in 2019. Ontario Teachers' has been ranked first or second internationally for the past nine years.

PENSION OBLIGATION AND PERFORMANCE INDEX

As administrators of one of Canada's largest payrolls, with pension and benefit payments of $6.4 billion in 2019, we pride ourselves on providing pensioners with timely, reliable payments. Our Pension Obligation and Performance Index result for 2019 was 99.0. This means that more than 99% of our pension payments were made accurately and on time.

Service cost

The cost per member was $231 in 2019.

Looking ahead, we'll continue to invest in talent and technology as the key to creating value, reducing risk and providing an excellent member experience. We'll leverage both talent and technology to improve how we deliver service, while enhancing our digital communications capabilities.

Ontario Teachers' remains committed to cost effectiveness in pension administration. We spend strategically, and we employ various tools to effectively manage costs and protect the sustainability of the plan.

For 2018, we were recognized as the global leader in our peer group with the highest pension service score in CEM's global database.

94

94/100 service score

Providing excellent service requires having experienced, knowledgeable people with the right skill sets. Attracting and retaining this talent – and building their capabilities – is of great importance to Ontario Teachers'.

Q&A with the CIO

Ziad Hindo
Chief Investment Officer

How did Ontario Teachers' asset classes perform this year?
We saw positive returns across our asset classes in 2019, showing the benefit of a diversified portfolio including a mix of public and private assets. We saw particularly strong returns in equities and fixed income.

Ontario Teachers' made several investments in technology companies this year – why the increased focus in this area?
Technology is an area with a lot of potential for us. The opportunity set is large, and with the growth of cleantech, artificial intelligence, healthcare and other areas, we expect it to continue to grow in the coming years.

Accordingly, 2019 was a transformational year for Ontario Teachers'. We launched Koru, an incubator that partners with our portfolio companies to create, test and build scalable new digital businesses, and Teachers' Innovation Platform (TIP), which focuses on late-stage venture and growth equity investments in disruptive technology.

We've already seen TIP investments in everything from digital healthcare to space exploration and smart infrastructure, while Koru is generating new ventures in sectors including healthcare, utilities and transportation. It's great to see how both have hit the ground running.

A low interest rate environment is especially hard on pension funds. How will you continue to make your return targets if rates stay low?
Low interest rates are a reality for all investors – today and for the foreseeable future. Our main defence against low interest rates is solid portfolio construction with a focus on diversification and risk management.

It is important to note that we are investing from a position of strength with a funded ratio of 103%, meaning that we can prudently manage through this period without the need for undue aggressiveness.

Our skilled global investing teams are focused on deal origination, execution and strong asset management and value creation, which positions us well to navigate any challenging investment periods.

It has been a tumultuous year around the world, with trade wars intensifying. Is now the time to be investing more outside of Canada?
Being global is more important than ever – it's an essential element of us being able to meet our long-term investment objectives. We monitor short-term trends and pressures, but our long-term view is that the bulk of future global growth will come from outside of North America, which means we must look abroad for investment opportunities.

Many stakeholders have been vocal about wanting Ontario Teachers' to do more on climate change. What are you doing in this area to protect the plan's long-term sustainability?
Climate change is a major area of focus. Our approach has four strategic elements: invest in climate-smart opportunities, integrate climate into our investment process, engage with companies and use our influence to catalyze change.

One example of how we've been doing this is our investment in Cubico Sustainable Investments: a global renewable energy platform that invests in wind and solar electricity generation. Since Ontario Teachers' first invested in Cubico in 2015, the company has grown from 19 facilities located in seven countries to 87 assets in different stages of development located in 12 countries in the Americas, Europe and Australia.

While I'm proud of our progress with portfolio companies such as Cubico, we are not content to stand still. We constantly evolve our practices with the long-term sustainability of the plan in mind.

What is the one thing you would want to tell members about their plan?
We're operating in a challenging economic environment and many of the challenges we face today are uncharted. How we deal with this uncertainty is by having the right talent, strategy and risk management practices in place, with our focus fixed on achieving the returns needed to ensure that the plan remains sustainable over the long term.

A look at our portfolio

Driving success with a diversified, balanced portfolio

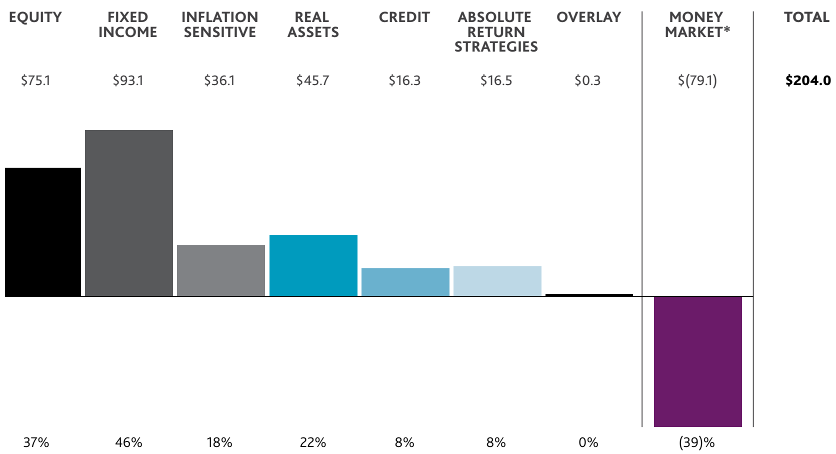
Ontario Teachers' investment program is tailored to generate the returns needed to pay members' pensions at stable benefit levels and contribution rates over generations. Since Ontario Teachers' inception in 1990, almost 80% of the plan's pension funding sources have come from investment returns, with the remainder from member and government/designated employer contributions.

Ontario Teachers' is an active global investor with holdings in more than 50 countries. Our investment departments invest across six different asset classes that provide diversification and volatility management, and help us focus on both total-fund net returns and generating value above our performance benchmarks.

Ontario Teachers' investment portfolio earned a 10.4% total-fund net return in 2019, compared to the fund's benchmark return of 12.2%.

NET INVESTMENTS

As at December 31, 2019 (Canadian $ billions)



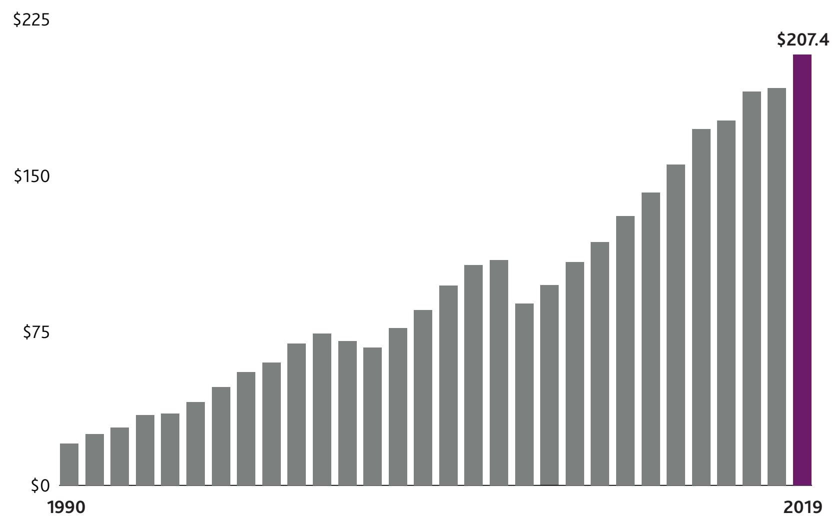
*Money market provides funding for investments in other asset classes, including the LDI program.

Ontario Teachers' 2019 results highlights

$207.4B NET ASSETS	**10.4%** TOTAL-FUND NET RETURN	**$20.2B** NET INVESTMENT INCOME
$(2.7)B VALUE-ADD BELOW BENCHMARK	**12.8%** TOTAL-FUND LOCAL RETURN	**79%** PENSION FUNDING SOURCES FROM INVESTMENT RETURNS

NET ASSETS[1]

As at December 31 (Canadian $ billions)



[1] Net assets include investment assets less investment liabilities (net investments), plus the receivable from the Province of Ontario, and other assets less other liabilities.

New department to invest in global disruptive technology

Teachers' Innovation Platform (TIP) focuses on late-stage venture and growth equity investments in companies that use technology to disrupt incumbents and create new sectors. It seeks to access significant global opportunities for investment in new businesses and sectors that are emerging because of unprecedented technological change. TIP takes minority stakes in companies that are solving challenging, high-value problems that exist in the market today. TIP isn't anchored to any particular region, meaning we can go anywhere in the world where there's opportunity.

TIP's investments to date include the following:

SpaceX – A leading designer, manufacturer and operator of advanced rockets and spacecraft. Founded in 2002 by Elon Musk, the company has a history of disruption, having developed the world's only proven and tested reusable launch system. With more than 75 successful launches, SpaceX is the world's leading private launch provider. The company has the capacity to launch more than 70 flights per year from its three active launch sites. SpaceX is also working to launch Starlink, a next-generation satellite network capable of connecting the globe with reliable and affordable broadband Internet services.

Sidewalk Infrastructure Partners (SIP) – TIP has joined Alphabet Inc. (Google's parent company) and Sidewalk Labs in a partnership to launch SIP. This new company will pursue innovative, technology-enabled infrastructure projects and the technologies that enable them. SIP will facilitate the application of technology to enable sustainable, distributed and intelligent urban infrastructure, creating jobs, improving mobility and providing more environmentally friendly infrastructure solutions.

KRY International – KRY is Europe's largest digital healthcare provider, which was founded in Sweden in 2014 to address Europe's highly strained healthcare systems by improving accessibility and convenience for consumers with a mass-market, digital solution. Using KRY, patients can see a doctor or a psychologist by video via a smartphone or tablet within minutes, rather than waiting for an in-person appointment. Europe's regulatory landscape is rapidly changing to support digitalization of healthcare services. Supported by this positive regulatory momentum, KRY has recently expanded into Norway, the U.K., France and, most recently, Germany, and is well positioned to capture future growth, given its best-in-class technology offering and proven track record.

Creating value through a venture incubator

A new venture incubator, Koru provides our portfolio companies with the opportunity to build upon novel ideas to develop proprietary technologies and design innovative experiences. Koru enables the creation, testing and ultimately the building of scalable new digital businesses. Koru demonstrates Ontario Teachers' partnership model of investing. It provides us with an entirely new way to work alongside our portfolio companies and help protect them against disruption by finding opportunities to add significant mutual value along the way.

Koru is already generating ideas in sectors including healthcare, utilities and transportation. Its first venture, Elovee, has the ability to bring the comfort of a familiar face and voice to people with dementia when those closest to them cannot be physically present. This advanced conversation software, which digitizes the voice and likeness of family members, was designed by our portfolio company Amica Senior Lifestyles. Elovee's ability to comfort and reassure is based on neuropsychology and dementia care best practice, and is refined through continuous use.

Wholly owned by Ontario Teachers', Koru is a partnership with BCG Digital Ventures the global corporate venture, investment and incubation arm of Boston Consulting Group. Having worked on three new ventures in 2019, Koru plans to launch four more in 2020.

Our focus on innovation has created unique investment opportunities. We look for those opportunities which present the best potential for long-term growth.

Investment strategy

Our investment strategy considers our risk profile, our plan assets and our liabilities. Our long investment time horizon supports our primary goal of generating the returns required to fund our members' current and future pensions. We combine our expertise in bottom-up asset selection with a top-down approach to risk and portfolio construction.

In doing so, we aim to deliver on the three objectives:

1. stable total-fund returns;
2. value-add above our benchmarks;
3. volatility management of the funding status.

Proactive risk management underpins our investment strategies, including our asset-mix selection, active management of our portfolio to add value, diversification and balance, and our approach to liquidity management including our investment funding strategy.

In 2019, we made further progress with our OneTeachers' strategy, which was first introduced in 2015 to institute a more unified, total-fund approach. This approach looks at both sides of the balance sheet – the assets and the liabilities – to effectively and efficiently allocate both capital and risk. Our focus is on strategic risk balance.

We consolidated our Private Capital (Direct Investments and Funds) and High Conviction Equities investments teams under the Equities investment department. This positions us to better compete globally for investment opportunities across the equity liquidity spectrum. We're also deepening our sector focus globally, which will present further investment opportunities.

PROACTIVE RISK MANAGEMENT

Ontario Teachers' needs to take an appropriate amount of risk to achieve the required rate of return to meet our liabilities. Ontario Teachers' actively manages plan funding and investment risk together. Our Strategy & Risk department, which reports to the CEO, provides guidance on appropriate risk levels and an overall total risk budget that allows the plan to meet its investment objectives. The Total Fund Management department allocates this risk budget across investment teams and regions based on where they see the best risk-adjusted opportunities.

The Investment Committee of the board reviews and approves the risk budget annually, monitors overall investment risk exposure, and reviews and approves risk management policies that affect the total portfolio, as well as new investments that result in significant risk exposure.

"In Capital Markets, our Execution Team is focused on reducing trading costs as a way to improve our plan returns. We interact with **more than 50** trading partners as we trade exposures across **more than 30** unique products. Leveraging data and advanced analytics to understand and optimize our trading patterns allows us to save millions in ongoing costs."

Gillian Brown, Senior Managing Director, Capital Markets

Management oversees investment and risk decisions through various committees. The CEO-Led Risk Committee (Investments) oversees the alignment of the investment program with the board's Enterprise Risk Appetite Statement and Ontario Teachers' Mission, Vision and Values. Management's Investment Committee is composed of senior investment professionals who oversee investment, risk and oversight decisions across the investment portfolio.

Ontario Teachers' has continually advanced its risk culture with sophisticated tools and processes to support risk measurement and management on a coordinated basis across the company, all asset classes and departments, as well as within each portfolio.

RESPONSIBLE INVESTING

Our responsible investing approach relies on a systematic process to identify, assess and manage material environmental, social and governance (ESG) factors in our investments. Companies that manage these factors well are more likely to be profitable and sustainable over the long term.

Our responsible investing approach starts with the board and reaches through every level of the organization. The board oversees responsible investing practices, approves ESG-related policies, receives regular reports on our responsible investing practices and is accountable for setting the enterprise risk appetite, among other functions. Our Chief Executive Officer approves and oversees our responsible investing strategy, chairs our Investor Stewardship Committee and oversees management's execution of the strategy.

Our Investments Leadership Team sets frameworks and oversees the integration of ESG in the investment process. Our investment professionals analyze the implications of ESG factors for each direct investment, across all stages of the investment process (when we're looking for investment opportunities, making our initial investment in a company and managing our investments once we are owners). They analyze and ensure that they are comfortable with the risk before proceeding with an investment.

Our Responsible Investing team leads, coordinates and supports ESG integration and engagement across the organization, while our Corporate Governance team leads our voting and corporate governance engagements in public markets.

Responsible investing at Ontario Teachers' uses four principles to make more informed investment decisions:

Integrate: We integrate ESG considerations into our investment process to manage risk and add value.

Engage: We engage with the companies we invest in to promote change and nurture success.

Influence: We use our influence as a global investor to create a supportive and sustainable business environment.

Evolve: We evolve to build our institutional knowledge and to keep ahead of the curve.

87 assets located in 12 countries

Cubico Sustainable Investments

Cubico is a global renewable energy platform that targets investments in onshore wind and solar electricity generation. Since Ontario Teachers' first invested in Cubico in 2015, the company has grown from 19 facilities located in seven countries to 87 assets in different stages of development located in 12 countries in the Americas, Europe and Australia. We have also been influential in the development of Cubico's global health and safety strategy and program. Read more about Cubico in our 2019 Responsible Investing Report.

Our airports make moves to reduce their carbon footprints

In 2019, Copenhagen Airport launched an ambitious climate strategy. In addition to achieving carbon neutral status during the year, its long-term climate strategy aims for Copenhagen to be an emission-free airport with emission-free transport to and from the airport by 2030, and for the entire airport, including air traffic, to be emission-free by 2050. Copenhagen Airport is the largest airport in Denmark and in 2019, 30.3 million people passed through the airport.

Towards the end of the year, London City Airport had its operations rated as carbon neutral. The airport received this recognition for its exceptional work in managing, reducing and offsetting all the CO_2 emissions under its control.

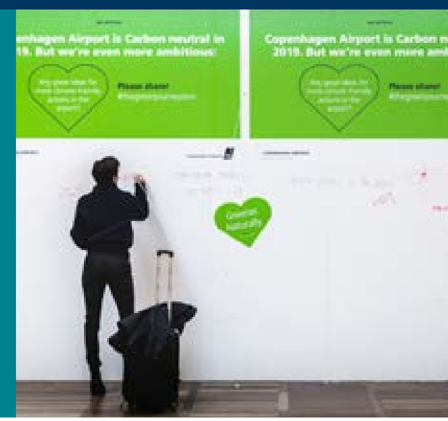
Both airports received their rating from the Airport Carbon Accreditation program, joining Brussels Airport, which achieved this goal in 2018.

Also in 2019, Birmingham Airport announced its commitment to become a net zero carbon airport by 2033, prioritizing zero carbon airport operations and minimizing carbon offsets. The airport has already cut its carbon emissions by 33% since 2013, and emissions per passenger by more than 50%, despite growing passenger numbers by 40%.

In an important step towards reducing its carbon footprint, Bristol Airport has switched to a 100% renewable electricity supply. This is aligned with the airport s plans to become carbon neutral by 2025.

Copenhagen and London City Airports

carbon neutral in 2019



ONTARIO TEACHERS' PENSION PLAN

ASSET-MIX SELECTION

Recognizing that asset-mix selection is an important driver of long-term performance, we devote considerable attention to choosing our asset mix and the emphasis we place on each asset class and geography.

With board oversight, the management team manages the asset mix under our OneTeachers' total-fund strategy. Management determines exposure to each asset class within ranges approved by the board.

As our investment departments overlap with several asset classes, we have provided a matrix illustrating their relationship in 2019 followed by a chart showing our detailed asset mix.

MAPPING DEPARTMENTS TO ASSET CLASSES

INVESTING DEPARTMENTS / Asset classes	EQUITIES	CAPITAL MARKETS	INFRASTRUCTURE & NATURAL RESOURCES	REAL ESTATE
Equity	●	●	●	
Fixed income		●		
Inflation sensitive		●	●	
Real assets		●	●	●
Credit	●	●		
Absolute return strategies	●	●		

DETAILED ASSET MIX

As at December 31

	2019		2018	
	Effective Net Investments at Fair Value (Canadian $ billions)	**Asset Mix %**	Effective Net Investments at Fair Value (Canadian $ billions)	Asset Mix %
Equity				
Publicly traded	**$ 35.8**	**18%**	$ 31.6	17%
Non-publicly traded	**39.3**	**19**	33.4	18
	75.1	**37**	65.0	35
Fixed income				
Bonds	**72.7**	**36**	58.2	31
Real-rate products	**20.4**	**10**	19.5	10
	93.1	**46**	77.7	41
Inflation sensitive				
Commodities	**17.6**	**9**	10.6	6
Natural resources	**8.2**	**4**	8.1	4
Inflation hedge	**10.3**	**5**	8.7	5
	36.1	**18**	27.4	15
Real assets				
Real estate	**28.7**	**14**	27.5	15
Infrastructure	**17.0**	**8**	17.8	9
Real-rate products	**–**	**–**	4.3	2
	45.7	**22**	49.6	26
Credit	**16.3**	**8**	15.2	8
Absolute return strategies	**16.5**	**8**	12.6	7
Overlay	**0.3**	**–**	(0.4)	–
Money market	**(79.1)**	**(39)**	(59.5)	(32)
Net investments[1]	**$ 204.0**	**100%**	$ 187.6	100%

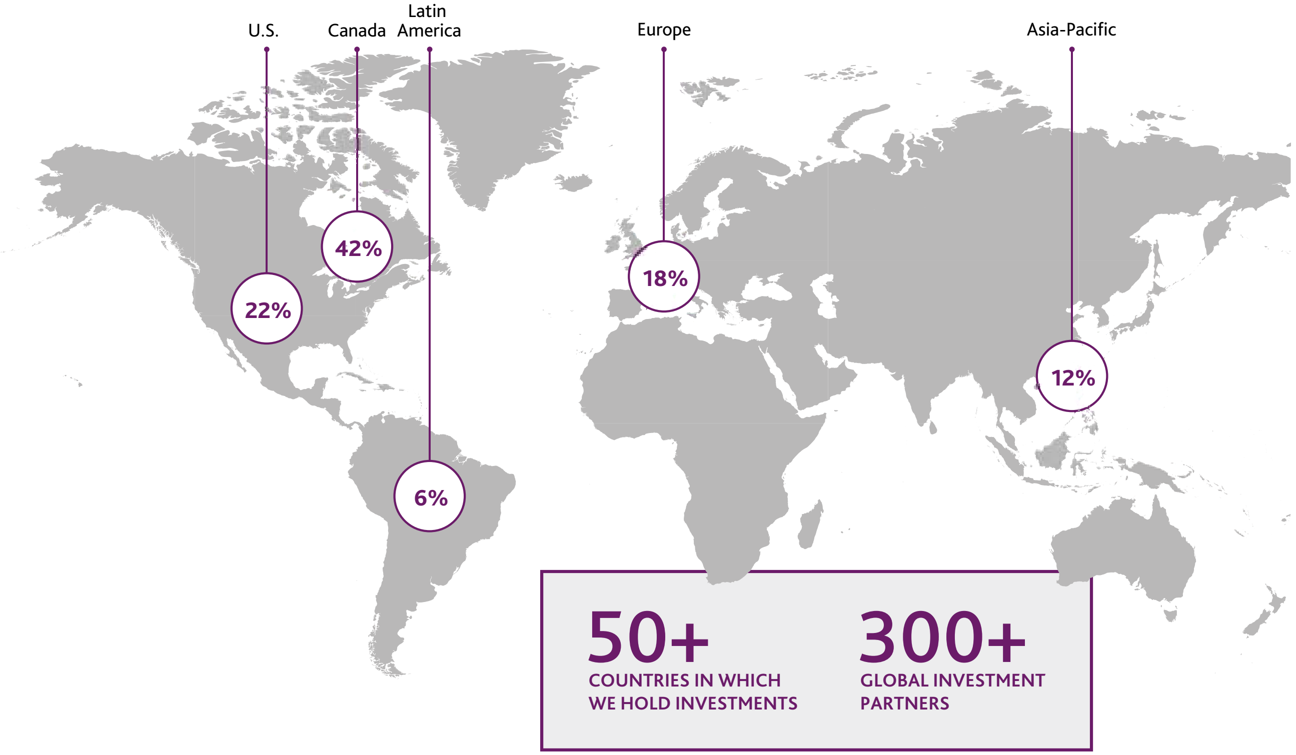
1 Net investments, which comprise investments less investment-related liabilities per the December 31, 2019, Consolidated Statements of Financial Position, exclude all other assets and liabilities.

DIVERSIFICATION

Total-fund diversification, through effective portfolio construction, is fundamental to our success. Diversification allows us to spread risk across key factors such as time periods, asset classes, geography and economic outcomes, which reduces volatility and the adverse impact of any one investment loss on the fund overall.

GEOGRAPHIC EXPOSURE[1]

As at December 31, 2019



[1] Based on country of primary listing, location of head office or location of property.

CURRENCY

We manage currency from a total-fund perspective and consider the currency risk as part of our overall portfolio construction. In certain circumstances, we will hedge to reduce our exposure to the currency risk that comes from investing globally.

CURRENCY EXPOSURE[2]

As at December 31, 2019 (Canadian $ billions)	
Canadian Dollar	130.3
United States Dollar	38.2
Euro	4.7
Brazilian Real	3.5
Chilean Peso	3.3
Japanese Yen	3.0
Chinese Renminbi	2.4
British Pound Sterling	2.4
Mexican Peso	2.0
Danish Krone	2.0
Australian Dollar	1.9
Other	10.9

[2] Includes foreign currency exposure from investments, net receivable from brokers and investment-related cash.

ONTARIO TEACHERS' PENSION PLAN

2019 PERFORMANCE

NET INVESTMENTS AND RATES OF RETURN BY ASSET CLASS

As at December 31	Net Investments (Canadian $ billions)	Rates of Return (percent)			
		1-Year		4-Year	
	2019	Actual	Benchmark	Actual	Benchmark
Equity	$ 75.1	12.4%	17.0%	10.4%	9.0%
Publicly traded	**35.8**	15.2	16.7	7.8	8.0
Non-publicly traded	**39.3**	9.4	17.4	12.8	10.1
Fixed income	93.1	6.3	6.3	3.1	3.1
Bonds	**72.7**	5.9	5.9	2.9	3.0
Real-rate products	**20.4**	7.5	7.5	2.8	2.8
Inflation sensitive	36.1	2.7	3.5	2.5	1.7
Commodities	**17.6**	8.0	8.1	2.5	2.5
Natural resources	**8.2**	2.1	4.9	4.6	2.5
Inflation hedge	**10.3**	(3.9)	(3.9)	–	–
Real assets	45.7	5.8	4.6	7.2	5.8
Real estate	**28.7**	6.2	7.3	6.6	7.5
Infrastructure	**17.0**	4.2	(0.3)	8.0	3.3
Credit	16.3	7.3	8.3	–	–
Absolute return strategies	16.5				
Overlay	0.3				
Money market	(79.1)				
Total	$ 204.0	10.4%	12.2%	6.6%	6.1%

The total-fund net return is calculated after deducting transaction costs, management fees and investment administrative costs, and is reported in Canadian dollars for five periods: one, four, five and 10 years, and since the current investment program began in 1990. Asset-class and local returns are before deducting investment administrative costs. Local returns are also before the translation to Canadian currency.

Ontario Teachers' produced a one-year total-fund net return of 10.4%, which was largely driven by strong returns in the equity and fixed income markets, along with positive gains across all asset classes.

Save for new transactions, in 2019, the increase in the value of the Equities private investment portfolio was primarily driven by portfolio company financial performance (e.g., EBITDA growth).

Ontario Teachers' compares its performance to a Canadian dollar-denominated composite benchmark, which is calculated by aggregating results from each of the asset-class benchmarks.

As often is the case in years when public equity markets have exceptional returns, Ontario Teachers' diversified portfolio trailed its benchmark. Strong returns in private assets did not keep up with robust public equity markets, many of which were up more than 20% during the year. In 2019, Ontario Teachers' underperformed its benchmark by 1.8% or $2.7 billion.

INVESTMENT PERFORMANCE
(percent)

	2019	2018	4-Year	5-Year	10-Year	Since Inception
Total-fund net return	**10.4**	2.5	6.6	7.8	9.8	9.7
Benchmark return	**12.2**	0.7	6.1	6.9	8.4	7.8
Return above benchmark	**(1.8)**	1.8	0.5	0.9	1.4	1.9

BENCHMARKS
Benchmarking is important because it allows board members, plan members and other stakeholders to evaluate the effectiveness of our strategies and activities relative to the risks taken. Appropriate benchmarks are established by a committee, chaired by the CEO. Any material or non-technical changes to total plan benchmarks must be approved by the Ontario Teachers' board.

Ontario Teachers' seeks to outperform its respective benchmark rates of return on a total-fund and asset-class basis. This outperformance is described as value-add. A complete list of benchmarks is available at otpp.com/benchmarks.

Investment cost management
Ontario Teachers' is committed to cost effectiveness and believes costs should be managed and linked to the investment value creation process. The board and management employ various tools to ensure that costs are appropriate and well managed.

Costs are also evaluated against peer plans by CEM Benchmarking Inc., an independent research company. Ontario Teachers' was low cost compared to our peers, primarily due to greater internal asset management.

The amount of invested capital, asset-class weightings and investing style are factors that affect asset management costs. Generally, the absolute costs of management increase as more capital is invested, which can be partly offset by economies of scale.

Managing assets in-house, combined with our strategic partnership model with external managers, is a cost-effective means to implement our investment strategies. However, our substantial investments in private assets and commitment to active management result in higher costs than if assets were deployed in lower-cost public securities and passive mandates. Ontario Teachers' also incurs costs to maintain our international offices, which are an integral factor in our ability to identify and participate in investment opportunities globally.

The strategic planning process aligns costs with strategy. Annual budgets are reviewed by the Audit & Actuarial Committee of the board. Expense policies are in place to ensure costs incurred are appropriate, and opportunities to improve asset management efficiency are regularly sought out.

Investment costs

In 2019, investment costs, including administrative expenses, management fees and transaction costs, were 76 cents per $100 of average net assets, compared with 67 cents per $100 in 2018.

What's included in administrative expenses?

Investment administrative expenses include staff salaries, incentives and benefits, premises and equipment, professional and consulting services, information services, communication and travel, and custodial, audit and board fees. Ontario Teachers' believes that certain investment programs can be most efficiently delivered using in-house talent. The costs related to employing in-house investment teams and associated supporting functions such as legal, operations and finance represent the majority of administrative expenses.

Administrative expenses were $615 million or 31 cents per $100 of average net assets in 2019, compared to $555 million or 30 cents per $100 in 2018. Administrative expenses increased by 10.8% due to continued strategic investments in technology, as well as higher salaries, incentives and benefits, professional and consulting services, and premises and equipment.

What are transaction costs?

Transaction costs are those directly attributable to the acquisition or sale of investments. Due diligence and advisory services, in areas such as financial, legal, tax, regulatory and ESG, are the most significant transaction costs that support private asset transactions. In the case of public securities, these costs primarily consist of commissions.

Transaction costs were $314 million in 2019, compared to $301 million in 2018.

Can you define management fees?

Ontario Teachers' selectively allocates capital to key external managers to access specialized talent and investment opportunities where it isn't efficient or practical to do it in-house. Through these relationships, Ontario Teachers' incurs both traditional management fees, which are typically based on the amount of capital allocated, and performance-based fees, which are based on returns above a predetermined threshold and can vary significantly from year to year. Management fees also include incremental costs incurred with external parties that are directly attributable to existing investments and are not related to acquisition or sale. We attempt to strike the right balance by negotiating so that these fees encourage alignment between the interests of Ontario Teachers' and the external managers.

In some cases, management and performance fees are incurred by entities in which Ontario Teachers' has invested, rather than directly by Ontario Teachers'. All such fees are reflected in the plan's net investment income. When directly invoiced, or when information is otherwise available from capital notices or other manager communications, management and performance fees are reported as such in Ontario Teachers' financial statements.

In 2019, management fees were $571 million, up from $405 million in 2018.

Asset-class review

The board approves ranges for allocations to various asset classes. Management determines exposure within the board-approved bands, based on the underlying risk factors in each asset class, expected returns, and the risk balance and other limits in the total-fund portfolio.

There are six asset classes:

EQUITY

Public and private equities aim to deliver long-term investment growth and value-added performance

FIXED INCOME

Provides security and steady income, hedges against interest rate risks inherent in the plan's liabilities and stabilizes total returns

CREDIT

Corporate and emerging market debt investments that capture a set of risk premiums

INFLATION SENSITIVE

Contributes to both diversification and protection against unexpectedly high inflation

REAL ASSETS

Real estate and infrastructure investments provide a hedge against inflation

ABSOLUTE RETURN STRATEGIES

Internal and external strategies that seek to capitalize on market inefficiencies and have a low correlation to markets

EQUITY

This asset class comprises public and private equities and, since January 1, 2019, its investment activities have been carried out either by the Capital Markets or Equities investment departments. Active programs are managed by Equities, while any investments not in an active program are managed passively by Capital Markets to maintain exposure to the equity markets at the weighting outlined in our asset mix.

This year, most global equity markets posted strong returns compared to 2018 when they were down. The Canadian S&P TSX 60 was up 21.9%, while the U.S. S&P 500 was up 31.5%.

The Equity asset class, which includes public equity and private equity, had a total return of 12.4% (18.1% local return), compared to its benchmark of 17.0% (local benchmark 22.9%). The total value of the Equity asset class increased to $75.1 billion at the end of 2019 from $65.0 billion a year earlier. The four-year annualized rate of return is 10.4%, exceeding the benchmark of 9.0%.

Returns for our public equity and private equity are separated and described below.

Public equity

Public equity net investments totaled $35.8 billion at December 31, 2019, compared to $31.6 billion at the end of 2018. The portfolio produced a return of 15.2% (local return 21.4%), just slightly below its benchmark return of 16.7% (22.8% local benchmark). The four-year annualized rate of return is 7.8%, compared to a benchmark of 8.0%.

Ontario Teachers' successfully bought an interest in Barry Callebaut AG in a private placement. Zurich-based Barry Callebaut AG is the world's leading manufacturer of high-quality chocolate and cocoa products, whose activities range from sourcing and processing cocoa beans to producing the finest chocolates, including chocolate fillings, decorations and compounds.

Public equity portfolio highlights

As at December 31, 2019 (based on total assets)

$35.8B NET INVESTMENTS

15.2% RETURN

21.4% LOCAL RETURN

16.7% BENCHMARK

22.8% LOCAL RETURN BENCHMARK

PORTFOLIO SPLIT BY SECTOR

17%	FINANCIALS	10%	INFORMATION TECHNOLOGY	4%	ENERGY
15%	CONSUMER DISCRETIONARY	9%	HEALTHCARE	3%	UTILITIES
14%	INDUSTRIALS	9%	COMMUNICATION SERVICES	2%	REAL ESTATE
12%	CONSUMER STAPLES	5%	MATERIALS		

High Conviction Equities

The High Conviction Equity (HCE) team invests across the equity asset class, along the liquidity range of pre-IPO, private investments in public equity (PIPEs) and high conviction positions in public companies. We apply our experience and discipline as an accomplished private equity investor to investing in companies that are public or on a growth trajectory to go public. Key to our investment philosophy is to partner with excellent management teams and companies with strong competitive potential.

Private equity

The Private Capital team invests directly in private companies, either on its own or with partners, and indirectly through private equity funds. It seeks to add value to its portfolio companies by assisting in long-term strategic planning, creating and encouraging high-performing management teams and boards, and ensuring good governance practices.

Private equity net investments totaled $39.3 billion at December 31, 2019, compared to $33.4 billion at the end of 2018. Assets increased primarily because of acquisitions and higher asset valuations, and strong performance from direct investments and the long-term equity program, which were partially offset by several dispositions during the year.

As part of a shareholder group led by Pátria Investimentos, Ontario Teachers' acquired a 9.4% stake in Smartfit Escola de Ginástica e Dança S.A. (Smart Fit), marking its first direct investment in Latin America. Smart Fit is the largest fitness chain in Latin America, and the third largest globally, serving 2.5 million members across 739 locations in 10 countries. Founded in 1996, the company is headquartered in São Paulo, Brazil.

Private equity portfolio highlights

As at December 31, 2019 (based on total assets)

$39.3B
NET INVESTMENTS

9.4%
RETURN

14.6%
LOCAL RETURN

17.4%
BENCHMARK

23.0%
LOCAL RETURN BENCHMARK

PORTFOLIO SPLIT BY SECTOR

24%	CONSUMER AND RETAIL
22%	INDUSTRIALS
18%	TELECOM, MEDIA AND TECHNOLOGY
13%	FINANCIAL SERVICES
11%	HEALTHCARE
10%	ENERGY AND POWER
2%	VENTURE CAPITAL AND GROWTH EQUITY

Inmarsat: A world leader in global satellite communications

Ontario Teachers' was part of the consortium that acquired Inmarsat plc. Inmarsat is the world leader in global, mobile satellite communications and has more than 40 years of experience in designing, launching and operating satellite-based networks. The company has an in-orbit fleet of 13 owned and operated satellites in geostationary orbit.

Inmarsat provides governments, commercial enterprises and humanitarian organizations with mission-critical voice and high-speed data communications on land, at sea and in the air. The company is leading projects in Nigeria, Indonesia and the Philippines that use satellite connectivity to tackle challenges in healthcare, sustainable fishing, and disaster response. Inmarsat continues to push the boundaries of global communications technology.

FIXED INCOME

Ontario Teachers' uses fixed income investments to provide security and steady income, hedge against interest rate risks and stabilize total returns. Over the past few years, we've been transitioning the asset mix to a more balanced approach from a risk perspective and, as part of this transition, we've increased our allocation to the fixed income asset class.

Ontario Teachers' owns a diversified portfolio of Canadian and international government bonds, provincial bonds and real-return bonds. Real-return bonds provide returns that are indexed to inflation, as measured by the Consumer Price Index, and include debt issued primarily by the Canadian and U.S. federal governments.

Fixed income assets totaled $93.1 billion at the end of 2019, compared to $77.7 billion a year earlier. The diversified bond portfolio had a return of 6.3%, matching the benchmark return. The local return for fixed income was 7.8% (local benchmark 7.8%). The four-year annualized rate of return was 3.1%, matching the benchmark return.

Liability Driven Investment program

Ontario Teachers' employs a Liability Driven Investment (LDI) program to mitigate the risk of changes in the real discount rate. As long-term real interest rates are an important input in the discount rate decision, an allocation to real-rate products is maintained, and reviewed annually, with the purpose of hedging against changes to the discount rate. This funded program is risk-reducing and supports our objective of managing the plan's funding ratio volatility through a reduction in the plan's exposure to changes in interest rates inherent in the plan's pension liabilities.

The LDI program is mainly funded using bond repurchase agreements. This allows Ontario Teachers' to retain economic exposure to the underlying real-rate bonds in a cost-effective manner.

Fixed income portfolio highlights

As at December 31, 2019 (based on total assets)

$93.1B
NET INVESTMENTS

6.3%
RETURN

7.8%
LOCAL RETURN

6.3%
BENCHMARK

7.8%
LOCAL RETURN BENCHMARK

PORTFOLIO SPLIT BY SECTOR

- 35% FOREIGN DEVELOPED SOVEREIGN
- 32% CANADIAN GOVERNMENT
- 22% REAL-RATE PRODUCTS
- 11% PROVINCIAL BONDS

CREDIT

This asset class includes corporate and emerging market debt. Credit is a component of a company's capital structure that contains characteristics of both equities and fixed income. Investing in credit allows Ontario Teachers' to capture default, liquidity and funding risk premiums.

At December 31, 2019, the total value of credit assets was $16.3 billion, compared to $15.2 billion a year earlier. Total return for 2019 was 7.3% (local return 12.9%), compared to a return of 6.3% for the same period last year. The return for 2019 was just below the benchmark of 8.3% (local benchmark 13.9%). As the asset class was established in 2017, return data is unavailable on a four-year basis.

INFLATION SENSITIVE

The inflation sensitive asset class includes natural resources (oil and gas, timberland, agriculture and aquaculture, and mining), commodities and inflation hedge. These types of assets have been grouped together due to the positive relationship they exhibit with inflation fluctuations: they can provide stable risk-adjusted returns, diversification and protection against unexpectedly high inflation. This is important because, when the plan is fully funded, members' pension benefits increase with inflation.

Inflation sensitive net assets totaled $36.1 billion at the end of 2019, compared to $27.4 billion a year earlier. The return of 2.7% (7.5% local return) was slightly below the benchmark of 3.5% (local benchmark 9.0%). The four-year annualized rate of return of 2.5% exceeds the benchmark return of 1.7%.

In 2019, Ontario Teachers' invested in Goldcrest Farm Trust (Goldcrest), a privately held real estate investment trust (REIT) that invests in U.S. farmland. This is Ontario Teachers' second investment in Goldcrest. Launched in 2015, the REIT has invested in more than 70,000 acres of farmland across the U.S.

Our investment with Goldcrest allows us to efficiently deploy capital in the highly fragmented market for U.S. row crop farmland. Goldcrest has a strong and disciplined management team who have successfully sourced and acquired a high-quality, diversified portfolio. Water management is a major consideration in evaluating the opportunity of any agriculture investment, and Goldcrest employs a variety of leading practices tailored to each property. Row crops are a key component of our agriculture strategy as they deliver stable cash flows, strong risk-adjusted returns and inflation protection.

Credit portfolio highlights

As at December 31, 2019 (based on total assets)

$16.3B NET INVESTMENTS	7.3% RETURN	12.9% LOCAL RETURN
	8.3% BENCHMARK	13.9% LOCAL RETURN BENCHMARK

PORTFOLIO SPLIT BY SECTOR

- 36% EMERGING MARKET SOVEREIGN
- 27% INVESTMENT GRADE
- 23% HIGH YIELD
- 14% LEVERED LOANS

Inflation sensitive portfolio highlights

As at December 31, 2019 (based on total assets)

$36.1B NET INVESTMENTS	2.7% RETURN	7.5% LOCAL RETURN
	3.5% BENCHMARK	9.0% LOCAL RETURN BENCHMARK

PORTFOLIO SPLIT BY SECTOR

- 49% COMMODITIES
- 29% INFLATION HEDGE

NATURAL RESOURCES:

- 12% OIL AND GAS
- 6% TIMBERLAND
- 3% AGRICULTURE AND AQUACULTURE
- 1% MINING

REAL ASSETS

Real assets include real estate and infrastructure investments. Strategically, these assets provide returns that are often linked to inflation and therefore are an effective hedge against the cost of paying inflation-protected pensions.

At December 31, 2019, the total value of real assets was $45.7 billion, compared to $49.6 billion at year-end 2018. Total returns for 2019 were 5.8% (local return 8.9%), compared to a benchmark of 4.6% (local return 7.6%). The four-year annualized rate of return is 7.2%, above the benchmark of 5.8%.

Returns for our real estate and infrastructure assets are separated and described below.

Real estate

The real estate portfolio is managed by Ontario Teachers' wholly owned subsidiary, The Cadillac Fairview Corporation Limited, which maintains a diversified portfolio of high-quality retail and office properties that provide dependable cash flows.

The net asset value of real estate holdings was $28.7 billion at year-end 2019, compared to $27.5 billion the previous year. The increase in net assets resulted from valuation growth in Canadian properties, partially offset by losses in U.S. investments and the repayment of maturing third-party debt. The four-year annualized rate of return for the real estate portfolio was 6.6% compared to the four-year average benchmark of 7.5%, with the underperformance due to U.S. investment losses.

Net real estate income of $1.5 billion for 2019 was $0.1 billion higher than the previous year due to higher valuation gains on our investment in Multiplan.

Real estate portfolio highlights

As at December 31, 2019 (based on total assets)

$28.7B NET INVESTMENTS	6.2% RETURN	7.0% LOCAL RETURN
	7.3% BENCHMARK	7.9% LOCAL RETURN BENCHMARK

PORTFOLIO SPLIT BY SECTOR

57%	CANADIAN RETAIL	9%	EMERGING MARKETS
28%	CANADIAN OFFICE	4%	U.S. INVESTMENTS
		2%	OTHER

At year end, the retail occupancy rate (spaces less than 15,000 square feet) was 91% (92% in 2018), while the office occupancy rate was 93% (94% in 2018).

Cadillac Fairview and Lincoln Property Company: A constructive partnership

Cadillac Fairview announced an $800 million multifamily fund in December, as part of a new strategic partnership with Lincoln Property Company.

Lincoln Property Company is the second largest multifamily manager in the U.S. with more than 191,000 units under management – and the fifth largest multifamily developer.

The fund focuses on the development and acquisition of high-quality multifamily assets in top U.S. markets.

The announcement of the fund follows the closing of a strategic partnership between Cadillac Fairview and Lincoln Property Company in May. To date, the partnership has commenced two multifamily development projects: a 254-unit community in Boston, Massachusetts, and a 374-unit community in Fort Lauderdale, Florida.

Infrastructure

Ontario Teachers' seeks to build an infrastructure portfolio that will steadily increase in value, provide predictable cash flow and correlate to inflation. Our infrastructure assets include investments in toll roads, airports, seaports, conventional and renewable energy, water distribution and wastewater plants. Ontario Teachers' infrastructure assets are global in nature, and are principally located in the U.K., Europe, Chile, the U.S., Canada and Australia.

The net value of the infrastructure portfolio decreased to $17.0 billion at the end of 2019, compared to $17.8 billion a year earlier. Infrastructure assets delivered a one-year return of 4.2% (local return 10.5%), outperforming the benchmark return of (0.3)% (local benchmark return 5.8%). The four-year annualized rate of return is 8.0%, exceeding the benchmark of 3.3%.

Infrastructure portfolio highlights

As at December 31, 2019 (based on total assets)

$17.0B NET INVESTMENTS	4.2% RETURN	10.5% LOCAL RETURN
	(0.3)% BENCHMARK	5.8% LOCAL RETURN BENCHMARK

PORTFOLIO SPLIT BY SECTOR

63%	TRANSPORTATION AND LOGISTICS
20%	ENERGY
15%	WATER AND WASTEWATER TREATMENT
2%	OTHER

First investment in Asian infrastructure

In 2019, Ontario Teachers' made a US$250 million commitment to the National Investment and Infrastructure Fund (NIIF) of India. The NIIF Master Fund invests in infrastructure and related sectors in India, the world's sixth largest economy. The fund focuses on investment in transportation, energy and infrastructure sectors over a 15-year investment horizon.

As part of its commitment to the Master Fund, Ontario Teachers' took a corresponding ownership stake in the manager, NIIF. Anchored by the Government of India, the investment platform is made up of international and Indian investors and has a mandate to invest equity capital in domestic infrastructure. While NIIF benefits from its association with the government, the fund manager is independent in its investment decisions, being majority owned by institutional investors and managed professionally by a team with experience in investments and infrastructure. NIIF funds have investment mandates to invest in infrastructure assets and related businesses that are likely to benefit from the long-term growth trajectory of the Indian economy.

ABSOLUTE RETURN STRATEGIES

Ontario Teachers' uses absolute return strategies to generate positive returns that have low correlation to other asset returns. Internally managed absolute return strategies generally look to capitalize on market inefficiencies. Ontario Teachers' also uses external hedge fund managers to earn uncorrelated returns, to access unique strategies that augment returns and to diversify risk.

In 2019, assets employed in absolute return strategies totaled $16.5 billion at year end, compared to $12.6 billion in 2018.

OVERLAY

Overlay includes strategies that manage the foreign exchange risk for the total fund.

MONEY MARKET

The money market allocation represents the net implicit funding for the overall asset mix. Money market includes exposures such as bond repurchase agreements used for managing day-to-day liquidity, implied funding from derivatives used to efficiently gain passive exposure to global equity and commodity indices, short-dated and term unsecured funding guaranteed by Ontario Teachers', and liquidity reserves. These activities result in a negative net money market exposure in the overall asset mix, and the amount is expected to vary from year to year based on the implementation of the asset mix.

The funding of the money market investment program allows Ontario Teachers' to:

- hedge the interest rate risk associated with our pension liabilities;
- achieve the optimal overall risk-return profile for the investment portfolio;
- obtain exposure to certain markets more efficiently;
- increase our holdings of lower-risk asset classes that generate attractive risk-adjusted returns;
- maintain sufficient liquidity.

LIQUIDITY MANAGEMENT AND INVESTMENT FUNDING STRATEGY

Liquidity and funding management is overseen by Total Fund Management (TFM). With a holistic view of the overall portfolio, TFM is able to develop a perspective for how plan resources can be effectively utilized to support the investment portfolio.

This includes having sufficient cash on hand to meet current liabilities and liquidity in place in the event of disruptive markets. This also seeks to take advantage of investment opportunities. The liquidity position and funding risk are therefore managed carefully. Ontario Teachers' has an established liquidity governance framework and reporting requirements. We test our liquidity position regularly through simulations of major market events, and the board's Investment Committee receives regular updates on Ontario Teachers' liquidity position.

Changing rules and regulations affecting banks may indirectly impact Ontario Teachers', so we continue to adapt and enhance the way that we manage, oversee, measure and report on liquidity and funding risks.

Ontario Teachers' investment funding strategy is focused on diversifying the sources of investment funding, managing the cost and maturity profile, maintaining a presence in key funding markets, and supporting the overall management of the currency exposure of our global investment program.

The investment funding strategy contains both short- and long-term funding sources, which collectively diversify and mitigate risk. Examples of short-term funding include bond repurchase agreements, commercial paper and securities lending agreements, while long-term funding includes unsecured term-debt issuance (as described below).

Ontario Teachers' Finance Trust (OTFT), an independent entity, plays an important role in our overall strategy. OTFT issues commercial paper and term debt that is fully, unconditionally and irrevocably guaranteed by Ontario Teachers'.

In addition to OTFT, Ontario Teachers' Cadillac Fairview Properties Trust (OT-CFPT) provides further investment funding diversity through its issuance of term debt. OT-CFPT is backed by high-quality Canadian retail and office properties in the real estate portfolio and is non-recourse to Ontario Teachers'.

More information on Ontario Teachers' investment funding strategy is available in note 2h to the financial statements and on the Investor Relations section of otpp.com.

Strong investment performance is a reflection of our approach to governance. We have a strong, independent board that ensures Ontario Teachers' is run like a business.

ONTARIO TEACHERS' PENSION PLAN

Governing with excellence

Highest standards of stewardship and leadership

Ontario Teachers' believes good governance is good business because it helps companies deliver long-term value. As a plan administrator, we measure ourselves against best practices for governance, internal controls, risk management and stewardship because this helps us deliver long-term value to members.

Since its inception, Ontario Teachers' has been overseen by independent, professional board members who are required to make decisions in the best interest of all beneficiaries of the plan. The plan sponsors, the Ontario government and OTF, each appoint five board members and they jointly select the chair. This governance structure plays a crucial role in the plan's success.

Role of the board

The board is independent and oversees management of the pension fund and administration of the pension plan. Board members are professionals with financial and governance expertise and are typically drawn from the fields of accounting, actuarial science, banking, business, economics, education, information technology and investment management.

The board is responsible for administering the pension plan and managing pension funds in accordance with the *Teachers' Pension Act* (Ontario), the *Pension Benefits Act* (Ontario) and the *Income Tax Act* (Canada) as well as all other matters set out in the Partners' Agreement. Day-to-day investment management and plan administration is delegated to the President and CEO and his executive team. No member of management is a board member.

Through six committees, board members review progress against management's stated objectives and confirm that management's strategies and decisions are in the best interests of all plan beneficiaries. The six standing committees are Investment, Audit & Actuarial, Governance, Human Resources & Compensation, Operational Risk, and Benefits Adjudication. The Investment Committee includes all board members.

The board is responsible for ensuring that a robust CEO and senior management succession plan is in place and, in support of this, a Succession Committee was created in 2018. The purpose of the committee was to review the process and long-term succession planning to identify the skills, experiences and competencies for leadership candidates. The committee completed its mandate following the appointment of Jo Taylor as the new President and CEO, effective January 1, 2020.

Board members approve strategic plans, budgets, risk appetite, the acceptable range of risk, investment policies, benchmarks, performance, compensation planning and succession plans recommended by management. They monitor investment, operational, strategic and governance risks and ensure appropriate mitigation plans are in place. They review and approve the unaudited, mid-year consolidated financial statements and the audited consolidated financial statements.

The board conducts regular preliminary funding valuations to assess the pension plan's long-term financial health. The results of the preliminary funding valuations are reported to the plan sponsors. The board works closely with the independent actuary in setting actuarial assumptions for these valuations, including the discount rate, with input from management. The Canadian Institute of Actuaries Standards of Practice require that each assumption is independently reasonable and that assumptions are appropriate in aggregate.

Board committees

The **Audit & Actuarial Committee** is responsible for oversight of financial reporting, accounting systems, internal controls over financial reporting, and certain corporate governance-related matters. The external actuary, external auditor and internal auditor are directly accountable to the committee.

The **Benefits Adjudication Committee** is a standing committee established to consider and determine appeals as provided in Section 87 of Schedule 1 of the *Teachers' Pension Act*. The committee considers appeals from the decisions of Ontario Teachers' staff concerning a person's entitlement to, or the amount of, a pension benefit. Once a decision is made, the committee communicates its ruling in writing.

The **Governance Committee** is a standing committee established to assist Ontario Teachers' in fulfilling its governance responsibilities. This involves reviewing and reporting to the board on Ontario Teachers' system of governance, including changes to the Partners' Agreement, the Corporate Governance Principles and Proxy Voting Guidelines, the Code of Conduct and the Anti-Bribery/Anti-Corruption Policy. The committee also helps set the descriptions for positions and the terms of reference for the board's standing committees.

The **Human Resources & Compensation Committee** (HRCC) provides oversight and recommendations on succession, compensation, performance results, employee relations and overall human resource matters. The HRCC focuses on issues pertaining to the CEO, and executives reporting directly to the CEO and the Chief Investment Officer.

The **Investment Committee** is a standing committee established to assist Ontario Teachers' in fulfilling its responsibilities as manager of the pension fund, including overseeing the investment of assets, investment-related liabilities and management of surplus (deficit) of the plan.

The **Operational Risk Committee** assists the board in fulfilling its strategic oversight responsibilities in relation to information technology, data governance, procurement and vendor risk management, enterprise project management, operations including the trade lifecycle, continuity management, and security, both IT and physical.

2019 board highlights

A key area of focus for the board in 2019 was the selection and appointment of Jo Taylor as the fourth President and CEO of Ontario Teachers'. Board education was a further focus, particularly with two new members joining. The board education program was expanded to include visiting portfolio companies and key partners with Ontario Teachers' investment managers.

During 2019 Cathy Cranston and George Lewis joined the board. Cathy is a member of the Audit & Actuarial and Operational Risk Committees, and George is a member of the Governance and Human Resources & Compensation Committees. Effective March 31, 2019, David Smith retired from the board after serving more than four terms, and Barbara Palk and Daniel Sullivan also retired on December 31, 2019 after each serving four terms on the board.

In September, the board approved the principles-based Enterprise Risk Appetite Statement. This document sets the overall tone for risk management and establishes the guidelines and boundaries for management.

In addition, the board oversees annual investment objectives and reviews transactions above pre-set limits. These limits were raised in 2019 to provide more agility and to further support the investment team. The board and management are responsible for investment decisions; the plan sponsors are not involved in such decisions.

Board members met 13 times in 2019 for full board meetings and 11 times for Investment Committee meetings. In addition, the Governance Committee met three times, the Human Resources & Compensation Committee met seven times, the Audit & Actuarial Committee met five times, the Operational Risk Committee met three times and the Benefits Adjudication Committee held two general meetings and two member appeal hearings. The Succession Committee also met eight times.

Board members

Board and committee meeting attendance was 98% in 2019. Please visit otpp.com for full biographies of board members and committee mandates.

STEVE McGIRR, CHAIR

Appointed 2015 | Chair since 2019 | Attendance 100%

Former Senior Executive Vice-President and Chief Risk Officer, CIBC; Senior Advisor, Lazard Canada Inc.; Member, Queen's University Cabinet; Former director and Investment Committee chair of Wellspring Cancer Support Network

BILL CHINERY

Appointed 2015 | Attendance 100%

Former CEO, BlackRock Asset Management; Chair, the Independent Review Committee for Sun Life Investment Management Institutional Pooled Funds; Member, Advisory Committee of GreenSky Capital Inc.

Chair, Human Resources & Compensation and Succession Committees; Vice-Chair, Investment Committee; Member, Audit & Actuarial Committee

CATHY CRANSTON

Appointed 2019 | Attendance 92%

Former Treasurer, BMO Financial Group; Director, Toromont Industries Ltd.; Former director, Bank of Montreal Mortgage Corporation, BMO Trust Company, BMO InvestorLine and BMO Harris Investment Management Inc.

Member, Audit & Actuarial and Operational Risk Committees

PATTI CROFT

Appointed 2016 | Attendance 100%

Former Chief Economist, RBC Global Asset Management, Sceptre Investment Counsel, TD Canada Trust, and Phillips, Hager and North; Vice-Chair, Ontario Pension Board; Former director and founding member, Women in Capital Markets; Former director, International Foundation for Employee Benefit Plans, Canadian Medical Association Holdings Inc. and the Boilermakers' National Pension Plan Canada

Chair, Benefits Adjudication and Governance Committees; Member, Audit & Actuarial, Human Resources & Compensation and Succession Committees

CINDY FORBES

Appointed 2020 | Attendance N/A

Global Chief Analytics Officer, Manulife; Former Chief Actuary and former Chief Financial Officer (Asia), Manulife; Chairperson, Board of Governors, University of Waterloo

Member, Audit & Actuarial, Human Resources & Compensation and Operational Risk Committees

LISE FOURNEL

Appointed 2016 | Attendance 100%

Former Senior Vice-President and Chief Information Officer, Air Canada; Board member, Desjardins Financial Security; Member of the Technology Committee on the board of l'Université de Montréal; Former board member, l'Université de Montréal, Tourisme Montréal, CIREM, and Musée Pointe-à-Callière

Chair, Operational Risk Committee; Member, Governance Committee

GENE LEWIS

Appointed 2018 | Attendance 100%

Former General Secretary, Elementary Teachers' Federation of Ontario; Former President, Ontario Public School Teachers' Federation; Former member, Ontario Teachers' Sustainability Workgroup and Partners' Consultative Committee

Vice-Chair, Benefits Adjudication Committee;
Member, Audit & Actuarial and Operational Risk Committees

KATHLEEN O'NEILL

Appointed 2016 | Attendance 100%

Former Executive Vice-President, Personal & Commercial Development, and Head of Small Business Banking, BMO Bank of Montreal; Former partner, PriceWaterhouse Coopers; Board member, ARC Resources Inc. and Finning International Inc; Former board member, Cadillac Fairview; Past chair, St. Joseph's Health Centre Foundation and St. Joseph's Health Centre, Toronto

Chair, Audit & Actuarial Committee; Member, Operational Risk and Succession Committees

M. GEORGE LEWIS

Appointed 2019 | Attendance 88%

Former Group Head, Wealth Management and Insurance, RBC; Director, Cenovus Energy, Legal & General Group plc, the AOG Group, the Canadian Film Centre and the Anglican Diocese of Toronto Foundation; Former director, Enbridge Income Fund Holdings, Ontario Power Generation, Operation Springboard, the Centre for Addiction and Mental Health, the Toronto Symphony Orchestra and the Holland Bloorview Foundation

Member, Governance and Human Resources & Compensation Committees

JOHN MURRAY

Appointed 2014 | Attendance 100%

Former Deputy Governor, Bank of Canada; Adjunct professor, Queen's University; Former assistant professor, University of British Columbia; Visiting assistant professor, University of North Carolina; Former lecturer, Princeton University; Member, Investment Committee, Canadian Medical Protective Association; Senior Fellow, C.D. Howe Institute

Member, Audit & Actuarial and Human Resources & Compensation Committees

The board has an important oversight role in ensuring that Ontario Teachers' is in compliance with legislative and regulatory requirements.

Legislative and regulatory update

REGULATORY OVERSIGHT

The Financial Services Regulatory Authority (FSRA) officially began regulating financial services and pensions in Ontario on June 8, 2019. Since its launch, F SRA has created several advisory committees to provide advice and feedback to FSRA on key matters related to the pension sector. Ontario Teachers' continues to engage with FSRA's management and board, including through these advisory committees, on matters such as FSRA's priorities.

Bill 132, *Better for People, Smarter for Business Act, 2019* received Royal Assent in the Ontario legislature on December 10, 2019. This bill includes changes to the *Pension Benefits Act* with respect to, among other things, family law matters, electronic communications between members and plan administrators, and FSRA rule-making authority.

ADVOCACY

We interact with regulatory agencies and government officials around the world on a variety of investment and pension administrative matters, advocating for clear and consistent rules and sharing our expertise on relevant public policy issues.

TAXATION

The global tax landscape is constantly evolving: tax policies shift and scrutiny by tax authorities is increasing. In response, Ontario Teachers' employs a conservative approach to tax risk and planning. We comply with all applicable tax laws and regulations in the countries where we invest, and monitor emerging trends and changes in tax laws to confirm that our investments remain in compliance.

As a global investor, we believe it is important for governments to pursue clarity and predictability in tax laws, and we welcome the opportunity to engage in consultations on tax policy matters with authorities and policy-makers worldwide.

More detail on our approach to taxation is available on our website. Please see "Tax Strategy" in the Investment Performance section of otpp.com.

Report from the Human Resources & Compensation Committee

The Human Resources & Compensation Committee (HRCC) is pleased to share with you an overview of our approach to assessing performance and how it aligns with the pay of our employees. Our compensation framework is designed to reward, over the long term, outstanding performance within the bounds of our risk budget. It is primarily focused on:

- paying for performance;
- attracting and retaining top investment, corporate, and member services talent;
- delivering on our pension promise;
- living Ontario Teachers' mission, vision and values.

ONTARIO TEACHERS' 2019 PERFORMANCE

Under our compensation framework, the overarching driver is the performance of the total-fund. The one-year total-fund net return was 10.43%. The one-year total-fund return was $2.72 billion below our benchmark, and our four-year cumulative value add was $4.49 billion.

FISCAL 2019 PAY DECISIONS

Over the past four years, Ontario Teachers' total-fund performance relative to our compensation thresholds has been very strong, resulting in combined total-fund performance exceeding the performance multiplier of 2.0x target. Management and the board assessed Ontario Teachers' overall performance relative to a corporate scorecard and deemed, based on the metrics, that this was also very strong, resulting in a multiplier of 1.73x target. The board assessed Mr. Mock against his individual objectives and determined a multiplier of 2.3x target for 2019. The weighted average of factors resulted in an overall incentive multiplier for Mr. Mock of 1.96x target.

Overall, the HRCC believes the compensation paid for fiscal 2019 is appropriate and aligned with the objectives of Ontario Teachers'.

Compensation Discussion & Analysis

The Compensation Discussion & Analysis explains Ontario Teachers' approach to compensation, the various elements of our pay programs, and the remuneration paid to our named executive officers (NEOs). In fiscal 2019, our NEOs were:

- Ron Mock, President and Chief Executive Officer (CEO);
- David McGraw, Chief Financial Officer (CFO);
- Ziad Hindo, Executive Managing Director (EMD) and Chief Investment Officer (CIO);
- Jane Rowe, EMD, Equities; and
- Jo Taylor, EMD, Global Development.

Our compensation framework

OUR COMPENSATION PHILOSOPHY AND OBJECTIVES

Ontario Teachers' compensation framework has been developed on a foundation of pay-for-performance to attract, reward, and retain top performing talent. At Ontario Teachers' we are committed to developing talent with a focus on creating an organization that is diverse and inclusive globally.

Our compensation programs consist of base salary, annual incentive, and long-term incentive and are structured to ensure that there is direct alignment between the long-term performance of the fund and the compensation paid to senior management.

Our compensation framework is designed to:

Align the enterprise	All employees are part of the same compensation framework, with a focus on total-fund returns and risk, driven by collaboration and innovation across groups and asset classes, as well as service to our members, efficiency, and managing costs.
Motivate and reward top performance over the long-term	Incentive compensation makes up a significant portion of total compensation, particularly for more senior employees, to align with Ontario Teachers' pay-for-performance culture. Further, to emphasize performance over the long-term, senior employees generally receive more of their incentive compensation in the form of long-term incentives relative to the market.
Ensure market competitive pay levels and mix to attract and retain high calibre employees	The compensation framework is aligned with the market, considering the various skill sets required to achieve the organization's collective goals. At expected levels of performance, the framework aims to pay around market median, with the opportunity for employees to earn top quartile pay in years of exceptional performance.

Our compensation framework is designed to:

Enhance the link between pay and employee behaviours	In measuring employees' individual performance, there is explicit focus on not only what was accomplished, but how employees' behaviours aligned with Ontario Teachers' mission, vision, and values – working in the best interest of the enterprise.
Balance multiple time horizons	Investment performance is measured historically over four years to ensure a longer-term focus aligned with plan beneficiaries. On balance, individual performance, member satisfaction, and the operational and strategic initiatives required to ensure the continuous improvement and success of the organization are measured on an annual basis.
Align pay with employees' level of accountability	The compensation framework takes into account employees' potential to impact performance by ensuring evaluations emphasize the areas over which they have most control (e.g. for junior employees, the focus is on individual performance; for senior employees, more emphasis is placed on the performance of Ontario Teachers' as a whole).
Provide managers with flexibility to make the "right" pay decision	Structured discretion is embedded in the framework to ensure pay decisions are more than just formulaic outcomes. Managers have the necessary tools to ensure a holistic assessment of performance drives the ultimate pay package for each employee. Senior officers review pay decisions to ensure equity through multiple lenses (i.e. by level, by gender, etc.).
Align with good governance and ensure our compensation programs do not encourage excessive risk taking	The framework is embedded with a number of risk mitigating features (as outlined below) and ensures employees' interests are aligned with those of the members of the Ontario Teachers' Pension Plan. Further, the Long-Term Incentive Plan (LTIP) was enhanced to include an explicit measure of total-fund risk to ensure sufficient focus on this important area.

INDEPENDENT BENCHMARKING PROCESS

Given the varied employment opportunities at Ontario Teachers', executive and non-executive positions are compared against relevant job groups in like markets. Our objective is to be competitive with those organizations with which we compete directly for talent, including Canadian pension funds, banks, insurance companies, and investment managers, depending on role function and responsibilities.

For certain positions in international markets, we also compare to investment management organizations in the U.K. and Hong Kong regions.

We generally target our total direct compensation at the median of our peers for expected levels of performance, and at top quartile of our peers for exceptional performance.

KEY RISK MITIGATING FEATURES

The key design principle impacting each employee's incentive pay, to varying degrees, is our risk budget. At the beginning of each year, board members approve the active risk allocations for the total-fund and each investment department, which in turn establishes expected annual dollar value add performance goals (i.e. dollars earned versus benchmark dollars earned) for the year. Actual investment performance at the total-fund and departmental levels (measured in dollars of value add) is compared against the expected performance goals. Additional measures used to monitor, assess and mitigate risk in our incentive programs include:

- setting an upper limit on individual annual incentive payments;
- modelling and testing our annual and long-term incentives under multiple performance scenarios to ensure that the payouts align with expected performance outcomes;
- comprehensive balanced scorecards that measure progress against strategic objectives at the enterprise level and division/department level, including risk management initiatives;
- clawback provisions stating that employees committing willful acts of dishonesty, fraud or theft, or otherwise terminated with cause, shall be required to pay back all amounts paid to the participant under the annual and/or long-term incentive plans in the preceding 12 months.

Our compensation framework meets or exceeds the Principles for Sound Compensation Practices established by the Financial Stability Board and endorsed by the G20 nations.

Independent advisors

Ontario Teachers' management engages with Willis Towers Watson to assist with the review of program design and competitive compensation, as needed.

Elements of our compensation program – Overview

Our compensation program comprises base salary, annual incentives and long-term incentives for non-bargaining unit employees.

Compensation structures for bargaining unit staff have been negotiated into the collective agreement. The four-year agreement runs through to December 31, 2021.

BASE SALARY

Base salaries compensate employees for fulfilling their day-to-day responsibilities and are reviewed annually. Each employee at Ontario Teachers' is assigned a job level with a corresponding salary grade that is designed to provide market-competitive pay commensurate with the employee's responsibilities, demonstrated skills, knowledge and track record of performance.

ANNUAL INCENTIVE PLAN (AIP)

Our AIP rewards employees with cash awards based on business and individual performance results relative to goals.

Weightings for each element vary by level for Investment, Corporate and Member Services employees.

Teachers' Performance (0x–2x)		+	Division/Department Performance (0x–2x)		+	Individual Performance (0x–2.5x)	
20%	Four-Year Total-Fund Real Return		60%	Four-Year Department Value-Add (as applicable)		50%	*What* – Assessment of performance related to business outcomes
20%	Four-Year Total-Fund Value-Add						
10%	Four-Year Total-Fund Volatility						
15%	Service Excellence Index		40%	Annual Strategic Execution		50%	*How* – Assessment of how employees accomplished the business outcomes
35%	Annual Operational Metrics						

AIP Payout

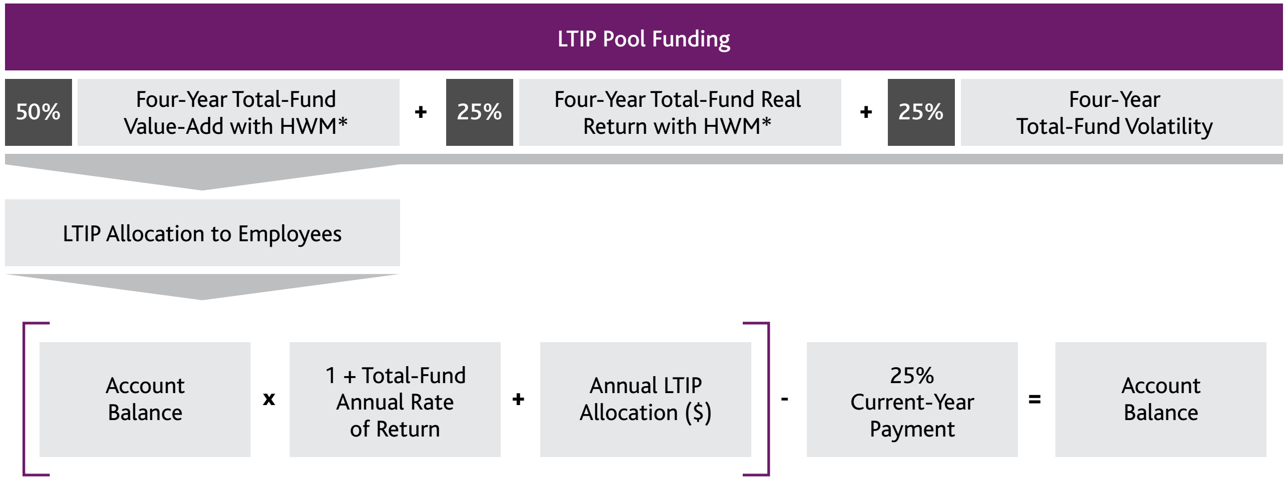
Note: Employees may allocate up to 100% of AIP to the total-fund plan, private capital plan (save for the Finance Division), or a combination of the two plans for up to two years.

Value add is after deducting management fees, transaction costs and administrative costs allocated to the Active programs (includes annual incentives, but does not include long-term incentives).

LONG-TERM INCENTIVE PLAN (LTIP)

Our LTIP rewards employees with cash awards on the basis of total-fund performance and in consideration of their personal performance and potential. The cash awards are allocated at year end to a notional account which is drawn down at a rate of 25% per year.

LTIP eligible employees include Investment employees at the principal level and above; and Corporate and Member Services employees at the director level and above.



* HWM = high water mark: positive performance required to offset any negative performance.

MIX OF PAY

Investment, Corporate and Member Services employees have different percentages of their compensation tied to our variable pay programs. Recognizing their direct influence on investment results, investment professionals, including our CEO, have a greater percentage of their total direct compensation (base salary, annual incentive, and long-term incentive) tied to our variable pay programs. Detailed below is the target total direct compensation mix for our NEOs. The actual pay mix realized may be different depending upon Ontario Teachers', divisional and investment performance, and the NEOs' individual performance.

TARGET PAY MIX

President and CEO/Executive Managing Director

23.2% Salary
38.4% AIP
38.4% LTIP

Chief Financial Officer

43.4% Salary
28.3% AIP
28.3% LTIP

BENEFITS AND OTHER COMPENSATION

Ontario Teachers' provides a competitive benefit program that includes life insurance, disability, health and dental benefits, vacation and other leave policies, and an Employee Assistance Program. Ontario Teachers' retirement benefit for employees is a defined benefit pension plan described on page 56. Employees based outside of Canada are eligible to participate in local contributory pension plans based on local regulations and market practices.

NAMED EXECUTIVE EMPLOYMENT CONTRACTS

There are no named executive employment contracts or severance guarantees in place.

Compensation decisions made in 2020 reflecting 2019

HOW DECISIONS ARE MADE

Annually, the board members and the CEO agree on the key objectives comprising the CEO's individual performance measures. At the end of the year, the board members evaluate the CEO's performance relative to the annual objectives and responsibilities, and assign an overall performance rating. The CEO's individual performance rating, Ontario Teachers' performance and total-fund performance are all considered when the board determines the CEO's total direct compensation.

Similar to the CEO, senior officers establish individual performance goals annually and, at year-end, they are evaluated relative to these goals. The outcome of individual goals and other performance measures, as previously noted, informs the total direct compensation recommendations for senior officers, which are presented to board members for approval.

2019 performance results

ONTARIO TEACHERS' PERFORMANCE

To ensure we stay focused on our mission to provide outstanding service and retirement security to our members today and tomorrow, we prepare an enterprise scorecard comprising goals and measures for four categories (total-fund performance, service excellence, operational performance and employee engagement). The scorecard ensures a balanced view of key areas that will drive employees to achieve our short, medium and long-term goals.

At the end of the year, the scorecard is evaluated, and the results are presented to board members for approval. In 2019, employees delivered exceptional performance, with a multiplier of 1.73 out of 2.0.

TOTAL-FUND PERFORMANCE

The table below summarizes, at the total-fund level, the performance for 2016 through to 2019 relative to the targets as approved by the board. Over the four-year cumulative period, staff outperformed combined total-fund performance targets.

Year	Total-Fund Value Add	Total-Fund Real Return	Total-Fund Volatility
2016 to 2019	At target	Exceptional	Exceptional

DIVISION/DEPARTMENT PERFORMANCE

The table below summarizes performance in terms of value add earned relative to the return required on the four-year risk allocation for each of the respective investment departments listed below:

Year	Private Capital	Infrastructure and Natural Resources	Capital Markets
2016 to 2019	Exceeded targets	Significantly exceeded targets	Below target

We also assess the strategic execution of each of our divisions and departments across the organization against their respective annual objectives. Overall, employees delivered performance above target, with an average divisional multiplier of 1.77 out of 2.0.

Executive compensation

The compensation table represents disclosure of base salary, annual incentive, long-term incentive and other compensation earned in 2017, 2018 and 2019 by the CEO, the CFO and the three other most highly compensated executives, excluding subsidiary companies.

Name and Principal Position	Year	Base Salary[1] A	Annual Incentive B	Long-Term Incentive Allocation C	Total Direct Compensation[2] A+B+C	Long-Term Incentive Paid D	Other[3] E	Change in Pension Value F	Total Compensation[4] A+B+D+E
Ron Mock President and CEO[5]	2019	$564,808	$1,776,900	$2,700,000	$5,041,708	$2,879,600	$1,073	$762,700	$5,222,381
	2018	550,000	1,679,700	2,970,000	5,199,700	2,661,800	1,161		4,892,661
	2017	543,077	1,575,800	2,722,500	4,841,377	2,496,400	1,177		4,616,454
David McGraw CFO	2019	440,423	487,000	700,000 100,000[6]	1,727,423	838,500	815	355,600	1,766,738
	2018	382,692	422,300	800,000	1,604,992	767,800	809		1,573,601
	2017	374,894	436,700	800,000	1,611,594	738,500	810		1,550,904
Ziad Hindo EMD and CIO	2019	457,500	1,378,200	2,700,000 700,000[6]	5,235,700	2,435,400	861	783,400	4,271,961
	2018	381,538	1,101,600	2,300,000	3,783,138	1,892,200	805		3,376,143
	2017	329,510	755,300	1,732,500	2,817,310	1,446,500	713		2,532,023
Jane Rowe EMD, Equities	2019	414,292	1,137,000	2,050,000	3,601,292	2,035,000	780	447,000	3,587,072
	2018	370,077	947,600	2,300,000	3,617,677	1,838,300	782		3,156,759
	2017	364,635	849,100	1,780,000	2,993,735	1,643,200	788		2,857,723
Jo Taylor EMD, Global Development[5] All amounts are reported in GBP	2019	355,741	1,014,800	2,280,000	3,650,541	1,597,000		43,380[7]	2,967,541
	2018	326,308	901,700	1,600,000	2,828,008	1,240,100			2,468,108
	2017	313,539	801,100	1,884,000	2,998,639	942,600			2,057,239

1 Bi-weekly payroll resulted in 27 payments for 2019 versus 26 bi-weekly payments.
2 When making compensation decisions, the board and management focus on Total Direct Compensation (TDC) which reflects base salary, annual incentive and long-term incentive allocation.
3 Other compensation includes group term life insurance and accidental death & dismemberment.
4 Change in pension value and long-term incentive allocation are not included in total compensation.
5 Effective January 1, 2020, Jo Taylor was appointed as President and CEO as Ron Mock retired from the organization December 31, 2019.
6 Received a discretionary Long-Term Incentive allocation in December 2019 which was subject to the 2019 rate of return.
7 Received employer pension contributions as cash-in-lieu.

NOTIONAL ACCOUNT BALANCES

The table below outlines the notional account balances for each NEO.

Name and Principal Position	Opening Balance	2019 Rate of Return	Long Term Incentive Allocation	2020 Payment	Balance
Ron Mock, President and CEO	$7,985,333	10.43%	$2,700,000	$2,879,600	$8,638,603
David McGraw, CFO	2,303,464	10.43%	700,000 100,000[1]	838,500	2,515,645
Ziad Hindo, EMD and CIO	5,676,466	10.43%	2,700,000 700,000[1]	2,435,400	7,306,131
Jane Rowe, EMD, Equities	5,514,944	10.43%	2,050,000	2,035,000	6,105,153
Jo Taylor, EMD, Global Development All amounts are reported in GBP	3,720,133	10.43%	2,280,000	1,597,000	4,791,143

[1] Received a discretionary Long-Term Incentive allocation in December 2019 which was subject to the 2019 rate of return.

Retirement benefits

Ontario Teachers' employees participate in the Public Service Pension Plan (PSPP) and Public Service Supplementary Plan (PSSP), or the OPSEU Pension Plan, all of which are defined benefit plans. Employees based outside of Canada are eligible to participate in local contributory pension plans based on local regulations and market practices.

Employees with pensionable earnings in excess of Income Tax Act (ITA) regulations also participate in a non-registered, unfunded Supplemental Employee Retirement Plan (SERP).

The table below outlines the estimated present value of the total pension from all sources (PSPP, PSSP and SERP) and estimated annual pension benefits at age 65 for the CEO, the CFO and the two other most highly compensated executives, excluding subsidiary companies.

Name and Principal Position	Projected Years of Service at Age 65	Estimated Total Annual Pension Benefit at Age 65	Present Value of Total Pension January 1, 2019	2019 Compensatory[1] Annual Change in Pension Value	2019 Non-Compensatory[2] Annual Change in Pension Value	Present Value of Total Pension December 31, 2019
Ron Mock[3], President and CEO	19	$482,100	$7,689,600	$436,200	$326,500	$8,452,300
David McGraw, CFO	17	185,800	2,679,300	188,200	167,400	3,034,900
Ziad Hindo, EMD and CIO	38	599,500	2,562,600	170,100	613,300	3,346,000
Jane Rowe, EMD, Equities	13	171,900	1,710,200	208,600	238,400	2,157,200

[1] Includes the impact of the elimination of annual incentive from pensionable earnings effective January 1, 2019.
[2] Includes interest on liabilities and the impact of any assumption changes.
3 Mr. Mock's service with Ontario Teachers' is projected beyond age 65 to December 31, 2019.

The values shown above are estimated based on assumptions and represent entitlements that may change over time.

ONTARIO TEACHERS' PENSION PLAN

Board and committee member remuneration

The Governance Committee of the board is responsible for making recommendations with respect to Board and committee member remuneration.

Annual Retainer – Chair of the Board	$194,750
Annual Retainer – Board Member	$92,250
Additional Committee Chair Retainer	
Audit or Investment Committee	$20,000
Other Committees	$15,000
Additional Committee Vice Chair Retainer	
Audit or Investment Committee	$10,000
Other Committees	$7,500
Committee Member Retainer *(if on more than three Committees)*	$5,000

Board members are reimbursed for normal expenses for travel, meals and accommodation, as required. For 2019, these expenses totaled $225,800.

Board Member		Board Meetings	Committee Meetings	2019 Total Remuneration
Steve McGirr	Chair of the Board	13	37	$202,250
Bill Chinery	Chair, Human Resources & Compensation Committee; Chair, Succession Committee; Vice-Chair, Investment Committee	13	31	143,500
Cathy Cranston		12	20	97,250
Patti Croft	Chair, Benefits Adjudication Committee; Chair, Governance Committee	13	38	137,250
Lise Fournel	Chair, Operational Risk Committee	13	17	107,250
Gene Lewis	Vice-Chair, Benefits Adjudication Committee	13	23	104,750
M. George Lewis[1]		7	18	72,938
John Murray		13	23	92,250
Kathleen O'Neill	Chair, Audit & Actuarial Committee	13	27	129,750
Barbara Palk	Chair, Investment Committee	12	30	129,750
David Smith[2]		5	5	23,063
Daniel Sullivan		13	21	92,250

[1] Term began April 1, 2019.
[2] Term ended March 31, 2019.

ONTARIO TEACHERS' PENSION PLAN

Financial reporting

The Financial reporting section highlights sections of the financial statements that management views as key to understanding the financial position of Ontario Teachers'.

Included in the pages preceding the consolidated financial statements are three letters that describe the responsibility of management, the auditors and the actuaries:

- Management's Responsibility for Financial Reporting – identifies that management is responsible for preparation of the financial statements. The financial statements are prepared according to Canadian accounting standards for pension plans. The board, which is independent from management, has ultimate responsibility for the financial statements and is assisted in its responsibility by the Audit & Actuarial Committee.
- Independent Auditor's Report – the formal opinion issued by an external auditor on the consolidated financial statements.
- Actuaries' Opinion – identifies that valuation methods are appropriate, data is sufficient and reliable and the assumptions are in accordance with accepted actuarial practices. The actuarial valuation is based on membership data, actuarial and accounting standards, and long-term interest rates.

Financial statement valuation

The financial statement valuation measures the fair value of the plan's net assets available for benefits and pension liabilities at a point in time. The financial statement valuation provides a snapshot of Ontario Teachers' financial health as it does not assume any future contributions and does not project the cost of benefits that current members have not yet earned. The financial statement valuation is therefore not considered an indicator of the long-term sustainability of the plan and not used by the plan sponsors to set contribution rates and benefit levels.

METHODS AND ASSUMPTIONS USED FOR THE FINANCIAL STATEMENT VALUATION

The financial statement valuation is prepared in accordance with guidance from Chartered Professional Accountants of Canada (CPA Canada). The pension liabilities, prepared by an independent actuary, take into account pension credit earned to date by all plan members and contributions already received. Valuation techniques, estimates and pension liabilities are described further in the notes to the consolidated financial statements.

The actuarial assumptions used in determining the pension liabilities reflect best estimates of future economic and non-economic factors proposed by management and approved by the board. Actual experience typically differs from these assumptions, and the differences are recognized as experience gains and losses in future years.

The discount rate for the financial statements is based on market rates, as at the valuation date, of bonds issued by the Province of Ontario, which have characteristics similar to Ontario Teachers' liabilities. The discount rate is determined by using a cash flow-based estimation methodology which applies a weighted average discount rate that reflects the estimated timing and amount of bene fit payments. The discount rate used is 2.50% (3.20% in 2018). Further details on the methods and assumptions used can be found in note 4 of the plan's consolidated financial statements.

Financial position as at December 31, 2019

Ontario Teachers' ended 2019 with a financial statement deficit of $17.3 billion, up from the deficit of $1.2 billion at the end of 2018. The deficit represents the difference between net assets available for benefits of $207.4 billion and accrued pension benefits of $224.7 billion at year end.

YEAR-END FINANCIAL POSITION

As at December 31 (Canadian $ millions)

	2019	2018
Net assets available for benefits	$ 207,412	$ 191,112
Accrued pension benefits	224,669	192,281
Deficit	$ (17,257)	$ (1,169)

During 2019, net assets available for benefits increased by $16.3 billion. Net investment income of $20.2 billion and contributions of $3.2 billion increased net assets available for benefits, while benefits paid of $6.4 billion and administrative expenses of $0.7 billion decreased the net assets available. See the Investments section of the Management's Discussion & Analysis for details of investment returns.

NET ASSETS AVAILABLE FOR BENEFITS

For the year ended December 31 (Canadian $ millions)

	2019	2018
Net assets available for benefits, beginning of year	**$ 191,112**	$ 189,478
Net investment income	**20,185**	5,233
Contributions	**3,223**	3,166
Benefits	**(6,415)**	(6,141)
Administrative expenses	**(693)**	(624)
Increase in net assets available for benefits	**16,300**	1,634
Net assets available for benefits, end of year	**$ 207,412**	$ 191,112

Accrued pension benefits increased by $32.4 billion during the year to $224.7 billion. Changes in actuarial assumptions increased the accrued pension benefits amount by $25.5 billion. Benefits paid during 2019 of $6.4 billion include the addition of 5,540 retirement and disability pensions and 1,200 survivor pensions during 2019, as well as a 2.2% cost-of-living increase.

ACCRUED PENSION BENEFITS

For the year ended December 31 (Canadian $ millions)

	2019	2018
Accrued pension benefits, beginning of year	**$ 192,281**	$ 204,322
Interest on accrued pension benefits	**6,151**	6,043
Benefits accrued	**6,281**	7,157
Benefits paid	**(6,412)**	(6,138)
Changes in actuarial assumptions and methods	**25,515**	(19,812)
Experience losses	**853**	709
Net increase/(decrease) in accrued pension benefits	**32,388**	(12,041)
Accrued pension benefits, end of year	**$ 224,669**	$ 192,281

Fair value hierarchy

Ontario Teachers' investments and investment-related liabilities are stated at fair value. The objective of fair value determination is to estimate an exit price at which an orderly transaction to sell the asset or to transfer the liability would take place between market participants. Valuation techniques are employed in order to measure fair value. As described in note 1c of the consolidated financial statements, these techniques utilize inputs such as prices for market transactions, discount rates, contractual or expected future cash flows and other relevant factors that impact the assessment of fair value.

As required under Canadian accounting standards, Ontario Teachers' has classified and disclosed its fair value measurements into one of three categories based upon the degree of observable inputs used in their determination. Level 1 inputs consist of quoted prices in active markets for identical assets or liabilities; Level 2 inputs are derived from observable prices but do not meet the Level 1 criteria, while Level 3 inputs are unobservable. If different levels of inputs are used to measure the fair value of an investment, the classification within the hierarchy is based upon the lowest level input that is significant to the fair value measurement.

Level 1 net investments comprise government bonds and publicly traded equities, including these securities that are sold but not yet purchased, which are valued using quoted prices. Examples of Level 2 net investments include marketable corporate bonds that are valued using quoted prices from less actively traded markets and securities purchased under agreements to resell and securities sold under agreements to repurchase, which are valued using discounted cash flows and observable market yields. Examples of Level 3 investments include real assets such as real estate and infrastructure, non-publicly traded equities, and natural resource investments, which are valued using appropriate techniques that involve the use of significant unobservable inputs such as forecasted cash flows or other information that is specific to the entity.

The table below shows Ontario Teachers' net investments based on the fair value hierarchy. Further details of each category can be found in note 2a of the plan's consolidated financial statements.

As at December 31, 2019 (Canadian $ millions)	Level 1	Level 2	Level 3	Total
Equity	$ 27,086	$ 220	$ 41,127	**$ 68,433**
Fixed income	84,801	11,934	17,917	**114,652**
Inflation sensitive	985	–	8,199	**9,184**
Real assets	2,192	385	48,235	**50,812**
Investment-related receivables	1,033	15,506	143	**16,682**
Investment-related liabilities	(12,030)	(41,449)	(2,238)	**(55,717)**
Net investments	$104,067	$ (13,404)	$113,383	**$204,046**

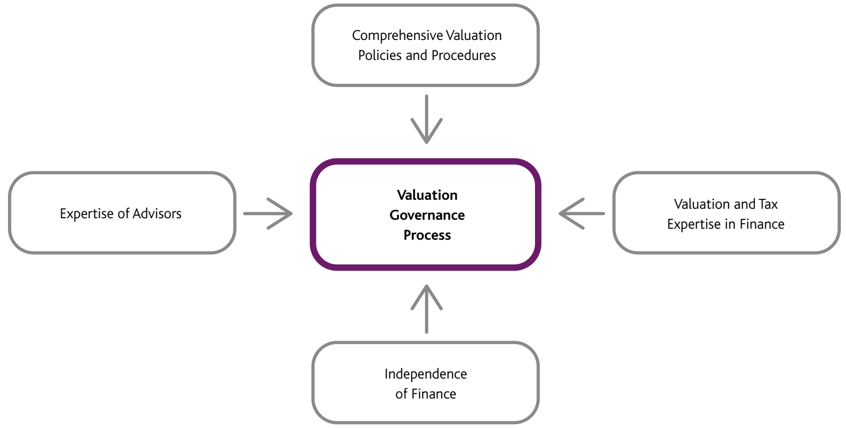
VALUATION OF LEVEL 3 INVESTMENTS

The valuation of our investments is guided by IFRS 13: Fair Value Measurement. This standard provides guidance on fair value measurements including the definition of fair value. The valuation of Ontario Teachers' Level 3 investments is subject to a strong governance process which includes:

- Comprehensive valuation policies and procedures for all asset classes
- In-house valuation and tax expertise within our Finance team
- Independence of our Finance team from the Investments team. We also maintain appropriate segregation of duties, with most Level 3 valuations requiring three levels of Finance sign off
- Use of independent external valuation experts and real estate appraisers provide expertise, knowledge and familiarity with local market conditions, market transactions and industry trends
- Semi-annual reporting to the Audit & Actuarial Committee on Level 3 investment valuations
- Year-end valuations are subject to audit by external auditor valuation specialists
- Additionally the valuation of Level 3 investments is subject to periodic internal audits.

VALUATION GOVERNANCE PROCESS

See note 1c of the financial statements for further details regarding the valuation of investments.



Effective oversight and controls

DISCLOSURE AND FINANCIAL REPORTING CONTROLS

We take guidance from National Instrument 52-109, Certification of Disclosure in Issuers' Annual and Interim Filings, issued by the Canadian Securities Administrators, as part of our commitment to good governance practices. The President and CEO and the Chief Financial Officer are responsible for establishing and maintaining disclosure controls and procedures, and internal controls over financial reporting.

We have designed disclosure controls and procedures to provide reasonable assurance that material information related to Ontario Teachers' is gathered and reported to management in order to allow timely decisions regarding public disclosure. We evaluated our disclosure controls and procedures and concluded as at December 31, 2019, that they are effective.

We have also designed internal controls over financial reporting, using the Integrated Framework issued in 2013 by the Treadway Commission's Committee of Sponsoring Organizations (the COSO Framework), to provide reasonable assurance regarding the reliability of financial reporting and the preparation of consolidated financial statements for external purposes in accordance with Canadian Generally Accepted Accounting Principles. We have evaluated the effectiveness of Ontario Teachers' internal controls over financial reporting and concluded they are effective as at year-end.

PROTECTING AUDIT QUALITY AND INTEGRITY

A key oversight activity of audit committees is annually assessing the effectiveness of the external auditor. This helps audit committees meet their responsibility to make informed recommendations to the board on whether or not to reappoint the external auditor. Ontario Teachers' has conducted assessments annually. Ontario Teachers' Audit & Actuarial Committee recommended, and the board approved, the reappointment of the external auditor for 2019.

Ontario Teachers' and other corporate governance advocates have expressed concern over the years about accounting firms that audit public companies and also earn substantial revenue from those companies for non-audit consulting services. We believe that such consulting fees can compromise, or appear to compromise, the integrity of the audit function.

We strive to minimize our own use of consulting services involving the plan's auditor and we disclose the total amount paid for such services. In 2019, fees paid to Deloitte Touche Tohmatsu Limited (Deloitte), of which the Canadian firm is Ontario Teachers' auditor, totaled $15.0 million ($14.4 million in 2018), of which $13.1 million was for audit activities and $1.9 million was for non-audit services. Of the $1,935,000 paid for non-audit services, approximately $715,000 related to the plan, $15,000 related to subsidiaries audited by Deloitte and the balance of $1,205,000 was for subsidiaries not audited by Deloitte. Of the $15,000 for non-audit services paid by subsidiaries audited by Deloitte, none was paid to Deloitte (Canada), the entire amount was paid to Deloitte firms outside of Canada, which are considered to have lower risk of impairing the independence of Ontario Teachers' auditor.

MANAGEMENT'S RESPONSIBILITY FOR FINANCIAL REPORTING

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

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

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

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

Jo Taylor
President and Chief Executive Officer
February 27, 2020

David McGraw
Chief Financial Officer

INDEPENDENT AUDITOR'S REPORT

To the Administrator of

Ontario Teachers' Pension Plan:

OPINION

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

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

BASIS FOR OPINION

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

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

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

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

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

AUDITOR'S RESPONSIBILITIES FOR THE AUDIT OF THE FINANCIAL STATEMENTS

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

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

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of Ontario Teachers' internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on Ontario Teachers' ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause Ontario Teachers' to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within Ontario Teachers' to express an opinion on the financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

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

Deloitte LLP

Chartered Professional Accountants
Licensed Public Accountants
Toronto, Ontario
February 27, 2020

ACTUARIES' OPINION

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

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

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

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

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

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

Scott Clausen, F.C.I.A., F.S.A.
February 27, 2020

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

CONSOLIDATED STATEMENT OF FINANCIAL POSITION

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

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

On behalf of the Plan administrator:

SR McGirr

Chair

K O'Neill

Board Member

CONSOLIDATED STATEMENT OF CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS

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

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

CONSOLIDATED STATEMENT OF CHANGES IN ACCRUED PENSION BENEFITS

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

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

CONSOLIDATED STATEMENT OF CHANGES IN DEFICIT

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

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

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

For the year ended December 31, 2019

DESCRIPTION OF ONTARIO TEACHERS' AND THE PLAN

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

(a) General

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

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

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

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

(b) Funding

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

(c) Retirement pensions

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

(d) Disability pensions

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

(e) Death benefits

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

(f) Escalation of benefits

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

(g) Retirement Compensation Arrangement

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

NOTE 1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

(a) Basis of presentation

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

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

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

(b) Changes in accounting policies

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

(c) Investments

Valuation of investments

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

Fair values of investments are determined as follows:

a. Short-term investments and commercial paper are valued using either quoted closing mid-market prices or discounted cash flows based on current market yields, when quoted closing mid-market prices are unavailable.

b. Bonds, including both nominal and real return, are valued on the basis of quoted closing mid-market prices. If quoted closing mid-market prices are not available, estimated values are calculated using discounted cash flows based on current market yields and comparable securities, as appropriate.

c. Securities sold under agreements to repurchase and securities purchased under agreements to resell are valued using discounted cash flows based on current market yields.

d. Public equities are valued at quoted closing mid-market prices. When the market for a public equity is not active, management assesses whether the quoted prices represent fair value. If not, management adjusts the quoted prices or estimates the fair value by using appropriate techniques including valuation models.

e. Real estate, private equities, infrastructure, timberland, and natural resources are valued based on estimated fair values determined by using appropriate valuation techniques. Where external valuation advisors are engaged by management in the valuation process, management ensures the advisors are independent and assesses whether the assumptions used by the valuation advisors are reasonable and supportable based on current market conditions and industry practice to ensure the valuation captures the business and economic conditions specific to the investment.

   At least 70% of the value of the rental property portfolio covering all product types and geographic regions is independently appraised annually. Real estate properties with a value of over $250 million will be valued independently every year. Private equity funds are recorded at fair value based on net asset values obtained from each of the funds' administrators. These net asset values are reviewed by management.

f. Derivative financial instruments are recorded at fair value using market prices where available. Where quoted market values are not readily available, appropriate alternative valuation techniques are used to determine fair value. In determining fair value, consideration is also given to the credit risk of the counterparty through the calculation of a credit valuation adjustment.

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

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

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

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

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

Fair value hierarchy

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

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

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

Trade-date reporting

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

Net investment income

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

Transaction costs

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

Management fees

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

(d) Foreign currency translation

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

(e) Accrued pension benefits

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

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

(f) Contributions

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

(g) Benefits

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

(h) Premises and equipment

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

(i) Use of estimates

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

(j) Contingencies

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

NOTE 2. INVESTMENTS

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

(a) Investments before allocating the effect of derivative contracts

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

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

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

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

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

(b) Fair value hierarchy

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

				December 31, 2019
(Canadian $ millions)	**Level 1**	**Level 2**	**Level 3**	**Total**
Equity	**$ 27,086**	**$ 220**	**$ 41,127**	**$ 68,433**
Fixed income	**84,801**	**11,934**	**17,917**	**114,652**
Inflation sensitive	**985**	**—**	**8,199**	**9,184**
Real assets	**2,192**	**385**	**48,235**	**50,812**
Investment-related receivables	**1,033**	**15,506**	**143**	**16,682**
Investment-related liabilities	**(12,030)**	**(41,449)**	**(2,238)**	**(55,717)**
Net investments	**$ 104,067**	**$ (13,404)**	**$ 113,383**	**$ 204,046**

				December 31, 2018
(Canadian $ millions)	Level 1	Level 2	Level 3	Total
Equity	$ 21,757	$ 162	$ 37,884	$ 59,803
Fixed income	85,455	12,084	15,926	113,465
Inflation sensitive	875	—	8,117	8,992
Real assets	2,485	309	46,349	49,143
Investment-related receivables	2,830	22,469	189	25,488
Investment-related liabilities	(16,095)	(51,138)	(2,076)	(69,309)
Net investments	$ 97,307	$ (16,114)	$ 106,389	$ 187,582

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

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

2019

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

2018

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

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

(c) Derivative contracts

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

Notional amounts of derivative contracts represent the contractual amount to which a rate or price is applied for computing the cash to be paid or received. Notional amounts are the basis upon which the returns from, and the fair value of, the contracts are determined. They do not necessarily indicate the amounts of future cash flow involved or the current fair value of the derivative contracts and, therefore, do not indicate Ontario Teachers' exposure to credit or market risks. The derivative contracts become favourable (assets) or unfavourable (liabilities) as a result of fluctuations in either market rates or prices relative to their terms. The aggregate notional amounts and fair values of derivative contracts can fluctuate significantly.

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

Swaps

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

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

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

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

Forwards and futures

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

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

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

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

Options

Options may be either acquired in standardized amounts on regulated exchanges or customized and acquired in the OTC market. They are contractual agreements under which the seller (writer) grants the purchaser the right, but not the obligation, either to buy (call option) or sell (put option), a security, exchange rate, interest rate, or other financial instrument or commodity at a predetermined price, at or by a specified future date. The seller (writer) of an option can also settle the contract by paying the cash settlement value of the purchaser's right. The seller (writer) receives a premium from the purchaser for this right. The various option agreements that Ontario Teachers' enters into include equity and commodity options, interest rate options, and foreign currency options.

Credit derivatives

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

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

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

Other derivative products

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

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

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

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

(d) Investment asset mix

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

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

(e) Risk management

Objectives

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

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

Policies

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

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

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

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

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

Processes

Ontario Teachers' uses risk budgeting to allocate active risk across the investment asset classes. The active risk budget is presented to the board annually for review and approval. Each investment department is responsible for managing the investment risks associated with the investments they manage within the active risk budget allocated to them. Each department is subject to compliance with the Statement of Investment Policies and Procedures, the Board Investment Policy (which includes the active risk budget allocated to them), Investment Division Policy, Trading Operations Policy, Pre-Investment Approval Policy and the applicable portfolio policies. In addition, the Total Fund Management department is responsible for maintaining the liquidity positions in accordance with Ontario Teachers' policies on liquidity, and the Total Fund Management and Capital Markets departments are responsible for compliance with the Investment Division Counterparty Credit Policy. The Finance Division independently measures the investment risk exposure and the liquidity position of Ontario Teachers' and provides the information to the Investment Division and the Investment Committee of the board.

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

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

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

(f) Credit risk

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

Credit risk management

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

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

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

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

Maximum exposure to credit risk before collateral held

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

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

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

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

2019

Credit rating (Canadian $ millions)	**Bonds and Short-term investments**	**Real-rate products**	**Securities purchased under agreements to resell**	**Loans and Private debt**	**OTC Derivatives**
AAA/R-1 (high)	**$ 36,196**	**$ 31,159**	**$ —**	**$ —**	**$ —**
AA/R-1 (mid)	**4,530**	**934**	**2,056**	**—**	**614**
A/R-1 (low)	**10,838**	**2,046**	**3,922**	**—**	**1,069**
BBB/R-2	**5,345**	**—**	**324**	**—**	**—**
Below BBB/R-2	**3,358**	**—**	**—**	**—**	**—**
Unrated[6]	**2,856**	**48**	**4,928**	**12,644**	**—**
	$ 63,123	**$ 34,187**	**$ 11,230**	**$ 12,644**	**$ 1,683**

2018

Credit rating (Canadian $ millions)	Bonds and Short-term investments	Real-rate products	Securities purchased under agreements to resell	Loans and Private debt	OTC Derivatives
AAA/R-1 (high)	$ 37,520	$ 31,377	$ —	$ —	$ —
AA/R-1 (mid)	2,267	77	5,277	—	82
A/R-1 (low)	12,575	2,901	7,945	—	1,124
BBB/R-2	5,742	—	248	—	66
Below BBB/R-2	3,016	—	—	—	—
Unrated[6]	2,552	63	2,356	12,958	—
	$ 63,672	$ 34,418	$ 15,826	$ 12,958	$ 1,272

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

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

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

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

Credit risk concentrations

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

(g) Market risk

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

Market risk management

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

Market and credit risk measurement

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

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

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

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

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

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

(Canadian $ billions)[7]	2019	2018
Equity		
Publicly traded	$ **9.5**	$ 8.5
Non-publicly traded	**16.5**	14.0
Fixed income		
Bonds	**12.0**	9.5
Real-rate products	**4.5**	4.0
Inflation sensitive		
Commodities	**4.5**	3.0
Natural resources	**2.0**	2.0
Inflation hedge	**3.5**	3.5
Real assets		
Real estate	**4.5**	4.5
Infrastructure	**3.5**	3.0
Real-rate products	**—**	1.0
Credit	**2.5**	2.0
Absolute return strategies	**1.5**	1.5
Overlay	**8.5**	5.5
Money market	**18.0**	14.5
Total Asset Risk ETL Exposure[8]	$ **47.5**	$ 38.0

[7] Rounded to the nearest $0.5 billion.

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

Interest rate risk

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

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

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

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

Foreign currency risk

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

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

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

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

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

(h) Liquidity risk

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

Liquidity risk management

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

Liquid assets

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

Contractual maturity

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

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

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

(Canadian $ millions)					2018
		Within One Year	One to Five Years	Over Five Years	Total
Securities sold under agreements to repurchase	$	(21,040)	$ (7,240)	$ —	$ (28,280)
Securities sold but not yet purchased					
Equities		(2,617)	—	—	(2,617)
Fixed Income		(12,493)	—	—	(12,493)
Real estate		(587)	(2,257)	(1,050)	(3,894)
Commercial Paper		(8,676)	—	—	(8,676)
Term debt		—	(5,091)	—	(5,091)
Cash collateral received under credit support annexes		(937)	—	—	(937)
Derivative-related, net		(7,321)	—	—	(7,321)
	$	(53,671)	$ (14,588)	$ (1,050)	$ (69,309)

(i) Collateral pledged and received

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

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

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

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

[9] See note 2j for reconciliation of total gross amount to net amounts presented in note 2a.
[10] Includes cash collateral of $901 (2018 - $2,549)
[11] Includes cash collateral of $988 (2018 - $937)
[12] Includes cash collateral of $56 (2018 - $57)

(j) Offsetting financial assets and financial liabilities

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

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

(Canadian $ millions)						2019
	Gross amounts	**Less: Amounts offset**	**Net amount presented in note 2a**	**Amounts subject to netting agreements**	**Securities and cash collateral[13]**	**Net Exposure**
Financial assets						
Securities purchased under agreements to resell	**$ 12,204**	**$ (974)**	**$ 11,230**	**$ (7,121)**	**$ (3,918)**	**$ 191**
Derivative-related receivables	**4,495**	**—**	**4,495**	**(1,608)**	**(1,600)**	**1,287**
	$ 16,699	**$ (974)**	**$ 15,725**	**$ (8,729)**	**$ (5,518)**	**$ 1,478**
Financial liabilities						
Securities sold under agreements to repurchase	**$ (20,795)**	**$ 974**	**$ (19,821)**	**$ 7,121**	**$ 12,649**	**$ (51)**
Derivative-related liabilities	**(3,186)**	**—**	**(3,186)**	**1,608**	**1,454**	**(124)**
	$ (23,981)	**$ 974**	**$ (23,007)**	**$ 8,729**	**$ 14,103**	**$ (175)**

(Canadian $ millions)						2018
	Gross amounts	Less: Amounts offset	Net amount presented in note 2a	Amounts subject to netting agreements	Securities and cash collateral[13]	Net Exposure
Financial assets						
Securities purchased under agreements to resell	$ 16,216	$ (390)	$ 15,826	$ (13,476)	$ (2,314)	$ 36
Derivative-related receivables	7,056	—	7,056	(4,489)	(1,284)	1,283
	$ 23,272	$ (390)	$ 22,882	$ (17,965)	$ (3,598)	$ 1,319
Financial liabilities						
Securities sold under agreements to repurchase	$ (28,670)	$ 390	$ (28,280)	$ 13,476	$ 14,785	$ (19)
Derivative-related liabilities	(7,321)	—	(7,321)	4,489	2,461	(371)
	$ (35,991)	$ 390	$ (35,601)	$ 17,965	$ 17,246	$ (390)

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

NOTE 3. RECEIVABLE FROM THE PROVINCE OF ONTARIO

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

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

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

NOTE 4. ACCRUED PENSION BENEFITS

(a) Actuarial assumptions

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

A summary of the primary economic assumptions is as follows:

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

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

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

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

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

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

(b) Indexation levels

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

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

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

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

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

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

(c) Experience gains and losses

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

NOTE 5.
INVESTMENT IN REAL ESTATE

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

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

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

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

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

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

NOTE 6.
NET INVESTMENT INCOME

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

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

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

[2] Net of certain management and performance fees.

Net Investment Income — 2018

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

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

[4] Net of certain management and performance fees.

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

NOTE 7. INVESTMENT RETURNS AND RELATED BENCHMARK RETURNS

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

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

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

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

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

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

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

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

NOTE 8. FUNDING VALUATIONS

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

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

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

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

NOTE 9. CONTRIBUTIONS

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

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

NOTE 10. BENEFITS

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

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

NOTE 11. ADMINISTRATIVE EXPENSES

(a) Investment expenses

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

(b) Member services expenses

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

(c) Compensation of key management personnel

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

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

The compensation of the key management personnel[1] as at December 31 is summarized below:

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

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

(d) Employees' post-employment benefits

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

NOTE 12.
CAPITAL

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

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

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

Preliminary funding valuation surpluses or deficits are determined annually. At least once every three years, a formal funding valuation report is required to be filed with the regulatory authorities. As stated in the Partners' Agreement[1], the Plan cannot be in a deficit position when such reports are filed[2]. As a result, the formal report must include adjustments to benefit and / or contribution levels as necessary to eliminate any preliminary valuation deficit. Any required adjustments are determined by the co-sponsors with guidance from the Funding Management Policy (Appendix A to the Partners' Agreement).

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

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

NOTE 13.
RETIREMENT COMPENSATION ARRANGEMENT (RCA)

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

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

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

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

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

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

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

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

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

NOTE 14. COMMITMENTS

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

NOTE 15. GUARANTEES AND INDEMNIFICATIONS

Guarantees

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

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

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

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

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

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

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

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

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

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

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

Indemnifications

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

Major investments

As at December 31, 2019

Fixed income and short-term investments over $200 million

Type (Canadian $ millions)	Maturity	Coupon (%)	Fair Value	Cost
Government of Canada bonds	2020–2064	0.50–8.00	$22,448	$20,567
Provincial bonds	2022–2051	1.35–6.35	12,450	11,392
Securities purchased under agreements to resell	2020–2021	-0.63–2.18	11,230	11,293
International corporate bonds	2020–2053	0.00–16.70	7,197	7,040
International sovereign debt	2020–2048	0.00–18.20	5,432	5,601
Canada treasury bills	2020–2020	0.00–0.00	4,761	4,754
Bank notes	2020–2059	0.00–0.00	2,346	2,348
Commercial paper	2020–2020	0.00–0.00	1,515	1,513
Canadian corporate bonds	2020–2047	0.00–14.00	473	453
U.S. treasury bonds	2020–2049	1.75–5.00	(3,497)	(2,574)
Term debt issued	2021–2024	1.625–2.75	(7,187)	(6,986)
Commercial paper issued	2020–2020	0.00–2.01	(8,490)	(8,576)
Securities sold under agreements to repurchase	2020–2022	-0.55–2.28	(19,821)	(19,983)

Real-return investments over $200 million

Type (Canadian $ millions)	Maturity	Coupon (%)	Fair Value	Cost
Real-return Canada bonds	2021–2050	0.50–4.25	$17,220	$13,198
U.S. treasury inflation protection	2020–2049	0.13–3.38	13,939	11,618
Real-return provincial bonds	2021–2036	2.00–4.50	1,966	1,244
Real-return Canadian corporate bonds	2021–2039	0.00–5.33	1,014	446

Corporate shares/units over $200 million

As at December 31, 2019 (millions)

Security Name	Shares	Fair Value
Multiplan Empreendimentos Imobiliarios S.A.	54.8	$1,760.4
The Macerich Company	23.3	812.9
Alibaba Group Holding Limited	8.5	532.8
Barry Callebaut AG	0.2	462.4
Alphabet Inc.	0.2	399.3
Cushman & Wakefield plc	14.6	387.9
Mastercard Incorporated	0.8	326.0
Intact Financial Corporation	2.2	313.0
Ubisoft Entertainment SA	3.3	300.1
AIA Group Limited	19.7	267.8
Amazon.com Inc.	0.1	243.7
Samsung Electronics Co., Ltd.	3.8	235.4

Real estate properties over $200 million

As at December 31, 2019

Property	Total Square Footage (in thousands)	Effective % Ownership
Canadian Regional Shopping Centres		
Champlain Place, Dieppe	850	100%
Chinook Centre, Calgary	1,421	100%
Fairview Mall, Toronto	863	50%
Fairview Park Mall, Kitchener	838	100%
Fairview Pointe Claire, Montreal	1,163	50%
Le Carrefour Laval, Montreal	1,426	100%
Les Galeries D'Anjou, Montreal	1,141	50%
Les Promenades St. Bruno, Montreal	1,134	100%
Lime Ridge Mall, Hamilton	813	100%
Market Mall, Calgary	1,004	50%
Markville Shopping Centre, Markham	988	100%
Masonville Place, London	664	100%
Pacific Centre, Vancouver	1,072	50%
Polo Park Mall, Winnipeg	1,410	100%
Richmond Centre, Richmond	798	50%
Rideau Centre, Ottawa	1,416	100%
Sherway Gardens, Toronto	1,291	100%
Shops at Don Mills, Toronto	464	100%
Toronto-Dominion Centre, Toronto	159	70%
Toronto Eaton Centre, Toronto	2,540	100%
Canadian Office Properties		
City Centre Office, Calgary	858	100%
Deloitte Tower, Montreal	515	100%
Pacific Centre Office Complex, Vancouver	1,819	50%
RBC Centre, Toronto	1,222	50%
Shell Centre, Calgary	694	100%
Toronto-Dominion Centre Office Complex, Toronto	4,408	70%
Toronto Eaton Centre Office Complex, Toronto	2,190	100%
Waterfront Centre, Vancouver	401	50%
Yonge Corporate Centre, Toronto	661	100%
160 Front Street West, Toronto	1,254	50%
16 York Street, Toronto	895	70%
Canadian Hotel Properties		
Ritz Carlton, Toronto	335	100%
Land		
East Harbour Lands, Toronto	152	100%

Private companies and partnerships over $200 million

As at December 31, 2019

24 Hour Fitness Worldwide Inc.
24-7 Intouch Inc.
Actera Partners II L.P.
AEA Investors Fund VI LP
Aethon Energy Management LLC
Aethon III LLC
Anthem Entertainment Group Inc.
Apollo Overseas Partners (Delaware 892) VIII, L.P.
Apollo Special Situations Fund, L.P.
Ares Corporate Opportunities Fund IV, L.P.
Ares Corporate Opportunities Fund V, L.P.
Aroona Farms SA Pty Ltd.
Arterra Wines Canada, Inc.
Automobile Protection Corporation
Autopista Arco Norte, S.A. de CV
Baldr Fund Inc.
BaseCore Metals LP
Baybridge Seniors Housing Inc.
Birmingham International Airport
Bristol Airport Limited
Broad Street Loan Partners III Offshore, LP
BroadStreet Capital Partners, Inc.
Busy Bees Benefits Holdings Limited
Camelot Group plc
Canada Guaranty Mortgage Insurance Company
Centurium Capital Partners 2018, L.P.
CeramTec GmbH
Chisholm Energy Holdings, LLC
CIBanco, S.A. CIB/477
Compass Holdings LLC
Copenhagen Airport A/S
CSC ServiceWorks Holdings, Inc.
Cubico Sustainable Investments Limited
DaVinciRe Holdings Ltd.
Empresa de Servicios Sanitarios del Bio-Bio S.A.
Esval S.A.
European Camping Group
EWP PA Fund, LTD.
Exal International Limited
FAPS Holdings, Inc.
FirstFruits HoldCo, LLC
Fleet Complete
Flexera Holdings, L.P.
Flynn Restaurant Group LLC
FMAP ACL Limited
FMAP CIM Limited
FMAP EAM Limited
FMAP HLS Limited
FMAP MMO Feeder LP
FMAP PCM Limited
FMAP SOC Limited
FMAP WMC Limited
Fondo de Capital Privado Terranum
GCT Global Container Terminals Inc.
GFL Environmental Inc.
Goldcrest Farm Trust REIT LLC
Hancock Timber Resources Group
Hawkwood Energy, LLC
HayFin Topaz LP
Heartland Dental Care, Inc.
Heritage Royalty Limited Partnership
Hg Saturn A L.P.
HRG Royalty II LLC
HRG Royalty LLC
Inmarsat plc
Intercos S.p.A.
Irish National Lottery
Kedaara Capital I Limited
Kyobo Life Insurance Co., Ltd.
Lendmark Financial Services
LMAP 903 Limited
LMAP 904 Limited
LMAP 909
LMAP 910
LMAP Chi Limited
LMAP Epsilon Limited
LMAP Kappa Limited
LMAP Pi Limited
London City Airport
Lowell Group Limited
LPC Multifamily Holdco LLC
MBK Partners Fund IV, L.P.
MBK Partners III, L.P.
Memora Servicios Funerarios, S.L.U.
MSB Capital Limited Class A
Oaktree European Principal Fund IV L.P.
OGF SA
Orbis Institutional Global Equity L.P.
Outdoor Holdings, LLC
PAG Asia I LP
PAG Asia II LP
PhyMed Healthcare Group
Phynet Dermatology LLC
Polar Multi-Strategy Fund (Legacy)
Pure International Holdings (BVI) Limited
RedBird Capital Partners Platform LP
RedBird Series 2019, LP
Resource Management Service Inc.
SCI PH Inc.
Scotia Gas Networks plc
SeaCube Container Leasing Ltd.
Shearer's Foods, Inc.
Silver Lake Partners IV, L.P.
Skyway Concession Company LLC
SmartFit Escola de Ginástica e Dança S.A
Sociedad Austral de Electricidad S.A.
Solus Offshore Opportunities Fund 5 LP
Space Exploration Technologies Corp.
Storapod Holding Company, Inc.
Sydney Desalination Plant Pty Limited
Synlab Limited
Techem GmbH
The AZEK Company
The Brussels Airport Company
Thoma Bravo Fund XII-A, L.P.
TierPoint, LLC
Traeger Pellet Grills Holdings LLC
Trian Partners, Ltd.
Verily Life Sciences LLC
VIN Amarone Fund Limited
Warburg Pincus Private Equity XII-B, L.P.
Westerleigh Group Holdings Limited

Eleven-year financial review

(Canadian $ billions)	**2019**	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
CHANGE IN NET ASSETS											
Income											
Net investment income	**$20.19**	$5.23	$16.98	$7.00	$19.67	$16.26	$13.72	$14.75	$11.74	$13.27	$10.89
Contributions											
Members/transfers	**1.62**	1.60	1.71	1.70	1.67	1.63	1.55	1.48	1.41	1.35	1.29
Province of Ontario	**1.60**	1.57	1.68	1.66	1.64	1.59	1.53	1.46	1.41	1.35	1.43
Total income	**23.41**	8.40	20.37	10.36	22.98	19.48	16.80	17.69	14.56	15.97	13.61
Expenditures											
Benefits	**6.42**	6.14	5.93	5.72	5.54	5.31	5.15	4.92	4.66	4.50	4.39
Investment expenses	**0.61**	0.56	0.47	0.45	0.43	0.41	0.36	0.30	0.29	0.29	0.21
Member Services expenses	**0.08**	0.07	0.06	0.06	0.05	0.05	0.05	0.04	0.05	0.05	0.04
Total expenditures	**7.11**	6.77	6.46	6.23	6.02	5.77	5.56	5.26	5.00	4.84	4.64
Increase in net assets	**$16.30**	$1.63	$13.91	$4.13	$16.96	$13.71	$11.24	$12.43	$9.56	$11.13	$8.97
NET ASSETS											
Investments											
Equity											
Publicly traded	**$35.84**	$31.60	$35.13	$38.97	$49.85	$48.27	$47.62	$48.43	$40.35	$36.74	$32.86
Non-publicly traded	**39.34**	33.35	31.94	26.98	27.69	20.58	14.27	11.08	11.32	10.75	8.32
Fixed income											
Bonds	**72.67**	58.25	41.41	43.53	37.98	35.19	30.53	28.87	26.50	22.73	15.46
Real-rate products	**20.44**	19.47	19.96	31.72	31.13	30.36	26.37	31.14	29.29	23.24	19.88
Inflation sensitive											
Commodities	**17.59**	10.61	11.08	4.18	4.00	9.03	8.21	6.97	5.64	5.22	1.94
Natural resources	**8.20**	8.12	6.55	6.28	6.25	2.87	2.62	2.17	2.17	2.22	2.34
Inflation hedge	**10.28**	8.71	8.92	–	–	–	–	–	–	–	–
Real assets											
Real estate	**28.69**	27.45	25.51	26.47	24.86	22.09	19.24	16.86	14.96	16.86	14.21
Infrastructure	**16.98**	17.80	18.74	17.83	15.66	12.66	11.68	9.65	8.71	7.07	5.57
Real-rate products	**–**	4.33	1.45	–	–	–	–	–	–	–	–
Credit	**16.31**	15.23	13.58	–	–	–	–	–	–	–	–
Absolute return strategies	**16.56**	12.55	10.73	13.28	17.76	15.84	12.20	12.27	12.33	11.38	11.67
Overlay	**0.27**	(0.38)	(0.27)	0.51	–	–	–	–	–	–	–
Money market	**(79.12)**	(59.51)	(39.38)	(37.67)	(46.93)	(44.50)	(33.84)	(40.18)	(35.01)	(31.49)	(18.74)
Net investments	**204.05**	187.58	185.35	172.08	168.25	152.39	138.90	127.26	116.26	104.72	93.51
Receivable from Province of Ontario	**3.14**	3.22	3.31	3.27	3.21	3.10	2.97	2.83	2.72	2.63	2.52
Other assets	**0.98**	0.79	1.59	1.21	0.44	0.22	0.14	0.50	0.51	0.57	0.63
Other liabilities	**(0.76)**	(0.48)	(0.77)	(0.99)	(0.46)	(1.23)	(1.25)	(1.07)	(2.39)	(0.39)	(0.26)
Net assets	**207.41**	191.11	189.48	175.57	171.44	154.48	140.76	129.52	117.10	107.53	96.40
Accrued pension benefits	**224.67**	192.28	204.32	189.40	173.27	172.73	148.57	166.01	162.59	146.89	131.86
Deficit	**$(17.26)**	$(1.17)	$(14.84)	$(13.83)	$(1.83)	$(18.25)	$(7.81)	$(36.49)	$(45.49)	$(39.36)	$(35.46)

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
PERFORMANCE (percent)											
Total-fund net return	**10.4**	2.5	9.7	4.0	12.7	11.5	10.6	12.7	10.9	14.0	12.7
Benchmark	**12.2**	0.7	8.2	3.5	10.1	10.1	9.3	11.0	9.8	9.8	8.8
ASSUMPTIONS USED FOR FINANCIAL STATEMENT VALUATION											
As at December 31 (percent)											
Discount rate	**2.50**	3.20	2.95	3.25	3.25	3.35	4.20	3.40	3.40	4.05	4.60
Salary escalation rate	**2.35**	2.40	2.70	2.80	2.50	2.70	3.00	3.00	3.05	3.40	3.55
Inflation rate	**1.35**	1.40	1.70	1.80	1.50	1.70	2.00	2.00	2.05	2.40	2.55
Real rate[1]	**1.15**	1.80	1.25	1.40	1.70	1.65	2.20	1.40	1.35	1.65	2.05

[1] Effective December 31, 2015, real rate shown as the geometric difference between the discount rate and the inflation rate. Previously, the real rate shown was based on the arithmetic difference between the discount rate and the inflation rate.

Filed funding valuation history

Funding valuations must be filed with pension regulatory authorities at least every three years. Valuation dates and voluntary filings are determined by OTF and the Ontario government. Filings must show the plan has sufficient assets to pay all future benefits to current plan members. The 10 most recent filed funding valuations and the assumptions used for each ar e summarized in the table below. Details on plan changes from funding decisions are available in the Plan Funding section at otpp.com.

The sponsors directed that the surplus as at January 1, 2018 be classified as a contingency reserve to help facilitate stability in contribution and bene fit levels in case a future funding valuation shows a decline in assets or an increase in pension costs.

Filed funding valuations[1]

As at January 1 (Canadian $ billions)	2018	2017	2016	2015	2014	2012	2011	2009	2008	2005
Net assets available for benefits	$189.5	$175.6	$171.4	$154.5	$140.8	$117.1	$107.5	$87.4	$108.5	$84.3
Smoothing adjustment	(4.9)	(2.9)	(10.8)	(8.2)	(7.2)	(3.0)	3.3	19.5	(3.6)	(1.5)
Value of assets	184.6	172.7	160.6	146.3	133.6	114.1	110.8	106.9	104.9	82.8
Future basic contributions	42.9	41.1	41.5	38.8	37.5	35.4	33.8	25.9	23.6	16.7
Future special contributions	–	0.3	3.1	3.5	3.5	3.3	3.8	5.5	5.6	6.2
Future matching of CIP benefit reduction	–	–	2.3	5.9	7.4	7.3	5.1	–	–	–
Total assets	227.5	214.1	207.5	194.5	182.0	160.1	153.5	138.3	134.1	105.7
Cost of future pensions[2]	(217.2)	(208.7)	(205.3)	(197.3)	(188.2)	(167.6)	(158.4)	(137.5)	(134.1)	(105.6)
Reduction in cost due to less than 100% indexing	–	–	2.3	5.9	7.4	7.7	5.1	–	–	–
Surplus[3]	$10.3	$5.4	$4.5	$3.1	$1.2	$0.2	$0.2	$0.8	$0.0	$0.1

Assumptions used for filed valuations

As at January 1 (percent)	2018	2017	2016	2015	2014	2012	2011	2009	2008	2005
Inflation rate	2.00	2.00	2.00	2.00	2.10	2.20	2.15	1.35	2.20	2.750
Real discount rate[4]	2.75	2.75	2.75	2.85	2.85	3.10	3.25	3.65	3.45	3.725
Discount rate	4.80	4.80	4.80	4.85	4.95	5.30	5.40	5.00	5.65	6.475

[1] Valuation filing dates determined by the plan sponsors.

[2] Includes value of 100% inflation protection.

[3] The sponsors chose to classify the January 1, 2018, surplus as a contingency reserve.

[4] Effective January 1, 2016, real rate shown as the geometric difference between the discount rate and the inflation rate. Previously, the real rate shown was based on the arithmetic difference between the discount rate and the inflation rate.

Contribution[5] and indexation levels[6]

Conditional Inflation Protection (CIP) Level	2018	2017	2016	2015	2014	2012	2011	2009	2008	2005
Indexation level (Post-2009–Pre-2014 benefits)	100.0	100.0	90.0	70.0	60.0	50.0	60.0	100.0	n/a	n/a
Indexation level (Post-2013 benefits)	100.0	100.0	90.0	70.0	60.0	45.0	60.0	100.0	n/a	n/a
Contribution level above the YMPE	12.0	13.1	13.1	13.1	13.1	12.4	12.0	12.0	11.2	8.9
Contribution level below the YMPE	10.4	11.5	11.5	11.5	11.5	10.8	10.4	10.4	9.6	7.3

[5] Contribution levels are those that were in effect in the calendar year of the valuation.

[6] Indexation levels are effective the January 1 following the valuation date.

Corporate information

Contact us

ONTARIO TEACHERS' PENSION PLAN BOARD
5650 Yonge Street
Toronto, Ontario M2M 4H5
+1 416-228-5900
communications@otpp.com

ONTARIO TEACHERS' PENSION PLAN (EUROPE) LIMITED
10 Portman Square
London W1H 6AZ
+44 20 7659 4450
contact_london@otpp.com

ONTARIO TEACHERS' PENSION PLAN (ASIA) LIMITED
安大略省教師退休金計劃(亞洲)有限公司
Suites 2801, 2805–2810,
Alexandra House
18 Chater Road, Central Hong Kong
+852 2230 4500
inquiry_asia@otpp.com

WWW.OTPP.COM

MYOTPP @OTPPINFO OTPP.COM/LINKEDIN OTPPINFO