Ontario Pension Board
2018 Annual Report

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Letter from the Chair

After a year of significant change in 2017 with the launch of the Investment Management Corporation of Ontario (IMCO), in 2018 we focused our efforts on investment governance and enhancing the client experience for our valued members.

With IMCO now fully operational, our investment responsibilities have refocused on setting our investment strategy parameters for IMCO and continuing oversight of their execution within this framework. We've worked diligently over the last year to put a strong system of checks and balances in place to oversee IMCO's implementation of our carefully structured Strategic Asset Allocation (SAA). Despite the challenging markets in 2018, we ended with a positive return of 1.8%. I'm confident that our investment strategies will help us recover from 2018's low single-digit return just as we have in the past. The responsibility to ensure that IMCO is effective as our investment manager and continues to focus on the long-term sustainability of the Plan's assets is part of our larger mandate to protect the pensions of our current and future members.

As a public sector organization, we have a clear responsibility for cost effectiveness in both operational delivery and the formulating of our future plans. We believe our pension modernization initiative is well aligned with the new government's commitment to improving efficiencies and taking a Digital First approach. The initiatives we have planned will allow us to replace our legacy pension administration systems and ensure the security of our members' data in a digital-driven environment, while helping us reduce our paper transactions, increase service delivery, and expedite our ability to consolidate smaller broader public sector pension plans as new participants into the Public Service Pension Plan (PSPP).

In my letter last year, I spoke to the importance of governance oversight of the Board as a key component of my role. In 2017, we hired Hansell LLP, which reported that OPB has sound governance practices and that the Board is effective in fulfilling its mandate. The report from Hansell enabled us to develop a governance improvement plan. We've made great progress on achieving many of the suggested actions, including interim reporting to the Board between scheduled meetings and, critical to OPB's ongoing long-term success, the development of robust succession plans for our executive leadership team.

We recognize the importance of ensuring our Board knowledge and expertise remains current and applicable to our mandate. This means leveraging our skills matrix when Board vacancies arise to ensure we have the necessary knowledge and expertise on the Board to provide sound guidance and governance around pensions, investments and risk.

We want to take the opportunity to thank John Por and Kevin Costante, whose Board appointments both ended in 2018, for their dedicated service and valuable contributions to OPB and the Board.

We also welcomed Elana Hagi to the Board. As an actuary with more than 20 years of experience, Elana brings strong actuarial and pension expertise to our Board.

It has been a privilege to serve on the Board and work with the directors and OPB's senior management team as we identified the next phases in OPB's evolution.

In closing, on behalf of the Board, I want to express our thanks and appreciation to the OPB team, who have helped navigate the challenges we saw this year, while still maintaining excellent service to our members and stakeholders.

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Geri Markvoort
Chair

Letter from the President & CEO

2018 Investment Performance

After several years of strong investment returns, 2018 was a challenging year for investors. Public equity markets around the world suffered significant losses. OPB earned a return of 1.8%, equalling our portfolio benchmark, compared to 10.8% in 2017. While still a positive return in a year that saw many investors lose money, our return for the year is below the rate of return of approximately 5.6%, net of expenses, per year that is required to maintain the Plan's funded status.

Funded Status

As a result, the funded status deteriorated during 2018 from 97% at the end of 2017 to an estimated 93% at the end of 2018. This reflects the full impact of the 2018 investment returns. OPB has successfully managed the Plan through challenging investment environments in the past, such as the 2007/2008 financial crisis. While the Plan does face funding risks, such as continued increases in lifespans and inflation spikes, we believe that we are well positioned to continue to do so. There are already additional contributions being made to the Plan, through increased employee and employer contributions as well as Plan Sponsor special payments that will help protect the sustainability of the Plan long term and will contribute significantly to restoring the Plan's funded status over time. We believe that, over the long term, our investment strategies will also generate the returns necessary to keep the Plan well funded. An average annual investment return that is, over 15 years, one quarter of one percent above the 5.6% referred to above would improve the Plan's funding by approximately $2.1 billion.

Enhancing Plan Sustainability

Our most important function is to manage the Plan in a manner that contributes to its long-term sustainability. That includes continually monitoring the adequacy of contribution rates and recommending increases as appropriate. In April 2018, on our recommendation to the Plan Sponsor, Phase 1 of a two-part contribution rate increase was implemented: employee and employer contributions were increased by 0.5%. Phase 2, with a further increase of 0.5%, will follow in April 2019. These were proactive steps recommended to the Plan Sponsor by OPB to support the long-term financial health of the Plan.

IMCO assumed management of the investment of the Plan's assets in 2017 and completed its first full calendar year of operation in 2018. IMCO was created so that OPB, the Workplace Safety and Insurance Board (WSIB) and future member organizations could benefit from the advantages of scale, enhanced research and risk management capabilities, more significant investment opportunities and cost efficiencies. Over the course of the year, IMCO attracted several world-class investment professionals, including a Chief Investment Officer, a Chief Risk Officer, a Chief Economist, a Chief Operating Officer and a Senior Managing Director of Private Markets. These highly capable professionals are essential to pursuing the sophisticated strategies needed to generate strong investment returns and manage investment risk in an increasingly complex and competitive marketplace.

IMCO made a number of investments on behalf of OPB during the year, including an infrastructure investment in a U.K.-based energy-from-waste aggregation platform; a private company interest in Pacifico, the world's first sustainable marine aquaculture business specializing in ocean-raised striped bass; and a joint venture with our long-time real estate partner Cadillac Fairview: the construction of a new 1.2 million-square-foot, 46-storey, targeted LEED Platinum and WELL-certified office tower in downtown Toronto.

Stronger through Consolidation

We actively support the Province's goal to consolidate smaller public sector pension plans into larger plans like the PSPP. Consolidation helps improve the efficiency and cost effectiveness of OPB and of the employers that merge their plans into the PSPP. For OPB, it contributes to economies of scale. For the employers coming into the Plan, it reduces their operating costs and allows them to focus on their core business.

In 2018, the TVO and Ontario Northland Transportation Commission (ONTC) pension plans were merged into the PSPP. These mergers will be fully completed in 2019, and we are in discussions to merge with additional small public sector plans in the year ahead.

Client Service Performance

We strive to deliver outstanding service to all our stakeholders, while maintaining a disciplined approach to managing costs across all our operations. Our focus on service was recognized with a score of 91/100 from CEM Benchmarking, up from 90 in the prior year and placing our service level second in Canada and fourth internationally. Our client satisfaction score held at 8.7/10 and our employer satisfaction score rose from 7.9 to 8.1/10.

Driving Effectiveness and Cost Efficiency

To ensure that we have the systems needed to deliver cost-effective service and protect our clients' information, we are continuing to prudently move forward on our pension modernization initiative, while carefully managing our operating expenses. Upgrading our information technology is vital to managing risks, including cyber risk, and to increasing our digital service offerings where possible.

Moving to provide more online service options to both members and employers will enhance the service experience we deliver, while helping to make our operations more efficient. Updating our business processes is also key to improving our service and cost efficiency.

We are implementing this initiative methodically and keeping a watchful eye on our expenses. While we expect that this program will take several years to complete, we also expect to deliver valuable improvements as it proceeds.

All of these efforts align with the Province's Digital First strategy, which focuses on reducing costs and enhancing efficiency by using digital channels to deliver a broader range of services.

In keeping with the changing nature of our activities now that IMCO is operational, we moved to a leaner senior executive team of four, reduced from seven.

Our expense ratio, which includes our internal operating expenses and external expenses such as investment management fees, including IMCO's costs and custodial costs, was 0.53% per dollar of assets in 2018. This ratio is very competitive with even our much larger public sector pension peers.

Looking Forward

For close to three decades, through effective planning and efficient management as the administrator of the PSPP, OPB has been able to protect the pension promise, keeping the Plan affordable for members and employers. We are committed to maintaining that track record. To that end, in 2019 we intend to continue our focus on long-term Plan sustainability. We will also continue our work with IMCO, providing support and oversight as it progresses toward becoming a world-class investment manager.

Ken Lusk, our Chief Investment Officer, will be stepping down from that role during 2019. I want to thank Ken for his outstanding contribution over more than 10 years of service with OPB. In particular, I am grateful for his lead roles in the development and establishment of our new private markets investment strategies, the founding of IMCO, and the establishment of a robust oversight monitoring program. We are currently in the process of recruiting his successor.

I also want to thank the Board, the rest of the leadership team and all OPB employees for their hard work and ongoing support. Together, we will stay focused on maintaining an effective and cost-efficient organization that continues to provide our members with outstanding service, pension security and an affordable, sustainable plan.

Mark J. Fuller
President & CEO

Management's Discussion & Analysis

Introduction

At OPB, our primary objective is to effectively plan and efficiently manage the Public Service Pension Plan (PSPP or the Plan) so that we can deliver pension benefits as promised and remain affordable for our members and employers over the long term.

We are focused on providing unmatched service excellence to clients and managing the Plan design and funding status to provide pension sustainability, not just for our current members but for members well into the future. We are vigilant in managing the key risks facing the Plan, and incorporate risk management in our investments and pension administration.

As an agency of the Government of Ontario, OPB recognizes its obligation to effectively manage costs and constrain expenses, and operates within the objectives and guidelines on transparency established by the government.

This section provides management's analysis of how the Plan performed in the past year, its financial condition and its future prospects. This MD&A supplements the information provided in the financial statements.

Overview

The Plan's funded status was impacted by the 2018 investment return of 1.8%. This led to a deterioration of the funded status to approximately 93% on a going-concern basis, compared to 97% at the end of 2017.

The implementation of the first phase of a contribution rate increase in 2018, along with the second phase taking place in early 2019, will help to keep the Plan financially sustainable. OPB filed a funding valuation with the Ontario regulator most recently in 2017, and is not required to file another one again for three years.

In 2018, public markets were characterized by sluggish or negative returns and greater volatility. It is not unusual to have years of strong investment returns followed by a challenging investment environment like the one we saw in 2018. Returns in private markets were better, reinforcing the strategic decision made years ago to increase the proportion of PSPP assets allocated to private markets.

Our service to members continued to be positively received in 2018, despite significant increases in demand for various transactions, which naturally strained our resources. In regular surveys, our members continued to rate their OPB experience very highly, and we achieved a score of 91/100 from benchmarking firm CEM, which placed us second in Canada and fourth globally.

Management made significant progress in advancing the multi-year pension modernization initiative, including the 2018 launch of a new public website. Pension modernization will add new capabilities and reduce systems' costs and risks over the long term. This major commitment is an example of how we are working to keep the pension promise in a way that is both efficient and cost effective.

2018 marked the first full year of operations for IMCO, which began managing Plan assets on behalf of OPB in July 2017.

As the administrator of the PSPP, and in line with our fiduciary duties, OPB continues to:

- own PSPP assets and be responsible only for PSPP liabilities;
- set its own Strategic Asset Allocation (SAA) policy, with which IMCO must comply; and
- set its Statement of Investment Principles and Beliefs (SIP&B) and Statement of Investment Policies and Procedures (SIP&P), with which IMCO must comply.

We collaborated with IMCO on a number of fronts during the year, including development of IMCO's new Responsible Investing Policy, which was approved in 2018. OPB also created a monitoring program to ensure IMCO is, as is best practice, managing OPB assets according to the terms that the parties have agreed to in a number of formal agreements.

Funding

Our 1.8% investment return in 2018 (excluding external investment management fees and OPB's operating expenses) caused the Plan's funded status to deteriorate compared to its position of 97% at the end of 2017. Nevertheless, the Plan remains well funded, at approximately 93% at the end of 2018. Based on recent changes to contribution rates and assumptions, it remains well positioned to continue to meet the pension promise.

The funded status of a pension plan, in simple terms, compares the value of pension assets on one side with the present value of projected future pension benefits, or pension obligations, on the other. If assets exceed liabilities, the plan is said to be in a surplus position. If liabilities exceed assets, the plan is in a shortfall position.

To keep the Plan sustainable over the long term, we have to ensure it can withstand many challenges that may occur, such as lower investment returns in the future and continued improvements in members' lifespans. At OPB, we regularly update our demographic and economic assumptions to reflect emerging experience, and we then use that information to make recommendations on contribution rate adjustments when needed. Our strategies have materially contributed to the Plan's continued financial health.

- In 2018, we began to implement a contribution rate increase of 1% of pensionable salary for PSPP members and employers. Phase 1 of the increase (0.5%) took effect in April 2018, and phase 2 (the remaining 0.5%) will take effect in April 2019.
- This follows our steps taken in 2017 to enhance the sustainability of the Plan, when we lowered the discount rate used to value the Plan's future pension payments and strengthened our longevity assumptions.

In 2018, we filed an actuarial valuation of the PSPP as at December 31, 2017 with the pension regulator, the Financial Services Commission of Ontario (FSCO). This actuarial valuation was prepared under the new funding rules introduced for Ontario pension plans. Under the provisions of the Ontario *Pension Benefits Act* (PBA), we are required to file an actuarial valuation with the pension regulator at least once every three years, so the next required actuarial valuation will be as of December 31, 2020, which will be filed in 2021.

What We Did	**Why It Matters**
Funded status, at 93%, declined due to a low investment return in 2018.	The Plan is financially healthy and well positioned to continue to meet the pension promise.
Filed a funding valuation with FSCO.	We are required to file a funding valuation with FSCO at least once every three years. With the 2017 filing, we are not required to file another funding valuation before 2020 year-end, which would be filed in the fall of 2021.
Implemented the first phase of a contribution rate increase, with the second phase to take effect in April 2019.	Adjusting contribution rates for members and employers is a key lever that helps to keep defined benefit pension plans financially healthy for the long term.

KEY ASSUMPTIONS

Effective pension plan management involves careful and prudent asset management and appropriate design of the Plan over the long term. OPB adheres to a robust funding policy, which guides decisions around Plan design, funding and valuation assumptions.

Discount Rate

The discount rate is a key assumption that is used in funding valuations and can influence decisions about contribution rates and benefits. It is used to calculate the present value of the future pensions expected to be paid by the Plan. For example, a pension payment that is expected to be made in 20 years is "discounted" back to today at the discount rate. This means that, for valuation purposes, the present value amount of the pension payment in today's dollars will grow at the discount rate. This, in turn, means that, over the long term, investment returns on the Plan's assets must equal or exceed the discount rate – otherwise, the cost of the pension will grow faster than the value of the assets, which produces a shortfall.

Setting a realistic discount rate is, therefore, a critical aspect of managing the long-term financial health of a defined benefit pension plan. The process we use to set the discount rate is rigorous and is designed to ensure that the assumption is reasonable in that it aligns with the investment returns OPB management believes can be achieved over the long term, based on the asset mix targets in the Strategic Asset Allocation (SAA). This is based on robust modelling that allows for a cushion for unanticipated events (what is known as a "margin").

We also consider the current economic environment and outlook. In our 2017 Annual Report, we noted that it was prudent to moderate expectations for future investment returns because they were uncertain. Competition for private markets assets, notably quality real estate and core infrastructure, remains intense, which means higher acquisition prices and downward pressure on returns.

That is why, in 2017, we determined that the discount rate should be reduced from 5.7% to 5.6%. Changes to the discount rate impact the Plan's projected liabilities (a lower discount rate means higher Plan liabilities) and, by extension, impact the Plan's funded position. The 5.6% discount rate used to calculate the liabilities reflects an implicit margin for adverse deviation. Under the new Ontario pension funding rules, the methodology for valuing liabilities was changed to first calculate the liabilities without any margin in the discount rate and to then add an explicit reserve called a Provision for Adverse Deviation (PfAD). For the PSPP, the new methodology results in similar total liabilities compared to the prior methodology – the liabilities including the PfAD would be equivalent to using an effective discount rate of 5.64%. The funding requirements for the Plan were maintained at an effective discount rate of 5.6%.

Members Are Living Longer

The most important demographic factor facing the Plan is that members are living longer and collecting their pensions longer.

For example, a 62-year-old member who retired in 2002 would be expected to receive their pension for 21.4 years. However, by December 2018, a member retiring at the same age would be expected to receive their pension for 25.9 years – an increase of 4.5 years.

In 2017, we strengthened the lifespan assumptions used to project the cost of the pension obligations (liabilities) of the Plan.

We closely monitor demographic trends in our membership and may make adjustments to our funding assumptions, or recommendations for changes to Plan design, to ensure that we can continue to meet our future pension obligations, while pension benefits remain affordable for members and employers.

LONG-TERM FUNDING STUDY

The projected cost of providing benefits to members is affected by many factors that will occur in the future, about which we must make assumptions. As part of our prudent management of the Plan, OPB conducts a number of comprehensive studies to evaluate the appropriateness of those assumptions and to evaluate whether the contribution rates are set at appropriate levels. One of these reports is the Long-Term Funding Study (LTFS).

Based on the results of OPB's 2016 LTFS, we determined the cost of providing the benefits under the Plan had increased as a result of adjustments to the discount rate and longevity assumptions, and recommended a contribution rate increase of 1% of pensionable salary for members and employers.

The contribution increase is being phased in over two years. Phase 1 took effect in April 2018, and phase 2 is scheduled to take effect in April 2019. Even with this increase, contribution rates are among the lowest of peer pension plans, and the PSPP continues to offer excellent value for our members and employers.

ASSET/LIABILITY STUDY

OPB is responsible for conducting an asset/liability (A/L) study approximately every three to five years to see how our various asset allocations meet the goal of paying members' pensions – our liabilities – in light of long-term capital markets assumptions and the Plan's cash flow requirements.

An A/L study involves projecting a pension plan's assets and liabilities under numerous economic and capital markets scenarios, and it models several investment portfolios with varying levels of risk and return characteristics. The process is designed to give OPB a full understanding of the investment strategies available to the Plan and their expected benefits and risks. The A/L study helps to ensure our Strategic Asset Allocation (SAA) is appropriate for the coming years, given projected future liability streams.

OPB completed its most recent study in early 2017. The next study is tentatively planned to take place in early 2020.

FINANCIAL POSITION

OPB conducts actuarial valuations of the Plan on a regular basis. The actuarial valuation for funding purposes is used to ensure there are sufficient assets to meet the Plan's pension obligations. It is also used to determine contributions to the Plan. The funding valuations provide a best estimate of the Plan's accrued pension liabilities and are performed by an independent actuary appointed by OPB's Board of Directors.

In determining the surplus or deficit position of the Plan for financial reporting, OPB uses the latest actuarial valuation for funding purposes and extrapolates the pension obligations to the financial statement date.

Valuation Type	Purpose and Description
Funding basis	Pension plans are legally required to file a funding valuation with the regulator, the Financial Services Commission of Ontario, once every three years. In 2018, OPB filed an actuarial valuation of the Plan as at December 31, 2017. The valuation indicated that the Plan was just over 97% funded and had a shortfall of $777 million. This compares to 96% funded with a shortfall of $943 million as at December 31, 2016 (the previous valuation filed with the pension regulator).
Financial statements	For the purpose of the financial statements, the Plan's liabilities were calculated as at December 31, 2017 and extrapolated to December 31, 2018. The extrapolated numbers are based on the assumption that the Plan's 2018 experience (for factors such as salary increases, retirement ages, and termination and mortality rates) would match the Plan's actuarial assumptions. For financial reporting purposes, we have calculated the Plan's 2018 year-end financial position by comparing the extrapolated liability with the actual market value of assets as of December 31, 2018. Based on this, the Plan had a deficit of $1,888 million (a 93% funded ratio), compared to a deficit of $738 million at the end of 2017 (a 97% funded ratio).

Investments

OPB's strategic long-term approach to investing is shaped by two key objectives:

1. securing and maintaining the pension benefits promised to members; and
2. maintaining affordable contribution rates for members and participating employers.

To achieve these objectives, our overall approach to Plan design and investment management is to position the Plan to remain financially healthy over the long term, despite temporary reductions in funded status due to inevitable periods of challenging investment conditions.

The Investment Management Corporation of Ontario (IMCO) began managing the Plan's assets in July 2017.

IMCO was created to provide public sector clients in Ontario with professional investment services, best-in-class advice around portfolio construction, efficient access to a diverse range of asset classes and superior reporting on investment risks and returns.

In short, outsourcing investment management to IMCO is a key part of OPB's resolve to be *Effectively Planned, Efficiently Managed*.

IMCO invests and reinvests OPB's investment portfolio within OPB's overarching investment policies (including its Statement of Investment Policies and Procedures and its Statement of Investment Principles and Beliefs), and individual asset class investment policies.

THE ROLES AND RESPONSIBILITIES OF OPB AND IMCO

OPB	IMCO
Owns Plan assets and is responsible for Plan liabilities.	Manages Plan assets for a fee based on cost recovery (i.e., not for profit).
Sets Strategic Asset Allocation (SAA), considering Plan funding and cash flow needs.	Manages investments in accordance with OPB's SAA and asset class investment policies and other contractual requirements.
Oversees IMCO's investment performance with respect to Plan and adherence to OPB's SAA, through our monitoring program.	Regularly reports on investment performance and risk management to OPB.

By pooling clients' assets under one investment manager, we will be in a stronger position to deliver on the long-term pension promise for our members. IMCO offers immediate economies of scale that open the door to opportunities we otherwise wouldn't be able to access, at a relatively lower cost, which we expect will produce higher risk-adjusted returns than we could achieve on our own.

Consistent with the Government of Ontario's direction, we believe that managing costs will be an important factor in earning the investment returns required to pay future pensions.

IMCO is better positioned to attract and retain superior leadership and investment management talent; to provide enhanced research capabilities; to invest in advanced risk measurement and management; to employ new investment and investment finance systems; to access a broader range of assets and partnership opportunities, particularly in private markets; and to negotiate better deal terms due to its scale.

An Investment Management Agreement (IMA) governs the investment management relationship between IMCO and OPB and focuses largely on investment-related matters. The Service Level Agreement (SLA) sets out a framework for dealing with matters such as deliverables, including the content and frequency of reporting, and the service levels IMCO is expected to meet.

The Implementation and Support Agreement (ISA) deals with operating and governance matters such as shared services in the short term, IMCO corporate policies, asset pool development, and cost allocation and cost containment principles.

OPB oversees how IMCO is performing through an ongoing monitoring program and formal continuous, open dialogue with IMCO executives. We have established a variety of key performance indicators (KPIs) that allow us to assess IMCO's investment performance and the performance of its contractual duties, responsibilities and obligations to OPB as its sole investment manager.

IMCO'S FIRST FULL YEAR

In 2018, which marked its first full year of operations, IMCO made a number of key hires, including a Chief Investment Officer, a Chief Risk Officer, a Chief Economist, a Chief Operating Officer and a Senior Managing Director of Private Markets, all of whom will play essential roles in the organization's future success.

The IMCO Board of Directors approved a multi-year business plan in 2018, which lays out a series of important initiatives that will enable it to become a world-class investment manager by 2022–2023.

The IMCO Board also approved its first Responsible Investing (RI) Policy, which included a commitment to the United Nations-backed Principles for Responsible Investment (PRI) as a foundation, and IMCO will become a signatory to the PRI in 2019. The PRI is a global proponent of responsible investment. It works to understand the investment implications of environmental, social and governance (ESG) factors, and to support its international network of investor signatories in incorporating these factors into their investment and asset-ownership decisions.

During 2018, IMCO focused on the following key areas on behalf of OPB:

1. implementing and managing our Strategic Asset Allocation (SAA), including our continuing shift of assets from public to private markets;
2. building its asset management and client service capabilities; and
3. enhancing its risk and performance reporting.

These areas are discussed in more detail on the following pages.

STRATEGIC ASSET ALLOCATION

Asset mix is the single most important driver of investment performance. At OPB, asset mix is broadly defined in our SAA, which sets out the Board's target investment allocations (weights) to each major asset class.

OPB is responsible for setting the SAA, and IMCO manages OPB funds according to the SAA. The SAA targets are developed with the intention of meeting the Plan's long-term funding objectives while effectively managing investment risk through diversification across several asset classes.

OPB's Board of Directors adopted an updated SAA in 2017. The allocations to private equity and infrastructure assets were increased, and a small decrease was made to the real estate allocation. In establishing the 2017 SAA, which is being phased in over several years, OPB considered liquidity requirements and the economic assumptions used in the Plan's actuarial valuation.

The Plan's holdings in private assets rose to approximately 35% of the Fund at the end of 2018, up from approximately 29% at the end of 2017.

In the ongoing search for high-quality global opportunities, we expect IMCO will continue to be thorough in its analysis of the role that new investments will play in our investment portfolio (from both a risk and return perspective) and whether they complement our existing holdings.

SAA ASSET MIX TARGETS AND POLICY RANGES BY MID-2020

Asset Class	Target Policy Weight[1]	Range
Fixed Income[2]	25.0%	10%–45%
Equities[3]	42.5%	13%–80%
Real Estate	21.0%	15%–30%
Infrastructure	11.5%	5%–17%

The proportion allocated to each asset class at any point in time will be determined by OPB's assessment of economic and financial market conditions. During the transition period toward achieving the SAA target allocations, certain asset class weights may be outside the ranges set out in investment policies. OPB monitors the SAA allocations regularly and may make adjustments in case of changes in:

- the ratio of Plan assets to Plan liabilities;
- the design of the Plan's benefits and pension eligibility requirements;
- the respective proportions of active and inactive members in the Plan;
- long-term capital market prospects;
- cash flow requirements;
- the risk tolerance of the Plan with regard to its liabilities; and
- any other factors considered relevant.

Using long-term capital market assumptions, the SAA has an expected average rate of return equal to or greater than 5.60% nominal/3.60% real (that is, after inflation) per year, net of expenses.

1 The SAA target allocations are being phased in over a three-year period ending in 2020.

2 Fixed Income includes Cash, Long Bonds, Private Debt and Real Return Bonds.

3 Equities include Canadian Equity, Global Equity, Emerging Market Equity and Private Equity.

ASSET MIX AT DECEMBER 31, 2018

	2018 Actual Asset Mix versus SAA Targets	
Asset Categories	**Actual Mix**	**SAA Target**
Fixed Income	26.3%	28.0%
Equities	46.3%	44.5%
Real Estate	19.5%	20.0%
Infrastructure	7.9%	7.5%
Total investments	100.0%	100.0%

INVESTMENT HIGHLIGHTS

It is not unusual to have years of strong investment returns followed by a challenging investment environment like the one we saw in 2018, which ended with OPB earning an overall return of just 1.8%.

Unlike the synchronized cyclical upswing in global economic growth that began in mid-2016, the drivers of global growth became more divergent in 2018. The cyclical expansion in the United States was bolstered by the large fiscal stimulus from income tax cuts while the economies of the Eurozone, Japan and China lost momentum. By the fourth quarter of 2018, a synchronized global slowdown took hold. Key factors contributing to the fading global growth momentum in 2018 included higher interest rates as major central banks hiked policy rates and tightened liquidity, high public and private debt that worked in tandem with greater geopolitical uncertainty and a sooner-than-expected slowdown in China. In addition to the peak in global growth, divergent economic trends and relatively high U.S. interest rates kept upward pressure on the U.S. dollar, tightening global liquidity for sovereign and private borrowers in U.S. dollars and reversing capital flows from many emerging markets. Tight labour markets and normalizing inflation led other major central banks to tighten monetary conditions, including the European Central Bank and the Bank of Canada.

Stressed financial markets in the fourth quarter reflected the shifting global economic landscape of slowing growth, higher central bank policy interest rates and tighter liquidity. After posting strong returns in recent years, many investment strategies and asset classes produced negative results in 2018, reducing the usual gains of a well-diversified portfolio. Most major global equity markets suffered significant declines. As measured by MSCI Inc. in the local currencies of the countries included in each index, the World Index declined by 6.9%, with the MSCI EAFE (Europe, Australasia and Far East) and Emerging Markets indices falling by 10.5% and 9.7%, respectively. The Toronto stock market index experienced a relatively similar loss, declining by 8.9%. The U.S. equity markets performed better but still ended the year down by 4.5%, as measured by the MSCI USA Index. After a difficult start to 2018 due to rising interest rates, government bond markets in the United States and Canada rebounded in the fourth quarter of 2018 as the weaker global growth outlook led investors to expect fewer rate hikes by central banks. However, longer duration bonds, which made up a major part of OPB's fixed income portfolio, underperformed shorter maturities. Overall, these movements negatively impacted the performance of our public markets investments and those of our peer plans. OPB recorded an overall negative return in 2018 of 1.1% for public markets – a positive return of 1.9% from fixed income and a negative return of 3.5% from public equities. OPB's 3.5% negative return from public equities was ameliorated from what the MSCI indices would indicate because of the weakness of the Canadian dollar in 2018 relative to most other major foreign currencies.

Our private markets investments fared much better, with an average overall return of 8.5% on a currency hedged basis (investments in foreign currencies hedged back to Canadian dollars). Investor demand generally continued to propel valuations in infrastructure, private equity and real estate office properties, particularly in the Toronto and Vancouver downtown Class A office markets.

Occasional downturns are a matter of fact for all investors. OPB has weathered storms before, and will do so again. In the decade since the 2008 global financial crisis, which negatively impacted all pension plans significantly, we have been able to increase the market value of our net assets by almost 82% – from $14.6 billion at the end of 2008 to $26.5 billion at the end of 2018.

Notwithstanding the low return in 2018, the past five years have delivered good investment returns of 7.0% compounded annually. Over that five-year period, we have taken a number of steps to bolster the sustainability of the Plan, including revising our actuarial assumptions and implementing a contribution rate increase.

Investment Activities	Why It Matters
Recorded an annual investment return of 1.8% in 2018 and a five-year compounded annual return of 7.0%. Since inception in 1990, our rate of return stands at 8.3%.	While market volatility and challenging conditions hurt our one-year return, the five-year return has kept the funded status of the Plan at 93%.
Continued to shift assets to private equity, real estate and infrastructure assets, in line with our transitional SAA phase-in targets.	These types of assets are expected to generate the long-term returns required to fund the Plan's liabilities and help insulate the Plan from public markets volatility.
Realized gains of $31 million by divesting our holding in Anglian Water (in the Infrastructure portfolio) and $120 million by divesting our position in a high-growth branded consumer products company (in the Private Equity portfolio).	Strong investor appetite for infrastructure and private equity investments led to strong gains on these asset sales, and we can re-invest the proceeds in other assets in the same asset classes.
Announced, through partnership with Cadillac Fairview, the construction of a new, targeted LEED Platinum and WELL-certified, 46-storey, 1.2 million-square-foot office tower in downtown Toronto, scheduled for occupancy in 2022, with 100% pre-leasing commitments for the office space.	Quality real estate assets generate strong cash flow and stable returns, and act as a hedge against inflation.
Worked closely with IMCO on the development of its first Responsible Investing (RI) Policy.	The RI Policy defines key commitments and guidelines that enable IMCO to effectively incorporate environmental, social and governance (ESG) factors into investment management decisions, on behalf of its clients, including OPB.

INVESTMENT PERFORMANCE

We must expect and manage through periods of market volatility from time to time. Consistent with our view expressed in last year's annual report that future investment returns would be more moderate, we adjusted our future investment return assumptions in 2017 (by lowering the discount rate) and supported the commencement of IMCO's operations.

Our overall annual return of 1.8% in 2018 (prior to external investment management and custodial fees and OPB's operating expenses) equalled the portfolio benchmark but had a negative impact on our funded status, which was 93% at the end of 2018. The one-year return, net of all internal and external expenses, was 1.3%.

RATES OF RETURN

OPB's 2018, five-year, 10-year and since-inception compounded annual rates of investment return for the period ending December 31, 2018 are as follows:

1-year	5-year	10-year	Since 1990
1.8%	7.0%	8.0%	8.3%

From 1990 until the end of 2018, approximately 71% of the sources of pension funding at OPB have come from net investment income, with the remainder coming from employee and employer contributions. The investment program is crucial for ensuring future benefits are available and sustainable for Plan members.

Since pensions are accrued and paid out over decades, pension plans need to take a long-term perspective. Our investment approach therefore emphasizes capital preservation and seeks to generate stable, long-term investment returns within an acceptable risk framework by minimizing unrewarded risk, reducing total risk, focusing on fundamental research and analysis to make investment decisions, and sourcing diversified investment opportunities that provide predictable cash flow.

On a five-year basis, our compounded annualized return of 7.0% has exceeded the corresponding portfolio benchmark of 6.7% by 0.3%. We continued to implement the shift in OPB's asset mix from public markets to private markets assets, pursuant to the SAA phase-in plan, increasing private investments by approximately $1.8 billion during 2018 to 35% of the market value of the Fund at year-end. We will continue to move forward with this long-term strategy. One of the key reasons for shifting assets into private markets is to provide for portfolio diversification and less volatility compared to public markets investments.

A challenge with respect to successfully investing in private markets assets is that it requires time, sophistication, dedicated people resources and research capabilities – all of which can be better provided through IMCO. Although OPB has performed well, IMCO is better positioned and resourced to realize opportunities and build partnerships in private markets investments than OPB was, and, over the long term, our members will benefit from IMCO's capabilities in this area.

Public Markets Investments

As a result of IMCO implementing the SAA shift from public to private markets investments during the year, public markets investments declined to approximately 65% of OPB's net assets at December 31, 2018, compared to 71% at the end of 2017.

Interest-Bearing Investments

- **Fixed Income** – The purpose of fixed income in OPB's investment portfolio is to serve as the principal absolute risk management tool. The Fixed Income portfolio, which includes global bonds, real return bonds, and private debt, provided a return of 1.9% in 2018. The year-end market value was $7.0 billion. In comparison, fixed income earned a 4.1% return in 2017 and was also valued at $7.0 billion.

- **Private Debt** – These assets consist of investments across the capital structure, including investment and non-investment grade debt, as well as forms of debt that are unavailable in the public market. This gives OPB the capability to invest in private credit across the risk spectrum and capitalize on market opportunities while maintaining a focus on capital preservation and current cash yield. The private debt portfolio returned 8.2% in 2018 on a currency hedged basis, with a year-end market value of $530 million. That compares to a return of 8.5% and a year-end value of $448 million in 2017. Unfunded private debt commitments at the end of 2018 were approximately $390 million, compared to $211 million at the end of 2017.

Public Equities

The purpose of public equities in the investment portfolio is primarily as a long-term return enhancement asset. Public equities are expected to generate higher returns than the Fund benchmark return over the long term.

The Canadian equity portfolio had a negative return of 6.9% in 2018, compared to a positive return of 9.3% in 2017. The year-end market value of the portfolio was $2.5 billion, compared to $2.8 billion at year-end 2017.

The Plan's foreign developed market equity portfolio generated a return of 1.4% in 2018, compared to 18.7% in 2017. At year-end 2018, the portfolio had a market value of $4.0 billion, compared to $4.8 billion at year-end 2017.

The Plan's emerging markets equity portfolio return was negative 8.1% in 2018, compared to a positive return of 25.0% in 2017. As of December 31, 2018, the portfolio's market value was $3.6 billion, compared to $4.3 billion at year-end 2017.

Private Markets Investments

With the exception of some of our Canadian shopping centres and an infrastructure asset (both discussed below), our Private Markets portfolio continued to generate strong returns in 2018, which we attribute to strong investor demand for quality private assets, a disciplined approach to investing, the robust partnerships we developed, and IMCO's ability to negotiate the best possible investment fees.

IMCO continued the strategic shift of OPB assets from public to private markets in 2018. The private markets strategy involves acquiring first-class real estate properties, core infrastructure assets and private equity (primarily a mid-market buy-out strategy at present) through a combination of direct investments, fund investments and co-investments. Private markets assets tend to be more illiquid and longer-term holdings than those in public markets. Because of the added liquidity risk, returns are typically higher than those expected from equivalent public markets investments.

Real assets such as real estate and infrastructure assets help partially protect the Plan from public markets volatility, as a larger proportion of their returns are generated from predictable, ongoing cash flows versus capital appreciation. Private equity offers attractive risk-adjusted returns and allows improved diversification by asset type, industry and geography. OPB's reputation as a trusted and respected partner has transitioned to IMCO and continues to provide access to high-quality deal flow and assets that may not otherwise come to market.

As of December 31, 2018, private markets investments accounted for 35.3% of OPB's net assets, up from 28.6% at year-end 2017. The net market value of these investments at the end of 2018 was $9.4 billion, up from $7.6 billion at year-end 2017.

Real Estate

The purpose of real estate assets in the Fund is to provide strong cash-flow generation, more stable returns than equity market assets, and a partial hedge against inflation, which makes them a good match for the Plan's long-term pension liabilities.

OPB's Real Estate portfolio is presented net of financings and made up of:

- direct and indirect holdings in quality Canadian office and retail properties;
- direct and indirect holdings in international real estate; and
- a modest investment in participating mortgages.

The Real Estate portfolio returned 2.1% in 2018, compared to 2.4% in 2017, on a currency hedged basis.

Our net real estate investments as of December 31, 2018 stood at 19.5% of OPB's total investment portfolio (compared to its phase-in allocation of 20.0%), up from 17.7% in 2017. As of December 31, 2018, OPB had remaining unfunded commitments of approximately $745 million to Real Estate funds and co-investments, compared to approximately $600 million a year earlier.

The market value of the Real Estate portfolio, net of the market value of the bonds issued by OPB to finance a portion of the cost of the Canadian rental properties acquired since 2012, at year-end 2018 was $5.2 billion, compared to $4.7 billion a year earlier.

OPB's Canadian office building portfolio experienced a significant valuation increase in 2018, which was offset by an unrealized loss provision due to uncertainty surrounding the valuation of Canadian shopping malls in smaller urban markets.

When the former Sears Canada stores closed, they left a total of 1.9 million square feet of vacant space in OPB's retail portfolio. IMCO has plans for all locations that are affected by the store closures. For shopping centres in urban locations, such as Pickering Town Centre and Erin Mills Town Centre, redevelopment opportunities are being considered, including possible construction of residential apartment buildings that would generate ongoing future income and cash flow. In other locations, IMCO is looking to either reposition or dispose of the shopping centres, continuing the strategy of reducing retail exposure as disruption in this sector is changing the investment characteristics of commercial real estate.

Downtown Toronto is experiencing near-record-low office vacancy rates, and we expect continued demand for high-quality commercial office space. In 2018, IMCO and Cadillac Fairview announced construction of a new, targeted LEED Platinum and WELL-certified, 46-storey office tower at 160 Front Street West. This development features 1.2 million square feet of office space and a little more than 12,000 square feet of ancillary retail space, and is slated to open in the fall of 2022. Cadillac Fairview's owner, Ontario Teachers' Pension Plan, is the inaugural tenant and will relocate its head office to 160 Front Street West. The office component of the new building is 100% pre-leased.

Also driven by the strong Toronto office market, OPB and partner Cadillac Fairview continued construction on its targeted LEED Platinum and WELL-certified, 32-storey, 880,000-square-foot downtown office building at 16 York Street, scheduled for completion in 2020. At the end of 2018, 16 York was 44% pre-leased, and it is expected to be fully leased prior to construction completion. Initial tenants for 16 York include IMCO's head office, LinkedIn, HSBC, and First National Financial.

As of December 31, 2018, our Canadian rental property holdings included ownership interests in approximately 8.6 million square feet of retail space and 9.7 million square feet of office space.

In the United States, OPB's real estate valuations remained stable despite a decrease in transaction volume in Manhattan, where most of OPB's real estate assets are located. Market fundamentals across the U.S. were strong as the nation's unemployment rate fell to pre-2008 lows. Office properties in major U.S. markets experienced modest rental growth driven by supply constraints as new development projects lagged demand. Multi-residential vacancies continued to decline despite new construction deliveries. Reduced home affordability and more stringent lending drove strong demand for rental housing.

Since 1994, when OPB made its initial investment in real estate, the portfolio has generated a compounded annual return of 9.9%. The real estate return is measured net of the market values of privately issued bonds guaranteed by OPB ($2.25 billion par value at the end of 2018 – no change from December 31, 2017) and any property-specific mortgages. The objectives of our financing strategy are:

- improving returns on OPB's rental property portfolio;
- improving the funded status of the Plan over the longer term; and
- creating a partial hedge against a decline in the market value of the Plan's rental properties arising from higher interest rates in the future.

Bond Offerings

Issuing private bonds has allowed OPB to add high-quality real estate assets that generate cash flows exceeding the interest payments on the bonds.

OPB did not issue bonds in 2018. OPB or entities created by IMCO may be bond issuers in the future, depending on the asset or assets being acquired.

Infrastructure
OPB's Infrastructure portfolio consists mainly of equity investments in assets that provide an essential service to the regions in which they operate. Our strategy focuses on core infrastructure assets that provide predictable and ongoing cash flow, stable returns during periods of equity market volatility, and some degree of inflation protection, which provides a good correlation with the Plan's inflation-linked long-term pension liabilities.

The Infrastructure portfolio has good diversification with respect to revenue source, geography and industry sector. Competition for high-quality infrastructure assets remains strong, and prices are high. IMCO takes a consistent and disciplined approach in pursuing investment opportunities in this asset class and will only make investments that provide an appropriate risk/return payoff. IMCO continues to focus on building strategic relationships with investment partners and fund managers in order to increase access to a strong pipeline of infrastructure co-investments in this competitive market.

With infrastructure investments at 7.9% of OPB's total investment portfolio as at December 31, 2018, the Infrastructure portfolio is slightly in excess of its 2018 phase-in target allocation of 7.5%.

On a hedged basis, the Infrastructure portfolio generated a 2018 hedged return of 14.3%, compared to 4.5% in 2017. The portfolio generated $125 million in income during the year, with a year-end market value of $2.09 billion, a $660 million increase over the $1.43 billion market value at the end of 2017. As of December 31, 2018, OPB had remaining unfunded commitments of approximately $450 million to Infrastructure, compared to $565 million a year earlier.

In our 2017 Annual Report, we noted that OPB anticipated working with Brookfield to identify suitable co-investment opportunities. In November 2018, IMCO, on behalf of its clients, acquired a stake in a 413-megawatt Canadian hydroelectric portfolio from Brookfield Renewable Partners. IMCO was part of a consortium of buyers that acquired a 25% interest in the portfolio of diverse hydroelectric assets that are fully contracted with investment grade counterparties. The portfolio includes the 349-megawatt Great Lakes Power system in Ontario, the 19-megawatt Carmichael facility in Ontario, and the 45-megawatt Kokish facility in British Columbia.

Although IMCO's private markets asset pools will not be in place until later in 2019 or early 2020, IMCO invested in several infrastructure projects in which OPB participated, including the following:

- Early in 2018, a $223 million co-investment, alongside Stonepeak, in euNetworks, a leading pan-European infrastructure fibre network operator with over 20,000 km of metro and long-haul fibre, situated in key metro markets in the U.K., Ireland, France, Germany and the Netherlands.
- A $113 million investment was made to Bioenergy Infrastructure Group (BIG), a U.K.-based energy-from-waste aggregation platform, alongside Infracapital Greenfield Fund.
- Most recently, IMCO acquired a 5% co-ownership interest in Compañia Logistica de Hidrocarburos (CLH). CLH is the largest refined oil logistics operator in Spain, with a dominant market share in the network of transportation and storage assets across the country.

The Infrastructure portfolio made positive gains from the successful sale of our co-investment interest in Anglian Water Group, a U.K. water and waste water company, which we acquired in late 2014 and sold in 2018 for a $31 million profit, generating a 13.4% compounded annual rate of return, including dividend distributions, since acquisition. Other major contributors to the portfolio's return in 2018 were dispositions by the infrastructure funds in which OPB invests. Most notable of these were the sale by iCon Fund II of a Norwegian district heating company (gain of $23 million) and Arclight Fund VI's sale of a mid-stream infrastructure company ($16.5 million gain). Other positive factors were dividend income received and unrealized valuation gains from several direct investments, funds and co-investments.

Conversely, the Infrastructure portfolio was negatively impacted in 2018 by Calon Energy, a U.K. electricity generation company in which OPB holds a co-ownership interest, due to an unfavourable regulatory regime which contributed to constraints on the company's liquidity and its valuation. As a result, OPB recorded an unrealized loss on this investment in 2018.

Private Equity

Private equity consists of equity securities not publicly traded on a stock exchange. Private equity tends to be illiquid, and returns are generated principally from capital appreciation over the mid- to long term. Because of the added liquidity risk, returns for private equity are typically higher than those expected from public equities. OPB's long-term investing horizon positions us well to earn value-added returns from this increasingly important asset class.

Our Private Equity portfolio returned 19.5% in 2018, compared to 17.6% in 2017, on a hedged basis. The portfolio had a year-end value of $2.1 billion, compared to $1.45 billion at the end of 2017.

Very strong returns from funds and co-investments continued in 2018, with approximately $160 million received in distributions from dividends and asset dispositions during the year. Since inception in 2012, the Private Equity portfolio has generated a compounded annual return of 19.8%.

The Private Equity portfolio is well ahead of its phase-in allocation, at 7.9%, versus its 2018 target allocation of 5.5%. Unfunded commitments were approximately $940 million as at December 31, 2018, compared to $479 million at the end of 2017.

It was a busy year for Private Equity co-investments, with approximately $144 million deployed in three new co-investments and $382 million committed to three external fund managers of significant strategic importance. Among these was the purchase of an interest in the world's first sustainable marine aquaculture company, Pacifico, specializing in ocean-raised striped bass.

The Private Equity co-investment program continued to perform well in 2018, delivering a compounded annual rate of return of almost 32% to date, driven by strong underlying portfolio company performance and favourable investment realizations from dispositions. For example, OPB's co-investment in a specialized lab service business achieved 40% revenue growth by expanding its market penetration and geographic footprint. This investment produced a 67.7% return in 2018. Notable in terms of portfolio company dispositions was the sale of OPB's interest in a high-growth branded consumer products company, which delivered a net profit of approximately $120 million in 2018, resulting in a 48% compounded annual rate of return since its acquisition in December 2014.

Annual Returns and Benchmarks

OPB's total annual rate of return is measured against a composite index, which takes the weighted average of the benchmark returns for each of the different asset categories (using the current year's SAA phase-in target allocation (refer to page 15) to determine the weightings). OPB expects the Fund's total net return to meet or exceed the composite benchmark. OPB's 1.8% overall rate of return for 2018 was equal to the Fund's composite benchmark return of 1.8%, as shown in the table below. The 1.8% rate of return in 2018 is net of all private markets investment fees and prior to public markets external investment management fees, including IMCO's management fees, custodial costs and OPB's internal operating expenses (as was the 10.8% return in 2017). These fees, costs and expenses amounted to 0.53% in 2018, compared to 0.52% in 2017.

ANNUAL RATES OF INVESTMENT RETURN

			2018		2017
Asset Categories	Benchmark	**Actual**	**Benchmark**	Actual	Benchmark
Cash and Equivalents	FTSE TMX 91-Day T-Bill	**3.4%**	**1.4%**	0.8%	0.6%
Fixed Income	Custom Fixed Income Index	**1.9%**	**0.6%**	4.1%	3.5%
Canadian Equities	S&P/TSX Composite Index	**-6.9%**	**-8.9%**	9.3%	9.1%
Foreign Developed Equities	MSCI World Index (C$)	**1.4%**	**0.1%**	18.7%	15.0%
Emerging Equities	MSCI Emerging Equity Index (C$)	**-8.1%**	**-6.9%**	25.0%	28.3%
Real Estate	Custom Real Estate Benchmark	**2.1%**	**6.8%**	2.4%	6.7%
Infrastructure	Custom Infrastructure Benchmark	**14.3%**	**12.0%**	4.5%	5.5%
Private Equity	Custom Private Equity Benchmark	**19.5%**	**19.2%**	17.6%	17.6%
Total Investments	Composite Index	**1.8%**	**1.8%**	10.8%	10.4%

RESPONSIBLE INVESTING

We believe that Responsible Investing (RI) – effectively managing environmental, social and governance (ESG) risks – supports our ability to pay pensions over the long term. In general, our view is that supporting ESG initiatives will improve corporate disclosure practices and enable long-term investors, such as OPB, to better evaluate investment return-risk/trade-offs.

OPB has fiduciary responsibilities to act in the best interests of Plan beneficiaries and for the long-term sustainability of the Plan. Therefore, it is important that factors such as ESG are incorporated in a manner that supports, and does not take precedence over, OPB's overriding fiduciary responsibilities.

The Ontario *Pension Benefits Act* requires OPB and other pension plan administrators to establish a Statement of Investment Policies and Procedures (SIP&P) that contains information about whether ESG factors are incorporated into the Plan's investment policies and procedures and, if so, how those factors are incorporated. Our SIP&P describes how ESG factors are incorporated by IMCO. IMCO reports annually to OPB on the consideration of ESG factors in accordance with OPB's investment policies and procedures as well as proxy voting results.

In 2018, we worked closely with IMCO on the development of its first Responsible Investing Policy. The objective of the policy is to define key commitments and guidelines that enable IMCO to effectively incorporate ESG factors into investment management on behalf of OPB and its other clients.

OPB had been a signatory to the United Nations-backed Principles for Responsible Investment (UNPRI), an international network of investors working to put Responsible Investing into practice and help build a more sustainable global financial system. In March 2018, OPB ceased to be a UNPRI signatory due to the transition of our investment management function to IMCO. However, IMCO will become a UNPRI signatory in 2019. Voting proxies at shareholder meetings enables investors to convey their views to the board of directors and management of public companies.

In 2018, IMCO voted on OPB's behalf at 983 public company meetings in 52 markets. OPB voted against the management recommendation for 8% of agenda items at shareholder meetings. This includes election of directors and advisory votes on executive compensation, among other items. We supported eight shareholder proposals seeking enhanced disclosure and/or action on climate change risks and opportunities at companies in our portfolio.

RESPONSIBLE INVESTING

Investment Activities	Why It Matters
Worked closely with IMCO on development of its first Responsible Investing (RI) Policy.	The RI Policy defines key commitments and guidelines that enable IMCO to effectively incorporate environmental, social and governance (ESG) factors into investment management, on behalf of OPB.
On OPB's behalf, IMCO voted our proxies based on the ISS Sustainability Proxy Voting Guidelines.	ISS updates its proxy voting guidelines each year to take into account emerging issues and trends on ESG topics.
On OPB's behalf, IMCO supported collaborative initiatives, such as improved corporate governance practices, greater representation for women on Canadian corporate boards of directors, and a global investor letter urging the G7 and G20 to stand by the Paris Agreement on climate change.	Collaborative engagement on ESG factors amplifies the resources and potential effect that a single investor can bring to bear on policy-makers and companies.
IMCO announced a joint venture with real estate partner Cadillac Fairview to build a new 1.2 million-square-foot, 46-storey office tower in Toronto targeted to achieve LEED Platinum and WELL certification.	Toronto office space is in high demand. LEED certification encourages the construction of energy- and resource-efficient buildings. The WELL Building Standard validates and measures building features that support human health and wellness.

INVESTMENT RISK MANAGEMENT

IMCO's activities with respect to OPB's investments are defined in a carefully negotiated legislative, regulatory and contractual framework that clearly lays out IMCO's duties, responsibilities and obligations, and OPB's governance and investment-related rights. Under this framework, OPB sets the investment strategy and IMCO implements it.

The IMA between OPB and IMCO states that IMCO will manage investment and enterprise risk in accordance with the *Pension Benefits Act*'s standard of care and best practices for Canadian public sector managers.

Investment risk management is therefore integrated into the investment activities and decision-making process at IMCO, which made a number of key hires in 2018, including a Chief Investment Officer and a Chief Risk Officer. These executives will play essential roles in the organization's management of risk going forward.

The Chief Risk Officer (CRO) has a mandate to strengthen the organization's risk management capabilities, systems and practices. The CRO oversees the design and implementation of IMCO's critical enterprise and investment risk management functions and takes a comprehensive approach to risk monitoring.

In 2018, the Investment Risk Function developed a robust process to help set the risk and return targets for each of the IMCO strategies, and it is currently formalizing a set of investment risk protocols geared toward the effective monitoring of these targets. The Risk Function also prepared an IMCO Investment Risk Policy providing for a strong risk governance framework.

IMCO completed a proof of concept for the use of BarraOne® as the IMCO investment risk analytical solution in 2018, and BarraOne® is now receiving daily feeds of OPB's investment-related data. Robust risk/return reporting is currently being prepared using the enhanced analytics available within BarraOne®, such as Total Risk, Active Risk and Factor Risk contribution at various portfolio levels for public and private investments under normal and stressed market conditions.

Investment risk levels are managed by IMCO within the parameters established by OPB's Investment Risk Policy. IMCO reports regularly to OPB on the risks pertaining to OPB's investment portfolio. In 2019, the Risk Function will look to improve upon risk modelling and reporting by incorporating the Plan's actual liabilities into BarraOne® so that risk can be assessed at a balance sheet level. The Risk Function will also work with OPB to determine liability liquidity requirements alongside asset liquidity requirements so that liquidity risk can be fully assessed. The Risk Function aims to build up its credit risk monitoring capabilities by hiring experienced professionals and sourcing the required default-based analytics. In addition, IMCO will also build out its capabilities to assess idiosyncratic risk associated with private markets transactions, and appropriately integrate this into the portfolio and asset class analytics.

Risk Oversight

To ensure that IMCO is appropriately managing investment risk on behalf of OPB and Plan members, OPB developed and staffed an oversight function in 2018. This helps to assure OPB management and Board members on an ongoing basis that IMCO is prudently managing Plan assets.

Through a newly developed monitoring program, OPB monitors, assesses and reports on IMCO's performance to the OPB Board of Directors. A variety of key performance indicators (KPIs) allow us to assess IMCO's investment performance and overall performance of its duties, responsibilities and obligations to OPB. The focus of these KPIs is captured in a phrase that we use regularly: Clients First and Costs Matter.

OPB's Chief Investment Officer, Ken Lusk, oversees OPB's fiduciary responsibilities and ensures that IMCO is managing Plan assets and related investment risks in accordance with our investment strategies and policies.

Mr. Lusk will be stepping down from the CIO position during 2019, and we are in the process of recruiting his successor.

INVESTMENT OUTLOOK

Most equity markets around the world rebounded in early 2019. However, concerns still exist about issues such as slowing global economic growth, U.S.–China trade wars, and political uncertainty, including an unsettled Brexit. In 2019, OPB and its investment manager, IMCO, will continue to navigate the impact of the ups and downs of the financial markets on the Plan's funded status, as OPB has done successfully in the past.

Looking ahead, the current late-cycle expansion is expected to continue in 2019–2020 as economic growth moderates toward a more sustainable long-term trend in most major economies. Inflationary pressures are also expected to remain subdued, in line with fading cyclical growth momentum. Over the longer term, secular economic forces, including a "glut" of desired saving relative to investment, population aging, and high public and private debt that has increased sensitivity to rising interest rates, are expected to keep downward pressure on trend growth and inflation.

In the next decade, capital markets are expected to deliver relatively subdued returns compared to recent years. Rich starting valuations and low yields in key asset classes are the major factors underlying the subdued outlook. Historically, high asset prices relative to fundamentals (i.e., low asset class yields) have reliably predicted lower long-term returns.

Looking specifically at public markets and private markets:

Public Markets – The current yields of public equity markets imply lower long-term expected returns for U.S. stocks and higher expected returns for emerging market and British stocks where valuations are more attractive. In fixed income markets, flat yield curves imply lower excess returns from investing in longer duration maturities. U.S. Treasuries are expected to outperform other government bond markets over the long term (in local currency terms) given higher initial starting yields. Credit markets continue to provide an expected premium over government bonds, providing a diversifying source of return at the total portfolio level.

Private Markets – High asset valuations for Real Estate and Infrastructure have lowered cash yields and reduced long-term expected returns compared to the strong historical performance of these assets. However, long-term expected returns for these asset classes remain attractive, and they diversify risk at the total portfolio level. Private markets assets also continue to offer less volatility than public market assets with marking-to-market in valuations. Private equity continues to offer a premium over public market equity, although with greater underlying equity risk.

OPB will work with and support IMCO as it progresses to becoming a world-class investment management organization over the next four to five years, and we will continue to monitor IMCO's investment performance and its contractual duties, responsibilities and obligations with respect to OPB's assets.

IMCO will continue to review and implement the public-to-private-markets tilt of our investment portfolio by phasing in our SAA, so that the current policy target of a 41% allocation to private markets assets (real estate, infrastructure and private equity) is achievable.

Service Excellence

At OPB, we believe that delivering on the pension promise goes beyond simply paying pensions and processing transactions. It means offering the support, services and tools our almost 90,000 members need to make sound pension decisions in the context of their broader personal goals and financial circumstances. We recognize that each member has unique needs and retirement goals. Our goal is to ensure that our members have the information they need to make sound pension decisions.

In 2018, we continued to deliver outstanding service while managing a double-digit volume increase in our key services to members, and maintaining a diligent approach to cost management across our service teams.

Our employees worked hard to integrate new members into the PSPP, while staying within budget.

The TVO pension plan and the Ontario Northland Transportation Commission (ONTC) pension plan became part of the Public Service Pension Plan (PSPP) during the year. These mergers support the government's stated objective of operating more cost effectively by consolidating smaller broader public sector (BPS) plans into the PSPP. Joining a larger plan such as ours allows these BPS employers to provide more cost-effective pensions. This also allows us to grow our client base and enhance the sustainability of the PSPP. These mergers also helped us to offset the exit of certain Ontario Lottery and Gaming Corporation (OLG) employees from the PSPP as OLG modernization was completed and the final groups of OLG employees transferred to new private sector providers.

What We Did	Why It Matters
Integrated new members from TVO and ONTC and helped former OLG employees leave the Plan, while staying within budget.	Growth in membership contributes to the sustainability of the Plan, and handling complex mergers and divestitures within budget highlights our operational and financial management capabilities.
Met one on one with over 3,900 members to help them navigate key pension decisions in their lives.	We provide expert, objective advice to members on how pension benefits fit into their larger financial picture, so they can make the best decisions about their pension and retirement.
Answered 99% of client care calls within 30 seconds; managed a 29% spike in enrolments and a 24% rise in terminations vs. 2017 levels.	We are committed to maintaining world-class service to members.
Advanced our Advise and Protect mission by educating our members on financial literacy and early-career financial planning.	We support improved financial literacy so our members understand the value of their defined benefit plan and are better equipped to make important financial decisions.
Ranked second among Canadian peer pension plans and fourth internationally by CEM Benchmarking for excellence in service and pension administration.	We are recognized as a world-class service leader, while operating efficiently and managing a more complex plan than many of our peers.
Launched our new, mobile- and tablet-friendly website, opb.ca.	We responded to members' demands for comprehensive, easy-to-access information about pensions and retirement planning, and the ability to use devices of their choice.

CLIENT SERVICE

At OPB, we take pride in delivering exceptional service to our clients, at a reasonable cost. Services are tailored to their unique financial and retirement circumstances. In 2018, we:

- Supported the addition of TVO and ONTC employees as members of the PSPP, a 29% increase in enrolments, and a 42% increase in demand for OPB's advisory services.
- Earned a service score of 91/100 from CEM, a leading pension benchmarking firm, despite this increased demand for service. This placed us second among our Canadian peer plans for excellence in service and pension administration, and fourth place internationally.
- Received high scores from OPB members surveyed about their experience with us. 86% of OPB members surveyed were satisfied or extremely satisfied with the service from OPB. This speaks to our agility in responding to changing regulatory, industry and Plan circumstances.

OPB introduced Advisory Services for our members in 2015, and they have proved to be attractive inducements to prospective and current provincial employees.

At OPB, we feel strongly about the importance of retirement and financial literacy. To that end, in our third year we established Advisory Services as part of our standard operations. Our team of in-house Certified Financial Planners® (CFPs®) helped more than 3,900 members to understand how their pension decisions fit into their broader financial and life circumstances. Client Service Advisors are designated CFPs®. At OPB, we believe that to advise and protect our members, and to act as their primary point of contact on retirement and personal finance matters, our staff should have credentials that are recognized in the industry.

Member feedback from those who have used our Advisory Services and advisory tools has been overwhelmingly positive:

- 91% report they are satisfied to extremely satisfied with the service;
- 89% indicate their advisor provided the pension advice they needed; and
- 87% indicate they received objective guidance to protect their best interest.

Financial Literacy

OPB exists to provide value and retirement security for our members, primarily by paying benefits with the returns generated through investments. In recent years, it has become clear that we can also contribute to members' retirement security by helping to improve their retirement and financial literacy.

We have incorporated a literacy component into our education efforts, going beyond a straight focus on retirement planning. This shift reflects our larger commitment to Advise and Protect when it comes to members' long-term financial security. Our broader education efforts include comprehensive financial advisory workshops for members who are early in their career, mid-career and late career.

We have developed advisory articles to help active and retired members navigate topics like estate planning, tax planning and maximizing retirement savings, and recognized November 2018 as Financial Literacy Month (along with organizations such as the Financial Planning Standards Council (FPSC) Canada and the Consumer Agency of Canada). Through our website, we offered members a weekly article on some aspect of personal finance, as well as links to supplemental resources.

The enthusiastic response to our educational and literacy efforts shows that members respect the value of their Plan and are eager to learn more about managing their overall finances effectively.

New Website and Digital Services

In 2018, in the interest of updating an outdated technology platform and in response to evolving member needs, we relaunched our public website, opb.ca, which is fully responsive and mobile and tablet friendly. It was designed through an inclusive, consultative process with members, and provides information designed to educate our members prior to engaging with us.

The updated website complies with the *Accessibility for Ontarians with Disabilities Act, 2005* (AODA) and, over the next two years, OPB will develop plans to ensure its member and employer portals are also compliant with Web Content Accessibility Guidelines 2.0 by January 1, 2021, as required by Ontario's Integrated Accessibility Standards under AODA.

The updated website aligns with the service improvement and cost control objectives of the Province's Digital First strategy. It also represents an important early step in our longer-term risk mitigation and pension modernization initiative (discussed at the end of this section). Increasingly, members expect to be able to exchange information, complete transactions and receive their communications online.

As we modernize our operating systems and portals, we will be able to add additional transactions and advisory tools, building on our e-services usage, which increased by 22% over 2017.

Cybersecurity

Our IT and Client Services teams are helping members to better understand and implement best practices for cybersecurity in their daily activities.

In May 2018, we launched direct outreach to members to inform them about risks and best practices in cybersecurity, and to alert them that an unaffiliated organization was sending unsolicited emails to members claiming to be an OPB partner in an apparent attempt to gather personal information and passwords.

PENSION MODERNIZATION

In 2017, we launched our pension modernization initiative in response to our need to replace our increasingly outdated and end-of-life pension administration systems. This is a multi-year risk mitigation program that will enhance our data security and our clients' experience – individually and across the board – by updating and re-engineering our business processes, systems and tools to provide the services clients want and need. As a service provider, we are committed to meeting the evolving needs and expectations of our clients and stakeholders.

To help members make sound pension decisions, we must deliver the personalized services and tools they require to navigate those decisions. We also have to ensure our technology infrastructure and systems remain current and secure. As Plan membership grows, our legacy pension administration system limits how responsive OPB can be in serving our members. Reinventing our business processes and replacing our systems require a well-considered capital investment to ensure we meet our members' current and future needs, while providing cost-effective and efficient service.

In 2018, we continued to move forward carefully, by continuing to upgrade our hardware and systems where it makes sense. We are focused on considering the right technology from the right partners and integrating it into our existing structure as required, and will eventually modernize the entire system to meet our clients' needs.

These efforts align with the Province's Digital First strategy, which is focused on using digital channels to deliver a wider range of services as efficiently and cost-effectively as possible.

Outstanding Stakeholder Relations

OPB works closely with the Government of Ontario to ensure that its decision-makers, including Ministers, Deputy Ministers and other senior civil servants, fully understand the issues that impact the Plan. We also conduct regular and ongoing discussions with bargaining agent groups to keep them informed about the health of the Plan and emerging trends and issues, and to ensure they understand the value of the Plan.

We know that protecting the long-term sustainability of the Plan requires maintaining strong relationships with the Plan Sponsor, our stakeholders and our members, and OPB remains committed to doing so.

In 2018, we:

- delivered close to 120 presentations, workshops and webinars to 2,800 Plan members across Ontario, providing them with education and information about the value of their pension, Plan provisions, and key decision points;
- presented at the Annual General Meetings (AGMs) of bargaining agents; and
- held 19 presentations and forums for employers.

We had almost 230,000 visits to OPB's public website in 2018, up 8% from the 212,000 visits recorded the previous year. Mobile traffic rose in 2018, with approximately one in four visitors accessing opb.ca via smartphone or tablet and one in five users accessing the e-services portal using a mobile device or tablet.

Since its launch in 2015, approximately 16,000 transactions have been submitted through the employer portal as OPB moved to a Digital First approach for employer reporting.

Financial Management

OPB is committed to efficient management and to offering value-added service at a cost-effective price. As an agency of the Province of Ontario, we operate in an environment of cost constraint and we judiciously manage the Plan's expenses. In recent years, we have expanded our range of member services, and incurred expenses related to the establishment of IMCO, yet our overall expense ratio remains among the lowest in the industry.

To efficiently manage the Plan, we routinely:

- focus on priorities and work smart;
- re-engineer and redeploy resources where it makes sense to do so;
- enhance our abilities, through staffing and training, to perform more value-added services in-house rather than pay premiums in the open markets; and
- increase our digital offerings.

Our overall consolidated (investments and pension administration) expense ratio for 2018 was 0.53% (or 53 cents per $100 of average net assets available for benefits). This was up from 0.52% in 2017.

In the past two years, with members both joining and leaving the Plan, and the outsourcing of our asset management to IMCO, OPB has proven it has the ability to manage costs and expenses while dealing with a tremendous amount of change. We expect to continue along that path.

MANAGING COSTS

At OPB, we are committed to disciplined cost management. Our goal is to ensure we spend strategically where it is in the best interests of our members and stakeholders. To properly illustrate the Plan's status and our ability to meet the pension promise, we need to compare our returns against all Plan expenses, from investment costs to pension administration.

Investment Fees – IMCO incurs investment management and custodial fees on OPB's behalf. In addition, a share of the cost of IMCO's operations is charged to OPB on a cost-recovery basis. In 2018, these two costs were 0.40% (or 40 cents per $100) of average net assets available for benefits. These fees are deducted from total investment income. The "investment fees" disclosed in Note 6 to the financial statements include "Transaction costs". These costs are already included in our gross returns and, accordingly, are not deducted for purposes of calculating the basis point ratios of investment fees.

Operating Expenses – OPB has direct operating expenses, which are the internal costs associated with managing the pension plan, the pension administration and the monitoring/ oversight activities over IMCO. These costs represent 0.13% of the average net assets available for benefits for 2018.

The above sets of costs consolidate to a 0.53% expense ratio. We will continue to maintain our costs at industry lows through strong budget management, keeping staffing costs in check compared to industry norms, while focusing on competitive procurements for essential services and technologies.

RETURNS

OPB's one-year return for 2018 was 1.8%. This is a return without netting out investment fees or operating expenses. The return net of all expenses would be 1.3%. The comparison of the Plan's net return against the effective 5.6% actuarial discount rate used to value the Plan's liabilities helps us answer the question "are we generating sufficient returns to meet the Plan's obligations net of all expenses incurred in managing the Plan?"

CONTRIBUTIONS

Contribution rates for the PSPP are set by the *Public Service Pension Act, 1990* (*PSP Act*). With the cost of future benefits rising (due to members living longer and expectations for modest investment returns), OPB is in the midst of implementing a phased contribution rate increase to keep the pension plan financially healthy.

The increase of 1% of pensionable salary for PSPP members and employers is being phased in over two years. Phase 1 of this increase (0.5%) took effect in April 2018, and phase 2 (the remaining 0.5%) is on track to take effect in April 2019. For Ontario Provincial Police (OPP) officers in the PSPP, the increase in contribution rates will be partially offset in 2019 by a reduction in the additional contributions to fund the 50/30 unreduced early retirement provision.

Even with this modest rise in contribution rates, they remain among the lowest of the public sector plans in Ontario. Members contribute toward the pension benefit they will receive in future, and the PSPP continues to offer excellent value for both members and employers. The contribution rate increase will help to ensure that pension benefits remain affordable and sustainable over the long term.

As of April 1, 2018, members contributed 6.9% of their salary below the Year's Maximum Pensionable Earnings (YMPE) and 10.05% of their salary above the YMPE ($55,900 for 2018). Employers contribute a matching amount. The next phase of the increase takes effect in April 2019, when contribution rates will increase by another 0.5%.

OPP officers are required to contribute additional amounts to fund the 50/30 unreduced early retirement provision and the enhanced earnings component of the benefit formula (average annual earnings based on highest 36 consecutive months for officers and highest 48 consecutive months for civilians). The contribution rates for OPP officers are 9.7% of salary up to the YMPE and 12.8% of salary above the YMPE. For OPP civilians, the contribution rates are 7.275% of salary up to the YMPE and 10.375% of salary above the YMPE. These higher contribution rates are matched by the employer.

In April 2019, total contribution rates for OPP officers will not change, because their additional 2% contributions will be reduced to 1.5% to reflect the fact that the cost of the 50/30 benefit has gone down. Officers are starting later, and therefore fewer of them are able to take full advantage of the 50/30 provision.

During 2018, contributions for all OPB members and employers totalled $886 million, up from $804 million in 2017. This increase is attributable to the scheduled contribution rate increase on April 1, 2018, modest salary changes and increases to the Sponsor's special funding payments for 2018.

PENSIONS PAID

OPB made pension payments totalling $1.21 billion in 2018, up from $1.18 billion in 2017. The increase is attributable to a 1.6% inflation protection adjustment (Escalation Factor) that was applied to pensions on January 1, 2018. The remainder is attributable to increases in the average pensions and the number of new retired members.

Executive Compensation

OPB recognizes compensation as a key component in achieving its long-term strategies and organizational effectiveness. As an agency of the Government of Ontario, OPB is committed to providing excellent service and value for money to our clients and stakeholders while operating in a public sector fiscal environment.

Executive compensation is carefully overseen and approved by the Board's Human Resources Committee and follows the Province's direction on broader public sector wages. Effective February 28, 2018, OPB implemented its Executive Compensation Program, which is compliant with Ontario regulation 3014/16: Executive Compensation Framework, introduced in September 2016. The regulation sets out how all employers designated under the *Broader Public Sector Executive Compensation Act, 2014*, including OPB, must establish and post compensation programs for executives. The program must include the compensation philosophy, salary and performance-related pay caps, comparative analysis details, and a description of other elements of compensation.

Executives receive an annual base salary that is within the salary range assigned for the corresponding classification. In addition to base salary, executives are eligible to participate in the annual compensation plan (short-term incentive). OPB conducts annual performance and salary reviews for executives, and the rate of salary adjustment for performance-based incentives is in line with appropriate market-based ranges. OPB regularly participates in third-party external compensation surveys and typically trends below market average.

Base salaries and incentive pay for executives in designated positions are within OPB's approved Executive Compensation Program. A new regulation was introduced on August 13, 2018 that set out new requirements for compensation for those in designated executive positions. OPB is in compliance with the regulation and, more specifically, base salaries were not increased for those in designated positions beyond their current amount (as of the date of regulation).

The table below sets out the compensation for the CEO and the three senior executives who report directly to the CEO. The figures set out in the table include the components of compensation and the total compensation (excluding only retirement benefits) paid to the listed executives.

For the year ended December 31	Year	Base Salary[1]	Short-Term Incentive[2]	Taxable Benefits & Allowances[3]	Total
Mark Fuller, President & CEO	2018	$ 526,015	$ 271,410	$ 719	$ 798,144
	2017	$ 487,135	$ 276,819	$ 682	$ 764,636
Valerie Adamo, Chief Technology Officer	2018	$ 323,093	$ 119,043	$ 501	$ 442,637
	2017	$ 323,069	$ 152,983	$ 497	$ 476,549
Armand De Kemp,[4] Vice-President, Finance	2018	$ 205,912	$ 56,820	$ 368	$ 263,100
	2017	$ 182,247	$ 56,003	$ 332	$ 238,582
Kenneth Lusk, Chief Investment Officer	2018	$ 393,648	$ 151,211	n/a	$ 544,859
	2017[5]	$ 42,393	n/a	n/a	$ 42,393
Peter Shena, Executive Vice-President & Chief Pension Officer	2018	$ 342,404	$ 131,555	$ 517	$ 474,476
	2017	$ 323,069	$ 147,917	$ 497	$ 471,483

1 Base salary is based upon amounts paid during the year. In 2017 and 2018, there were 26 bi-weekly pays.

2 Short-term incentive earned is paid in March of the following year.

3 Includes life insurance. There are no car allowances or other perquisites.

4 Mr. De Kemp was promoted to the newly created role of Vice-President, Finance on July 1, 2017. Amounts shown in 2017 reflect compensation earned in his previous position for a portion of the year and compensation earned from the date of promotion.

5 Mr. Lusk was appointed to CIO on November 21, 2017. Amounts shown reflect compensation from that date.

The above-noted individuals are entitled to pension benefits on their base salary from both the PSPP and the Public Service Supplementary Benefits Account (the PSSBA). Having the executives as members of the same pension plans as the clients that they serve builds strong alignment.

Three existing executives (President & CEO, EVP & CPO, and CTO) currently participate in a Supplementary Executive Retirement Plan (SERP) that provides retirement benefits equal to 2% of the best five-year average annual award of short-term incentive plan (STIP) compensation for a year of service with OPB. There is no service accrued in the SERP for years other than during their employment time with OPB. The maximum inflation protection adjustment to the SERP benefit in any year is limited to 2.5%. All the other provisions of the SERP mirror the provisions of the PSPP. The SERP is an unregistered arrangement that is non-contributory and not funded.

In accordance with Government of Ontario directives, OPB executives do not receive any perquisites, such as automobile entitlements or allowances, club memberships, personal use equipment or personal services.

Sound Risk Management

OPB's risk framework is set out in our Corporate Governance, Risk and Compliance Policy, which establishes core functions and responsibilities for managing risk.

Our approach to risk management is to assess strategic and operational risks and develop mitigations that limit downside risk exposures. In a rapidly changing environment characterized by technological disruption, geopolitical instability, cyber-threats and changing societal demands, risk management will play an increasingly important role in enabling OPB to engage in innovative strategies designed to keep our Plan strong while maximizing value for all our stakeholders.

ENTERPRISE RISK MANAGEMENT

The goal of Enterprise Risk Management (ERM) is to enable OPB to make good decisions in the face of uncertainty, evolving external information and competing demands. ERM delivers value by providing a consistent framework that helps address the strategic uncertainty we face in the pursuit of building value for our stakeholders.

While OPB tries to anticipate all material risks that it faces, unforeseen and unprecedented events will occur. The ERM program provides a framework to confidently evaluate and manage uncertainty that will naturally arise from our responsibility to administer a major defined benefit pension plan.

We segment enterprise risks into three principal categories:

1. **Strategic** – These are risks taken to obtain benefits and capture long-term value for the Plan. They generally represent the risks with the highest overall potential to affect achievement of OPB's objectives.
2. **Operational** – These are the risks that arise from day-to-day business, emergency planning and project processes. In the normal course of service delivery, we face threats and vulnerabilities. To manage these risks, operational risk management will be further embedded at the business unit level through awareness training and targeted assessments.
3. **Emergent** – These are primarily external and uncontrollable trends that may impact OPB over a long-term horizon. Routine surveillance of emerging trends allows us to assess the business impact of threats and opportunities presented by changes in the external environment.

Managing risk is about making strategic and tactical decisions to control the risks that should be controlled and to exploit those opportunities that can be exploited. OPB values an enterprise-wide approach that involves all areas of our organization and all levels of staff.

We continue to advance the maturity of our ERM practices. To take advantage of opportunities in service delivery and cost management, we use ERM to effectively manage resources while planning for the future.

In 2018, OPB's key risk management initiatives included the following:

- Integrated risk assessment within the strategic planning process. Areas of renewed focus in ERM include Plan sustainability, investment strategy, succession planning, modernization, Plan consolidation, data governance and climate change.
- Conducted an independent assessment of OPB's ERM program maturity. The outcome of this review was a set of recommendations to identify multi-year priority areas of focus for our risk management function.
- Procured specialized software to improve efficiency in risk identification, assessment and reporting process.

Looking forward, we will focus on continuous improvement of our governance and reporting processes. As we embark on a large technology transformation associated with our pension modernization and consolidation initiatives, changes in how we manage risk become critical. By planning early and refining how we manage risk, we can protect value at the enterprise level.

OPERATIONAL RISK MANAGEMENT

We use operational risk management (ORM) to provide a practical, business objective-based approach to identifying, assessing, mitigating and continuously reporting on risk inherent in OPB's day-to-day operations. ORM focuses on how we apply management controls in areas such as compliance and conduct, business continuity, project delivery and service quality.

Systems Risk

We regularly review our IT systems for operational performance and scalability to meet future requirements. We also work very closely with our managed service providers, IT advisors and independent research firms. In 2018, ORM highlights included:

- completion of a centralized inventory of corporate-wide applications for complete life-cycle management of IT assets;
- implementation of a corporate-wide change management framework;
- commencement of the transition to a dedicated managed security services provider to improve cyber-readiness and data protection, which will continue into 2019; and
- continued stress testing of relevant contingency plans for core applications and systems in the event that an incident occurs.

We also did a significant amount of IT work to support the consolidation of new members from ONTC and TVO.

Legal Risk

Occasionally, OPB is involved in legal actions arising from the ordinary course of business. All significant legal matters are reported to the Audit Committee of the Board of Directors.

Internal Audit

We routinely conduct internal audits of key business functions and operational processes. The internal audit function reports to the Board of Directors through the Audit Committee. The annual internal audit plan is approved by the Audit Committee. In 2018, we completed internal audits of key processes in IMCO's internal investment mandates, foreign exchange hedging and management at IMCO, pension buybacks and cash management/disbursement function.

Privacy, Security and Compliance

Like other public institutions and financial services organizations, OPB faces a number of risks related to privacy, security and compliance. We continue to invest in and monitor privacy controls and conduct an enterprise-wide compliance program using a combination of policy training and ongoing review of reputational reporting and attestations. On the security front, we continue to enhance security of our systems, people and data. We have implemented changes in our network security protocols, ramped up our user training awareness campaigns, selected industry-leading cybersecurity and threat intelligence suppliers and implemented a cross-functional cyber-action team. We have in place a comprehensive third-party risk management program.

Project Delivery
Large projects have the ability to introduce business and financial risks. We monitor projects using governance processes and regular reporting. This helps provide assurance that internal controls and project procedures are being followed. We also conduct project-specific risk assessments throughout a project's life cycle to identify and mitigate potential uncertainties, threats and vulnerabilities.

In 2018, our IT team spent time developing a variety of technology strategies and architectures to support the multi-year pension modernization program to ensure it benefits from appropriate design, governance and risk mitigation.

What We Did	Why It Matters
Replaced existing IT managed service delivery model with an evolved model that sees three vendors providing separate and distinct IT services.	Enables IT services to support current and future digital business processes and outcomes, and reduces the risk associated with reliance on a single vendor.
Developed significantly better vendor management and vendor relationship skills.	Will benefit OPB as it manages suppliers and selects future vendors.
Continued in-depth planning for the replacement of our aging pension administration systems as part of the multi-year pension modernization program.	Will help to improve client and stakeholder outreach and support our progressive digital strategy, while improving data security.
Developed succession plans for members of the executive leadership team.	Reduces operational risk by ensuring that any leadership change (expected or unexpected) occurs in an orderly fashion.

Governance

A robust governance structure keeps OPB strong and is the foundation of our continued success. OPB's governance structure meets – and in many cases exceeds – industry standards and best practices. Our steadfast commitment to industry-leading governance practices ensures full accountability, effective decision making, prudent investment management, fiscal responsibility, legal compliance and smart risk-taking. In short, it ensures that we are – at all times – protecting and promoting the best interests of the Plan and its beneficiaries.

Underpinning our governance framework is a series of documents that define our organizational structure, responsibilities and governance practices. Collectively referred to as the Governance Documents, these documents include a Statement of Governance Principles, a General By-law, Statements of Mandate and Authority, and a Code of Conduct.

Our Governance Documents clearly define roles and responsibilities, draw a clear link between responsibility and accountability, set expectations for ethical behaviour and entrench conflict-of-interest guidelines. They also establish a well-defined system of checks and balances on all power and authority.

ROLE OF THE BOARD

OPB's Board of Directors holds the ultimate responsibility for the Plan's stewardship. That said, the Board has delegated to management the responsibility for the day-to-day operations required to administer the Plan and manage the Fund and, in 2017, approved the appointment of IMCO as OPB's sole and exclusive investment manager, to manage the investment and reinvestment of the Fund, and as OPB's non-exclusive investment advisor.

The Board has delegated to management (primarily to the Chief Investment Officer) the responsibility to monitor, assess and report on IMCO in respect of its investment returns and risk management, and its performance in fulfilling its duties, responsibilities and obligations under the following key agreements:

- the Investment Management Agreement (IMA), which governs the investment management relationship between IMCO and OPB and focuses largely on investment-related matters; and
- the Implementation and Support Agreement (ISA), which deals with operating and governance matters such as employee transition, shared services, IMCO governance policies, and cost allocation and cost containment principles.

The Board has also chosen to delegate specific responsibilities to five committees of the Board: the Governance Committee, Investment Committee, Audit Committee, Pensions Committee and Human Resources Committee.

The Board retains overall responsibility for supervision of OPB's business affairs. For example, it:

- approves OPB's strategic plan, business plan and budget;
- ensures that management has identified and is managing risks;
- conducts performance and compensation reviews for the President & CEO;
- approves the Strategic Asset Allocation, which drives investment management asset mix decisions;
- supervises and approves all audit matters;
- ensures that management is maintaining a culture of integrity;
- conducts an annual review of OPB's Statement of Investment Policies & Procedures;
- approves any recommendations made to the Plan Sponsor regarding Plan amendments and funding; and
- monitors compliance with OPB's governance documents.

In fulfilling their duties, members of the Board are directly accountable to:

- the Plan's beneficiaries (i.e., active and retired members);
- the Financial Services Commission of Ontario (the organization that oversees registered pension plans in Ontario); and
- the Government of Ontario (the Plan Sponsor).

OPB is consistently recognized as an example of good governance within Ontario's public service. The Board is committed to maintaining a best-in-class governance model, and ensuring OPB can continue to drive innovation and build a strong future for all PSPP stakeholders.

Following an in-depth review in 2017, a governance improvement plan was developed and approved by the Board in 2018. Progress was made in addressing or implementing all of the planned improvements, including:

1. interim written reports from the CEO to the Board in between quarterly meetings;
2. development of a consent agenda format;
3. creation of a glossary of acronyms and commonly used pension industry terms for use by Board members;
4. more detailed verbal reports at Board meetings by committee chairs on matters considered by the committee and recommended to the Board for approval; and
5. development of succession plans for members of the executive leadership team.

Looking Ahead

In 2019, we will remain focused on providing members with unsurpassed service, protecting the sustainability of the Plan and effectively managing costs. We will work to keep the PSPP strong and to achieve our goal of helping members achieve retirement security with a plan that is designed for service excellence.

The pension modernization initiative continues to be a priority, and in 2019 we expect to begin renewing our portals and e-services tools so we can better tailor our advisory and digital services to meet members' evolving needs.

We continue to support the Government of Ontario's goal of consolidating smaller broader public sector pension plans. By bringing in smaller plans and growing our client base, this strategy also supports the long-term sustainability of the PSPP by increasing our membership and assets. By joining the PSPP, smaller plans gain access to professional investment management through IMCO. We expect to experience elevated service demands as we merge plans and bring on new employers.

We will continue to work closely with IMCO and to monitor its adherence to agreements with respect to the management of OPB assets.

In 2019, as in prior years, we will continue to diligently manage our costs. When preparing our business plan and budget, we review all expenditures with a view to ensuring that any proposed increase in expenses is only included if deemed absolutely necessary.

Five-Year Review

(in millions of dollars)	2018	2017	2016	2015	2014	
Opening net assets	**$ 26,482**	$ 24,381	$ 23,075	$ 22,231	$ 20,915	
Investment income	**361**	2,531	1,751	1,224	1,642	
Contributions	**887**	804	765	731	719	
Transfers from other plans	**234**	137	85	111	81	
	1,482	3,472	2,601	2,066	2,442	
Pension payments	**1,211**	1,175	1,099	1,038	989	
Terminations	**156**	148	146	137	94	
Operating expenses	**36**	48	50	47	43	
	1,403	1,371	1,295	1,222	1,126	
Closing net assets	**$ 26,561**	$ 26,482	$ 24,381	$ 23,075	$ 22,231	
						Cumulative Since Inception
Annual rate of return	**1.8%**	10.8%	8.1%	6.1%	8.4%	8.3%

Actuaries’ Opinion to the Directors of the Ontario Pension Board

Aon was retained by the Ontario Pension Board (“OPB”) to prepare the following actuarial valuations of the Public Service Pension Plan (“PSPP”):

- An actuarial valuation prepared on a funding basis as at December 31, 2017, as described in Note 11 of these financial statements, prepared in accordance with the *Public Service Pension Act* and applicable pension legislation.
- The actuarial valuation prepared on a funding basis as at December 31, 2017 was then rolled forward to December 31, 2018 to determine the pension obligations as at December 31, 2018 for financial statement purposes.

The actuarial valuation of the PSPP prepared on a funding basis as at December 31, 2017 was based on membership data provided by OPB as at December 31, 2017.

We have prepared a valuation of the liabilities as of December 31, 2017 on the basis of the accounting methodology required by the Chartered Professional Accountants of Canada Handbook, Section 4600, as disclosed in Note 11, and extrapolated the liabilities to December 31, 2018. The valuation as at December 31, 2018 was based on assumptions that reflect OPB’s best estimates of future events such as future rates of inflation, future retirement rates and future rates of return on the pension fund. The valuation reflects new Ontario Regulation 250/18 that requires the funding of a reserve in the plan, referred to as a Provision for Adverse Deviation (PfAD). The amounts are set out in the statement of changes in pension obligations.

We hereby certify that, in our opinion:

- The data provided to us by OPB as of December 31, 2017 are sufficient and reliable;
- The actuarial assumptions used are appropriate for the purposes of each valuation; emerging experience differing from the assumptions will result in gains or losses which will be revealed in future valuations; and
- The methods used are appropriate for purposes of each valuation and are consistent with the applicable regulatory requirements.

Our valuations have been prepared, and our opinions given, in accordance with accepted actuarial practice.

AON

Allan H. Shapira

Allan H. Shapira
Fellow of the Canadian Institute of Actuaries
March 8, 2019

Andrew Hamilton
Fellow of the Canadian Institute of Actuaries

Management's Responsibility for Financial Reporting

The financial statements of the Ontario Pension Board ("OPB") have been prepared by management, which is responsible for the integrity and fairness of the data presented. The accounting policies followed in the preparation of these financial statements are in accordance with Canadian accounting standards for pension plans. Of necessity, many amounts in the financial statements must be based on the best estimates and judgment of management with appropriate consideration as to materiality. Financial information presented throughout this annual report is consistent with the financial statements.

Systems of internal control and supporting procedures are maintained to provide assurance that transactions are authorized, assets are safeguarded against unauthorized use or disposition, and proper records are maintained. The system includes careful hiring and training of staff, the establishment of an organizational structure that provides for a well-defined division of responsibilities and the communication of policies and guidelines of business conduct throughout OPB.

The Board of Directors (the "Board") is ultimately responsible for the financial statements of OPB. OPB's Audit Committee assists in this responsibility by reviewing the financial statements in detail with management and the external auditors before such statements are recommended to the Board for approval. The Audit Committee meets regularly with management and the external auditors to review the scope and timing of audits, to review their findings and suggestions for improvements in internal control, and to satisfy themselves that their responsibilities and those of management have been properly discharged.

Mark J. Fuller
President & CEO

Armand de Kemp
Vice-President, Finance

March 8, 2019

Independent Auditor's Report

To the Directors of the Ontario Pension Board

Opinion

We have audited the financial statements of the Ontario Pension Board (the "Company"), which comprise the statement of financial position as at December 31, 2018, and the statement of changes in net assets available for benefits and statement of changes in pension obligations for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Company, and the changes in its net assets available for benefits and changes in its pension obligations for the year then ended in accordance with Canadian accounting standards for pension plans.

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of our report. We are independent of the Company 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 the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Company's 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 generally accepted auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

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

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's 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 the Company's 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 the Company 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.

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.

Ernst & Young LLP

Chartered Professional Accountants
Licensed Public Accountants

Toronto, Canada
March 8, 2019

Statement of Financial Position

As at December 31 (in thousands of dollars)	2018	2017
Assets		
Cash	$ **4,011**	$ –
Investments (Note 4)	**26,724,438**	26,398,104
Investment-related assets (Note 4)	**47,251**	83,228
Contributions receivable		
Members	**26,434**	23,378
Employers	**40,426**	57,124
Capital assets, net (Note 10)	**448**	1,111
Total assets	**26,843,008**	26,562,945
Liabilities		
Investment-related liabilities (Note 4)	**234,752**	32,523
Accounts payable and accrued charges	**46,046**	47,775
Contributions payable	**1,400**	763
Total liabilities	**282,198**	81,061
Net assets available for benefits	**26,560,810**	26,481,884
Pension obligations (Note 11)	**28,449,124**	27,219,906
Deficit	$ **(1,888,314)**	$ (738,022)

See accompanying notes

On behalf of the Board:

G Markvoort

Geri Markvoort
Chair

Lynne Clark

Lynne Clark
Chair, Audit Committee

Statement of Changes in Net Assets Available for Benefits

For the year ended December 31 (in thousands of dollars)	**2018**	2017
Increase in net assets		
Net investment income (Note 6)	**$ 360,623**	$ 2,530,601
Contributions (Note 12)		
Members	**397,400**	348,145
Employers and sponsor	**489,189**	456,008
Transfer of service from other plans (Note 15)	**234,180**	137,509
Increase in net assets	**1,481,392**	3,472,263
Decrease in net assets		
Retirement pension payments	**1,210,527**	1,175,117
Termination and other benefits (Note 14)	**155,630**	147,889
Operating expenses (Note 13)	**36,309**	48,458
Decrease in net assets	**1,402,466**	1,371,464
Net increase in net assets for the year	**78,926**	2,100,799
Net assets, at beginning of year	**26,481,884**	24,381,085
Net assets, at end of year	**$ 26,560,810**	$ 26,481,884

See accompanying notes

Statement of Changes in Pension Obligations

For the year ended December 31 (in thousands of dollars)	**2018**	2017
Pension obligations, at beginning of year	**$ 27,219,906**	$ 25,176,603
Increase in pension obligations		
Interest on pension obligations	**1,515,398**	1,421,852
Benefits accrued		
Service accrual	**754,801**	679,342
Transfer of service from other plans (Note 15)	**234,180**	137,509
Past service buybacks	**58,728**	42,491
Changes in actuarial assumptions (Note 11)	**–**	778,079
Experience losses	**245,489**	307,036
Total increase	**2,808,596**	3,366,309
Decrease in pension obligations		
Changes in actuarial assumptions (Note 11)	**213,226**	–
Benefits paid	**1,366,152**	1,323,006
Total decrease	**1,579,378**	1,323,006
Net increase in pension obligations	**1,229,218**	2,043,303
Pension obligations, at end of year	**$ 28,449,124**	$ 27,219,906

See accompanying notes

Notes to the Financial Statements

Note 1: *Public Service Pension Act*

Effective January 1, 1990, the Province of Ontario (the "Province") enacted the *Public Service Pension Act, R.S.O., 1990* ("*PSPAct*") to continue the pension plan for the employees of the Province and certain of its agencies. The terms of the Public Service Pension Plan ("PSPP" or the "Plan") are stated in Schedule 1 to the *PSPAct*. Ontario Pension Board ("OPB") is the administrator of the PSPP. The Government of Ontario is the sponsor of the PSPP (the "Plan Sponsor"), acting through the member of the Executive Council to whom the responsibility for the administration of the *PSPAct* is assigned under the *Executive Council Act, R.S.O., 1990*.

Note 2: Description of the Plan

The following is a brief description of the PSPP. For more complete information, reference should be made to the *PSPAct*.

GENERAL

The PSPP is a contributory defined benefit pension plan. Membership is mandatory for persons or classes of persons who satisfy the eligibility requirements provided in the *PSPAct*. Persons who are entitled, but not required, to join the Plan, including Deputy Ministers and contract employees, may elect to participate. Under the PSPP, both the members and the employers make contributions. The PSPP is registered with the Financial Services Commission of Ontario ("FSCO") and the Canada Revenue Agency (Registration Number 0208777) as a registered pension plan not subject to income taxes.

In 2015, the *Investment Management Corporation of Ontario Act* was proclaimed by the Province, creating the Investment Management Corporation of Ontario ("IMCO"), a new investment management entity that will provide the investment management and advisory services to participating organizations in Ontario's broader public sector with the ownership of the investment assets remaining with the participants. OPB and Workplace Safety and Insurance Board were IMCO's founding members. IMCO became fully operational in July 2017, at which time IMCO assumed responsibility for OPB's day-to-day investment management functions. OPB retains responsibility for setting its Strategic Asset Allocation ("SAA") of the Plan's investments and for oversight of IMCO.

On January 1, 2018, the Ontario Educational Communications Authority ("TVO") and its employees ceased contributing to TVO's two registered pension plans and began contributing to the PSPP, which constitutes a plan merger under section 81 of the *Pension Benefits Act* (Ontario), 1990 ("PBA"). On September 13, 2018, the Superintendent of FSCO consented to the transfer of assets relating to those members' past service and the benefits of the TVO plans' retired and deferred members to the PSPP, and OPB became responsible for administering the pension benefits of all current and former TVO employees.

FUNDING POLICY

The PSPP is a defined benefit pension plan covering eligible employees of the Ontario Public Service and other designated employers. It is funded by contributions from members, deducted from their salaries and remitted by their employers, and by matching contributions from employers. The benefits and contribution rates of the PSPP are set, and may be amended, by the Plan Sponsor through an Order-in-Council.

CONTRIBUTIONS

The PSPP is integrated with the Canada Pension Plan ("CPP"). Contribution rates are 6.9% (6.4% prior to April 1, 2018) of the salary on which contributions are made up to the Year's Maximum Pensionable Earnings ("YMPE") and 10% (9.5% prior to April 1, 2018) of the salary above the YMPE. Employers contribute matching amounts. On April 1, 2019, the contribution rates will increase to 7.4% of the salary on which contributions are made up to the YMPE and 10.5% of the salary above the YMPE.

Ontario Provincial Police ("OPP") officers are required to contribute an additional 2.8% of salary, which is matched by the employer. These additional contributions are used to fund an unreduced early retirement provision available to OPP officers meeting a minimum 50 years of age and 30 years of service and to fund the change in the final average salary to the best consecutive 36-month period. The contribution rates for OPP officers, inclusive of the additional 2.8% of salary, are 9.7% (9.2% prior to April 1, 2018) of the salary on which contributions are made up to the YMPE, and 12.8% (12.3% prior to April 1, 2018) of the salary above the YMPE. The contribution rates for OPP civilians are 7.275% (6.775% prior to April 1, 2018) of the salary on which contributions are made up to the YMPE, and 10.375% (9.875% prior to April 1, 2018) of the salary above the YMPE. On April 1, 2019, the contribution rates for OPP civilians will increase to 7.775% of salary up to the YMPE and 10.875% of salary above the YMPE.

Contributions from members and employers are remitted to OPB. The portion of these contributions that exceeds the *Income Tax Act (Canada) R.S.C, 1985* ("ITA") limits is transferred to the Province's Public Service Supplementary Benefits Account ("PSSBA").

PENSIONS

A pension is payable at age 65 based on the number of years of credit in the PSPP multiplied by 2% of the average salary during the best consecutive 60-month period, less an offset for integration with the CPP at age 65. An unreduced pension can be received before age 65 if the member's age and years of credit total 90 ("Factor 90") or when the member reaches age 60 and has 20 or more years of credit.

OPP officers are eligible for a pension payable based on the average salary during the best 36-month period. OPP civilians are eligible for a pension payable based on the average salary during the best 48-month period.

DEATH BENEFITS

Upon the death of a member or pensioner, benefits may be payable to a surviving eligible spouse, eligible children, a designated beneficiary or the member's or retired member's estate.

DISABILITY PENSIONS

Based on meeting all eligibility criteria, a disability pension may be available to members with a minimum of 10 years of credit in the PSPP. The amount of the disability pension is dependent on years of credit and average salary.

TERMINATION PAYMENTS

Members terminating employment before age 55 who are eligible for a deferred pension may be entitled to transfer the commuted value of the pension to a locked-in registered retirement savings arrangement, to a life income fund, to another registered pension plan, or to purchase a life annuity.

ESCALATION OF BENEFITS

Current pensions and deferred pension benefits are increased for inflation based on the Consumer Price Index to a maximum of 8% in any one year. Any inflation above 8% in any one year is applied to increase the pension in subsequent years when the adjustment is less than 8%.

Note 3: Summary of Significant Accounting Policies

BASIS OF PRESENTATION

The financial statements are prepared in accordance with Canadian accounting standards for pension plans and present the position of the PSPP as a separate entity independent of the employers and Plan members.

In accordance with Section 4600, "Pension Plans", of the *CPA Canada Handbook – Accounting*, Canadian accounting standards for private enterprises in Part II of the *CPA Canada Handbook – Accounting* have been chosen for accounting policies that do not relate to the investment portfolio or pension obligations to the extent that those standards do not conflict with the requirements of Section 4600.

All of the entities that OPB has an ownership interest in, regardless of whether OPB can control or exercise significant influence, are considered to be investment assets and are presented on a non-consolidated basis.

Certain amounts in the comparative financial statements have been reclassified to conform to the presentation of the 2018 financial statements.

USE OF ESTIMATES

The preparation of financial statements in conformity with Canadian accounting standards for pension plans requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts on the statements of changes in net assets available for benefits and changes in pension obligations during the reporting period. Actual results could differ from those estimates. The most significant estimates affecting the financial statements relate to the determination of the pension obligations (Note 11) and the fair values of the Plan's Level 3 investments (Note 4b).

INVESTMENTS

Valuation

Investments are stated at their fair values, including accrued income. Fair value is the amount of consideration that would be agreed upon in an arm's length transaction between knowledgeable, willing parties who are under no compulsion to act.

Fair value of financial instruments is determined as follows:

i. Cash and cash in trust is recorded at cost, which approximates fair value.

ii. Short-term investments are recorded at cost plus accrued interest or discount earned, which approximates fair value.

iii. Bonds and OPB Finance Trust debentures are valued at quoted market prices, where available. For those debt instruments for which quoted market prices are not available, estimated values are calculated using discounted cash flows based on current market yields and comparable securities, as appropriate.

iv. Direct private debt investments are valued using discounted future cash flows based on year-end market yields plus a spread for the credit quality of the borrower and the indebtedness.

v. Public equities are valued at quoted closing market prices where available. Where quoted market prices are not available, other industry pricing conventions that are used by market participants, such as ask price, are used to estimate the values.

vi. Pooled fund values are supplied by the fund managers based upon fair value quotations.

vii. Exchange-traded derivatives are valued at quoted market prices. For non-exchange-traded derivatives for which market prices are not available, estimated fair values are determined using appropriate valuation models based on industry-recognized methodologies.

viii. Real estate investments are either wholly or partially owned, directly or indirectly.

Directly owned income-producing real estate properties are valued at estimated fair values based on appraisals performed by independent accredited appraisers. The cost of properties acquired during the year may be used as an approximation of their fair value where there has been no significant change in fair value. Mortgages are valued using discounted future cash flows based on year-end market yields.

Non-operating real estate investments, such as vacant land and real estate assets under construction, are carried at cost until such time as a change in fair value can be supported by external evidence.

Real estate investments held through partially owned funds, fund co-investments, or similar investment vehicles are valued based on information supplied by fund managers and general partners and adjusted for any transactions during the interim period up to the reporting date of these financial statements.

Participating mortgages are valued based on an accrued fixed rate of interest on the mortgages and OPB's share of profit derived from the independent appraisals of the underlying properties.

ix. Private equity and infrastructure investments are valued using independent appraisals or the most recently available financial information provided by the fund managers and general partners and adjusted for any transactions during the interim period up to the reporting date of these financial statements.

The cost of investments acquired during the year may be used as an approximation of their fair value where there has been no significant change in fair value.

Net Investment Income

Investment transactions are recorded on the trade date. Interest is recognized on an accrual basis when earned. Dividend income is recognized on the ex-dividend date. Distributions from investments in pooled funds and limited partnerships are recognized when declared by the fund managers and general partners. Since real estate is valued on a fair value basis, depreciation and amortization are not recorded. Interest on participating mortgages is accrued at the rate stated in the instrument, and any participation income is accrued based on an estimate of OPB's participation in the change in value of the properties. Transaction costs are expensed as incurred.

Net investment income also includes fair value changes. Fair value changes represent both realized and unrealized gains and losses. Realized gains or losses are recognized when OPB has transferred to the purchaser the significant risks and rewards of ownership of the investment, the purchaser has made a substantial commitment demonstrating its intent to honour its obligation, and the collection of any additional consideration is reasonably assured.

Investment management fees, transaction costs and other investment-related fees are expensed as incurred and reported as a component of net investment income.

Foreign Currency Translation

Foreign currency transactions impacting income and expenses are translated into Canadian dollars at the rates of exchange prevailing at the dates of the transactions. The fair values of investments and cash balances denominated in foreign currencies are translated at the rates in effect at year-end. Realized exchange gains and losses from investment transactions are included in realized gains and losses at the time of sale of the investments. Unrealized exchange gains and losses from investment transactions are included in the change in unrealized gains and losses on investments.

PENSION OBLIGATIONS

Pension obligations are determined based on an actuarial valuation prepared by an independent firm of actuaries using an actuarial valuation report prepared for funding purposes. This valuation uses the projected benefit cost method pro-rated on service and management's best estimate of various economic and non-economic assumptions. The year-end valuation of pension obligations is based on data extrapolated to the current financial statement year-end date.

CASH AND CASH IN TRUST

Cash is held directly by both OPB and IMCO. Cash held by IMCO is held in their bank accounts in trust for OPB.

CONTRIBUTIONS

Contributions due to the PSPP at year-end are recorded as receivable. Transfers into the Plan and purchases of prior service are recorded after cash is received and the transfer or purchase transaction is completed.

RETIREMENT PENSION PAYMENTS AND BENEFITS

Retirement pension payments, commuted value transfers, refunds to former members, and transfers to other pension plans are recorded when paid.

CAPITAL ASSETS

Capital assets are carried at cost less accumulated depreciation. Depreciation is provided on a straight-line basis over the estimated useful lives of the capital assets as follows:

Computer equipment	3 years
Leasehold improvements	Remaining term of lease
Furniture and fixtures	10 years

Note 4: Investments

The Plan's investments consist of the following:

As at December 31 (in thousands of dollars)	**2018** **Fair Value**	2017 Fair Value
Cash held in trust and short-term investments		
Canada	**$ 353,629**	$ 694,554
Foreign	**230,317**	185,345
	583,946	879,899
Bonds and private debt[1]		
Canada	**6,126,939**	5,739,300
Foreign	**768,722**	538,915
	6,895,661	6,278,215
Public equities		
Canada	**2,559,472**	2,817,111
Foreign	**7,334,721**	8,879,873
	9,894,193	11,696,984
Real estate (net of financing, Note 4e)	**5,158,159**	4,653,996
Infrastructure	**2,089,638**	1,434,710
Private equity	**2,102,841**	1,454,300
Total investments	**26,724,438**	26,398,104
Investment-related assets		
Pending trades	**4,410**	13,524
Derivatives receivable (Note 5)	**42,841**	69,704
Total investment-related assets	**47,251**	83,228
Investment-related liabilities		
Pending trades	**8,806**	13,988
Derivatives payable (Note 5)	**225,946**	18,535
Total investment-related liabilities	**234,752**	32,523
Total net investments	**$ 26,536,937**	$ 26,448,809

1 Includes an investment in a fixed income pooled fund valued at $211.5 million (2017 – $208.6 million).

4a) INVESTMENT ASSET MIX

The Plan's actual and target investment asset mix is summarized below as at December 31:

	2018		2017			
	Asset Allocation %		Asset Allocation %			2020
	Total Plan	**Target**	Total Plan	Target	SIP&P Range	SIP&P Target
Asset categories[1]						
Fixed income[2]	**26.3%**	**28.0%**	26.6%	30.0%	10%–45%	25.0%
Equities[3]	**46.3%**	**44.5%**	50.3%	45.0%	13%–80%	42.5%
Real estate	**19.5%**	**20.0%**	17.6%	19.0%	15%–30%	21.0%
Infrastructure	**7.9%**	**7.5%**	5.5%	6.0%	5%–17%	11.5%
Total investments	**100.0%**	**100.0%**	100.0%	100.0%		100.0%

1 The asset categories in this asset mix table are adjusted to reflect the market exposures after allocating derivatives positions to the asset classes to which they relate, offset by an adjustment to cash and equivalents, included in the fixed income category.

2 Fixed income includes cash, universe and long bonds, private debt and real return bonds.

3 Equities include Canadian equity, global equity, emerging market equity and private equity.

OPB's Statement of Investment Policies and Procedures ("SIP&P") was amended and approved on December 3, 2018. The SIP&P was updated for legislative disclosure requirements relating to investment categories, minimum credit ratings, changes to asset mix, and environmental, social and governance disclosures. The revised SIP&P also reflects the increased member contribution levels and the funding valuation, and provides more disclosure on asset classes.

The Plan adopted an updated SAA on June 1, 2017, which is summarized in the SIP&P and will be phased in over a multi-year period ending in 2020. During this period, the asset mix of the Plan's investments will fall within the SIP&P ranges.

For purposes of assessing the investment asset mix of the Plan, the investment asset categories reflect the impact of derivative contracts, and investment-related receivables and liabilities. As at December 31, 2018 and 2017, the asset mix of the Plan's investments was within the acceptable ranges as specified in the SIP&P effective as at the financial statement year-end date.

4b) FAIR VALUE HIERARCHY

Canadian accounting standards for pension plans require disclosure of a three-level hierarchy for fair value measurements based on the transparency of inputs to the valuation of an asset or liability as of the financial statement year-end date. The three levels are defined as follows:

Level 1: Fair value is based on quoted market prices in active markets for identical assets or liabilities. Level 1 assets and liabilities generally include equity securities traded in an active exchange market.

Level 2: Fair value is based on observable inputs other than Level 1 prices, such as quoted market prices for similar (but not identical) assets or liabilities in active markets, quoted market prices for identical assets or liabilities in markets that are not active, and other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities. Level 2 assets and liabilities include debt securities with quoted prices that are traded less frequently than exchange-traded instruments and derivative contracts whose value is determined using a pricing model with inputs that are observable in the market or can be derived principally from or corroborated by observable market data. This category generally includes mutual and pooled funds; hedge funds; Government of Canada, provincial and other government bonds; Canadian corporate bonds; and certain derivative contracts.

Level 3: Fair value is based on non-observable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. This category generally includes investments in real estate properties, infrastructure and private equity and securities that have liquidity restrictions.

The following tables present the level within the fair value hierarchy for investments and derivatives, excluding pending trades, for which a fair value hierarchy is not required.

As at December 31, 2018 (in thousands of dollars)	Level 1	Level 2	Level 3	Total Fair Value
Financial assets				
Cash in trust and short-term investments				
Canada	$ 54,946	$ 298,683	$ –	$ 353,629
Foreign	146,891	83,426	–	230,317
Bonds and private debt				
Canada	–	5,838,438	288,501	6,126,939
Foreign	–	526,618	242,104	768,722
Public equities				
Canada	2,559,472	–	–	2,559,472
Foreign	7,320,894	13,827	–	7,334,721
Real estate	–	–	5,158,159	5,158,159
Infrastructure	–	–	2,089,638	2,089,638
Private equity	–	–	2,102,841	2,102,841
Forwards	–	34,855	–	34,855
Futures	7,986	–	–	7,986
	$ 10,090,189	$ 6,795,847	$ 9,881,243	$ 26,767,279
Financial liabilities				
Forwards	$ –	$ 199,640	$ –	$ 199,640
Credit default swaps	–	1	–	1
Futures	26,305	–	–	26,305
	$ 26,305	$ 199,641	$ –	$ 225,946

As at December 31, 2017 (in thousands of dollars)	Level 1	Level 2	Level 3	Total Fair Value
Financial assets				
Cash in trust and short-term investments				
Canada	$ 49,413	$ 645,141	$ –	$ 694,554
Foreign	142,517	42,828	–	185,345
Bonds and private debt				
Canada	–	5,394,919	344,381	5,739,300
Foreign	–	433,941	104,974	538,915
Public equities				
Canada	2,817,111	–	–	2,817,111
Foreign	8,879,873	–	–	8,879,873
Real estate	–	–	4,653,996	4,653,996
Infrastructure	–	–	1,434,710	1,434,710
Private equity	–	–	1,454,300	1,454,300
Forwards	–	67,105	–	67,105
Futures	2,599	–	–	2,599
	$ 11,891,513	$ 6,583,934	$ 7,992,361	$ 26,467,808
Financial liabilities				
Forwards	$ –	$ 15,307	$ –	$ 15,307
Credit default swaps	–	509	–	509
Futures	2,719	–	–	2,719
	$ 2,719	$ 15,816	$ –	$ 18,535

There were no significant transfers between Levels 1, 2 or 3 during the years ended December 31, 2018 and 2017.

4c) LEVEL 3 INVESTMENT RECONCILIATION

The following tables present a reconciliation of all Level 3 assets and liabilities measured at fair value for the years ended December 31, 2018 and 2017.

(in thousands of dollars)	**Fair Value as at January 1, 2018**	**Acquisitions**	**Dispositions**	**Issuance of Debt**	**Fair Value Changes**	**Fair Value as at December 31, 2018**
Financial assets						
Private debt						
Canada	**$ 344,381**	**$ 21,159**	**$ (72,880)**	**$ -**	**$ (4,159)**	**$ 288,501**
Foreign	**104,974**	**140,077**	**(23,707)**	**-**	**20,760**	**242,104**
Real estate	**4,653,996**	**580,194**	**(90,143)**	**-**	**14,112**	**5,158,159**
Infrastructure	**1,434,710**	**768,084**	**(252,059)**	**-**	**138,903**	**2,089,638**
Private equity	**1,454,300**	**512,499**	**(147,778)**	**-**	**283,820**	**2,102,841**
	$7,992,361	**$2,022,013**	**$ (586,567)**	**$ -**	**$ 453,436**	**$ 9,881,243**

(in thousands of dollars)	Fair Value as at January 1, 2017	Acquisitions	Dispositions	Issuance of Debt	Fair Value Changes	Fair Value as at December 31, 2017
Financial assets						
Private debt						
Canada	$ 390,522	$ 57,140	$ (95,442)	$ -	$ (7,839)	$ 344,381
Foreign	66,790	41,846	(3,584)	-	(78)	104,974
Real estate	4,375,431	1,325,203	(80,676)	(750,000)	(215,962)	4,653,996
Infrastructure	1,238,661	269,274	(73,957)	-	732	1,434,710
Private equity	947,654	612,082	(113,248)	-	7,812	1,454,300
	$ 7,019,058	$ 2,305,545	$ (366,907)	$ (750,000)	$ (215,335)	$ 7,992,361

4d) CASH IN TRUST AND SHORT-TERM INVESTMENTS

The following table provides a breakdown of the cash in trust and short-term investments.

As at December 31 (in thousands of dollars)		2018		2017
Canada				
Cash in trust	**$**	**43,246**	$	49,413
Short-term notes and treasury funds		**289,304**		616,516
Term deposits		**20,703**		27,691
Accrued interest		**376**		934
	$	**353,629**	$	694,554
Foreign				
Cash in trust	**$**	**146,891**	$	142,518
Short-term notes and treasury funds		**83,298**		42,825
Accrued interest		**128**		2
	$	**230,317**	$	185,345

4e) REAL ESTATE

The following table provides a breakdown of the real estate portfolio by its major components.

As at December 31 (in thousands of dollars)		2018		2017
Assets				
Wholly owned real estate[1]	**$**	**2,027,000**	$	2,175,158
Partially owned investments[2]		**5,344,391**		4,720,867
Participating mortgages[3]		**97,873**		94,003
Total assets		**7,469,264**		6,990,028
Liabilities				
Debentures[4]		**2,309,259**		2,334,870
Other liabilities, net[5]		**1,846**		1,162
Total liabilities		**2,311,105**		2,336,032
Net investment in real estate	**$**	**5,158,159**	$	4,653,996

1 Real estate investments that are 100% directly owned.

2 Investments held through partially owned funds, fund co-investments, or similar investment vehicles consist of real estate properties and any related assets and liabilities. These assets and liabilities are presented on a net basis.

3 Participating mortgages are held directly by OPB.

4 The debentures represent securities issued by OPB Finance Trust and are guaranteed by OPB.

5 Applies to wholly owned real estate investments.

4f) OFFSETTING FINANCIAL ASSETS AND LIABILITIES

The following table presents the financial instruments subject to enforceable master netting arrangements and other similar agreements but not offset, as at December 31, 2018 and December 31, 2017. The Plan presents these financial instruments as a gross amount in the statement of net assets available for benefits. The column "net amount" shows the impact on the Plan's statement of financial position if all set-off rights were exercised.

								2018
			Related Amounts Not Offset					
(in thousands of dollars)		**Gross Amounts Presented in the Statement of Financial Position**		**Amounts Subject to Master Netting Arrangements**		**Financial Collateral (Received)/ Pledged**[1]		**Net Amount**
Financial assets								
Derivatives	**$**	**42,841**	**$**	**(1,481)**	**$**	**(6,293)**	**$**	**35,067**
Securities lending[2]		**97,857**		**–**		**(97,857)**		**–**
Total financial assets	**$**	**140,698**	**$**	**(1,481)**	**$**	**(104,150)**	**$**	**35,067**
Financial liabilities								
Derivatives		**(225,946)**		**1,481**		**72,666**		**(151,799)**
Total financial liabilities	**$**	**(225,946)**	**$**	**1,481**	**$**	**72,666**	**$**	**(151,799)**

1 Refer to Note 8 for information relating to collateral received and pledged.

2 Included within bonds and equity investment assets in Note 4.

								2017
			Related Amounts Not Offset					
(in thousands of dollars)		Gross Amounts Presented in the Statement of Financial Position		Amounts Subject to Master Netting Arrangements		Financial Collateral (Received)/ Pledged[1]		Net Amount
Financial assets								
Derivatives	$	69,704	$	(6)	$	–	$	69,698
Securities lending[2]		73,583		–		(73,583)		–
Total financial assets	$	143,287	$	(6)	$	(73,583)	$	69,698
Financial liabilities								
Derivatives		(18,535)		6		9,033		(9,496)
Total financial liabilities	$	(18,535)	$	6	$	9,033	$	(9,496)

1 Refer to Note 8 for information relating to collateral received and pledged.

2 Included within bonds and equity investment assets in Note 4.

4g) SIGNIFICANT INVESTMENTS

The following table summarizes where the fair value of an individual investment exceeds 1% of the fair value of the plan, approximately $265 million, as at December 31, 2018.

(in thousands of dollars)	Maturities	Coupon %	Fair Value
Fixed income and bonds			
Government of Canada	2020–2064	0.5–10.50	$ 1,617,961
Province of Ontario	2020–2049	1.35–9.50	898,007
Province of Quebec	2020–2048	2.50–8.50	503,226
Real estate, net of financing[1]			3,028,753
Private equity			
OPB Private Equity 5 Limited (holding company, 100% owned)			517,655
OPB Private Equity 3 Limited (holding company, 100% owned)			415,761
OPB Private Equity 6 Limited (holding company, 100% owned)			288,183
Infrastructure			
OPB Infrastructure 2 Limited (holding company, 100% owned)			628,569
OPB Infrastructure 4 Limited (holding company, 100% owned)			364,123

1 Includes the following holding companies, which are 100% owned: OPB Realty Inc., OPB (TDC) Inc., OPB (Van Centre) Inc., OPB Real Estate Investments 2 Limited, OPB (155 Wellington) Inc., OPB Real Estate Investments, OPB (EMTC) Inc., OPB (Southgate) Inc., and OPB Finance Trust (financing entity, 100% beneficial interest).

Note 5: Derivative Contracts

Derivative contracts are financial contracts whose values change as a result of changes in the values of an underlying asset, index, yield curve or foreign exchange rate. OPB uses derivatives, either directly with counterparties in the over-the-counter market or on regulated exchanges, to facilitate asset allocation, alter the overall risk-return profile of the Plan, and manage or hedge risk. The Plan utilizes the following types of derivative contracts:

FUTURES CONTRACTS

Futures contracts are standardized agreements that can be purchased or sold on a futures exchange market at a predetermined future date and price specified at origination of the contract, in accordance with terms specified by the regulated futures exchange, and are subject to daily cash margining. These types of derivatives are used to efficiently modify exposures without actually purchasing or selling the underlying assets.

FORWARD CONTRACTS

Foreign exchange forward contracts are negotiated agreements between two parties to exchange a notional amount of one currency for another at an exchange rate specified at origination of the contract, with settlement at a specified future date. Foreign exchange forward contracts are used by OPB to modify currency exposure for both passive and active hedging.

A bond forward is a contractual obligation to either buy or sell an interest-rate-sensitive financial instrument on a predetermined future date at a specified price. Bond forward contracts are used to modify OPB's exposure to interest rate risk, such as hedging a potential new debenture issue.

CREDIT DERIVATIVES

Credit default swaps are a type of credit derivative used to transfer credit risk of an underlying financial instrument or group of securities from one party to another. In a credit default swap, the buyer of the swap pays a regular premium to the seller in return for protection against any loss of the notional amount of the underlying securities if a credit event, such as a default, occurs.

SWAPS

In an interest rate swap, the parties exchange cash flows based on a notional principal amount (this amount is not actually exchanged) in order to hedge against interest rate risk.

In a total return swap, the total return from an asset is exchanged for another defined asset or portfolio of assets. This gives the party exposure to the underlying asset without having to expend the capital to hold it.

OPTIONS

Options are contractual agreements under which the buyer has the right, but not the obligation, to either buy (call option) or sell (put option) an underlying asset at a predetermined price on or before a specified future date.

5a) DERIVATIVE NOTIONAL AND FAIR VALUES

The following schedule summarizes the notional amounts and fair values of the Plan's derivative positions:

		2018			2017	
		Fair Value			Fair Value	
As at December 31 (in thousands of dollars)	**Notional Value**	**Assets**	**Liabilities**	Notional Value	Assets	Liabilities
Currency derivatives						
Forwards	**$ 7,572,730**	**$ 34,855**	**$ (199,640)**	$ 5,566,963	$ 67,105	$ (15,307)
Equity derivatives						
Futures	**1,324,835**	**7,911**	**(25,772)**	388,001	2,599	(2,677)
Fixed income derivatives						
Futures	**72,515**	**75**	**(533)**	25,039	–	(42)
Credit derivatives						
Credit default swaps	**137**	**-**	**(1)**	6,265	–	(509)
Value of derivative contracts	**$ 8,970,217**	**$ 42,841**	**$ (225,946)**	$ 5,986,268	$ 69,704	$ (18,535)

5b) DERIVATIVE NOTIONAL VALUES BY TERM TO MATURITY

The maturities of the Plan's notional values for the Plan's derivative positions are as follows:

			2018					2017
As at December 31 (in thousands of dollars)	**< 1 year**	**≥ 1–3 years**	**> 3–5 years**	**Total**	< 1 year	≥ 1–3 years	> 3–5 years	Total
Currency derivatives								
Forwards	**$ 7,572,730**	**$ -**	**$ -**	**$ 7,572,730**	$ 5,566,963	$ –	$ –	$ 5,566,963
Equity derivatives								
Futures	**1,324,835**	**-**	**-**	**1,324,835**	388,001	–	–	388,001
Fixed income derivatives								
Futures	**72,515**	**-**	**-**	**72,515**	25,039	–	–	25,039
Credit derivatives								
Credit default swaps	**-**	**-**	**137**	**137**	–	–	6,265	6,265
Total	**$ 8,970,080**	**$ -**	**$ 137**	**$ 8,970,217**	$ 5,980,003	$ –	$ 6,265	$ 5,986,268

Note 6: Net Investment Income

The Plan's net investment income for the years ended December 31 is as follows:

(in thousands of dollars)	**2018** Investment Income[1,2]	**2018** Fair Value Changes[3]	**2018** Total	2017 Investment Income[1,2]	2017 Fair Value Changes[3]	2017 Total
Cash in trust and short-term investments						
Canada (Note 6a)	**$ 12,252**	**$ 10,123**	**$ 22,375**	$ 8,294	$ (184)	$ 8,110
Foreign[4] (Note 6a)	**1,622**	**(305,014)**	**(303,392)**	527	48,606	49,133
	13,874	**(294,891)**	**(281,017)**	8,821	48,422	57,243
Bonds and private debt						
Canada	**209,181**	**(125,009)**	**84,172**	213,610	6,990	220,600
Foreign	**22,461**	**56,398**	**78,859**	39,456	(21,640)	17,816
	231,642	**(68,611)**	**163,031**	253,066	(14,650)	238,416
Public equities						
Canada	**80,904**	**(274,207)**	**(193,303)**	63,317	186,164	249,481
Foreign	**182,072**	**(329,120)**	**(147,048)**	179,815	1,658,018	1,837,833
	262,976	**(603,327)**	**(340,351)**	243,132	1,844,182	2,087,314
Real estate	**227,761**	**(6,071)**	**221,690**	237,718	(228,159)	9,559
Infrastructure	**124,704**	**140,755**	**265,459**	74,381	3,753	78,134
Private equity	**161,437**	**284,126**	**445,563**	144,288	7,527	151,815
Total investment income	**$1,022,394**	**$ (548,019)**	**$ 474,375**	$ 961,406	$1,661,075	$2,622,481
Investment management and related fees (Note 6b)			**(113,752)**			(91,880)
Net investment income			**$ 360,623**			$2,530,601

1 Investment income includes interest on cash and short-term investments, fixed income and participating mortgages, dividend income on equities, and distributions from pooled funds and limited partnerships.

2 Net of management fees incurred on investments in real estate, infrastructure, private equity and private debt that are deducted from the managed assets.

3 Includes realized gains of $898 million and unrealized losses of $1,446 million in 2018 and realized gains of $879 million and unrealized gains of $782 million in 2017.

4 Fair value changes on cash and short-term investments include gains (losses) on foreign exchange forward contracts.

6a) INTEREST INCOME

Earnings from pooled short-term investment funds are included with short-term notes and treasury funds. Interest income from cash and short-term investments for the years ended December 31 is as follows:

(in thousands of dollars)		**2018**		2017
Canada				
Cash in trust	**$**	**4,386**	$	1,303
Short-term notes and treasury funds		**7,866**		6,979
Term deposits		**–**		12
	$	**12,252**	$	8,294
Foreign				
Cash in trust	**$**	**221**	$	413
Short-term notes and treasury funds		**1,401**		114
	$	**1,622**	$	527

6b) INVESTMENT MANAGEMENT AND RELATED FEES

For the year ended December 31 (in thousands of dollars)		**2018**		2017
External investment management fees	**$**	**58,567**	$	61,702
IMCO management fees		**40,188**		14,396
Transaction costs		**7,641**		8,594
Custodial fees		**6,862**		6,758
Private market expenses		**494**		430
	$	**113,752**	$	91,880

Transaction costs consist primarily of commissions and fees on public equity trades. IMCO management fees represent OPB's share of the operating expenses incurred by IMCO, which are charged back to its respective clients on a cost-recovery basis. Subsequent to IMCO becoming operational in July 2017, the external investment management fees invoiced by third parties, custodial fees, and private market expenses were paid by IMCO on behalf of OPB, and reimbursed by OPB (Note 16).

Note 7: Risk Management

The Plan is subject to financial risks as a result of its investing activities that could impact its cash flows, income, and assets available to meet benefit obligations. These risks include market risk (including interest rate risk, foreign currency risk and other price risk), credit risk and liquidity risk. OPB manages these risks in accordance with its SIP&P, which prescribes the asset mix policy, diversification requirements, performance expectations, limits on individual investments, valuation standards, and guidelines for the management of the Plan.

MARKET RISK

Market risk is the risk that the fair value or future cash flows of an investment will fluctuate because of changes in market factors. Market risk comprises the following:

(i) Interest Rate Risk – Interest rate risk refers to the effect on the fair value of the Plan's assets and liabilities due to fluctuations in market interest rates. The value of the Plan's investments is affected by changes in nominal and real interest rates. Pension liabilities are exposed to fluctuations in long-term interest rates and inflation. The Plan has established an asset mix policy that balances interest-rate-sensitive investments with other investments. OPB's fixed income investments have the most significant exposure to interest rate risk. Duration and weighting for the fixed income portfolio are actively managed. Modified duration is a measure of the sensitivity of the price of a fixed income instrument to a change in interest rates. Given the Plan's modified duration of 11 years at December 31, 2018 (2017 – 9 years), a parallel shift in the yield curve of +/-1% would result in an approximate impact of +/-$738 million (2017 – $620 million) on net investments with all other variables held constant. In practice, actual results may differ materially from this sensitivity analysis. See the schedule of fixed income maturities for further information.

(ii) Foreign Currency Risk – Foreign currency exposure arises from the Plan holding foreign currency denominated investments and entering into contracts that provide exposure to currencies other than the Canadian dollar. Fluctuations in the value of the Canadian dollar against these foreign currencies can have an impact on the fair value of investments. In addition to passively hedging a portion of its foreign currency exposure, the Plan also has an active currency hedging strategy in place through the use of foreign exchange forward contracts, which are accounted for at fair value. The gross currency exposure, the notional values of foreign exchange forward contracts, the net currency exposure, and the impact of a 5% absolute change in foreign exchange rates relative to the Canadian dollar are as follows:

As at December 31, 2018 (in thousands of dollars)	**Gross Exposure**	**Foreign Exchange Contracts Receivable**	**Foreign Exchange Contracts Payable**	**Net Exposure**	**Impact of +/- 5% change**
U.S. dollar	**$ 4,981,509**	**$ 585,850**	**$ (3,826,249)**	**$ 1,741,110**	**+/- $ 87,056**
Euro currency unit	**675,401**	**221,516**	**(1,755,431)**	**(858,514)**	**+/- 42,926**
Hong Kong dollar	**779,482**	**20,711**	**(84,923)**	**715,270**	**+/- 35,764**
Chinese yuan renminbi	**685,987**	**16,042**	**(3,293)**	**698,736**	**+/- 34,937**
Indian rupee	**467,983**	**–**	**–**	**467,983**	**+/- 23,399**
South Korean won	**361,618**	**1,006**	**(397)**	**362,227**	**+/- 18,111**
Japanese yen	**49,230**	**297,434**	**(27,550)**	**319,114**	**+/- 15,956**
Other	**1,718,647**	**180,200**	**(844,499)**	**1,054,348**	**+/ - 52,717**
Total foreign	**9,719,857**	**1,322,759**	**(6,542,342)**	**4,500,274**	**+/- $ 225,014**
Canadian dollar	**16,981,865**	**6,285,897**	**(1,231,099)**	**22,036,663**	
	$ 26,701,722	**$ 7,608,656**	**$ (7,773,441)**	**$ 26,536,937**	

As at December 31, 2017 (in thousands of dollars)	Gross Exposure	Foreign Exchange Contracts Receivable	Foreign Exchange Contracts Payable	Net Exposure	Impact of +/- 5% change
U.S. dollar	$ 5,413,600	$ 43,141	$ (2,877,822)	$ 2,578,919	+/- $ 128,946
Hong Kong dollar	775,598	67,839	(87,399)	756,038	+/- 37,802
Chinese yuan renminbi	703,603	4,451	(1,399)	706,655	+/- 35,333
Indian rupee	518,317	–	(37)	518,280	+/ - 25,914
South Korean won	446,252	139	–	446,391	+/ - 22,320
South Korean won	167,983	249,130	(61,925)	355,188	+/- 17,759
New Taiwan dollar	236,635	–	–	236,635	+/- 11,832
Other	2,627,698	216,110	(1,917,474)	926,334	+/- 46,317
Total foreign	10,889,686	580,810	(4,946,056)	6,524,440	+/- $ 326,223
Canadian dollar	15,507,325	4,979,387	(562,343)	19,924,369	
	$ 26,397,011	$ 5,560,197	$ (5,508,399)	$ 26,448,809	

(iii) Other Price Risk – Other price risk is the risk that the fair value of an investment will fluctuate because of changes in market prices other than those arising from foreign currency or interest rate risk, whether those changes are caused by factors specific to the individual investment or factors affecting all securities traded in the market. An absolute change in the fair value of OPB's investments that are exposed to other price risk will have a direct proportional impact on the fair value of the investments. OPB's investments in equities have the most significant exposure to other price risk. The impact of a 10% absolute change in the price of an investment, holding all other variables constant, is 10% of the net exposure of the impacted investment, as follows:

(in millions of dollars)

			Change in Net Assets as of					
Public Equities	Stock Market Benchmark	Change in Price Index	**December 31, 2018**			December 31, 2017		
Canadian	S&P/TSX Composite Index	+/- 10%	**+/-**	**$**	**257**	+/-	$	281
Foreign	MSCI World (C$)	+/- 10%	**+/-**		**399**	+/-		480
Emerging	MSCI Emerging Equity Index (C$)	+/- 10%	**+/-**		**364**	+/-		425
			+/-	**$**	**1,020**	+/-	$	1,186

The sensitivity analysis is performed using the total Plan actual investment asset mix weights summarized in Note 4a as at December 31, 2018 and 2017.

CREDIT RISK

The Plan is exposed to credit risk through the risk of loss arising from a counterparty defaulting on its obligations, the insolvency of a counterparty, or the risk of a market decline resulting from the deterioration in the credit quality of a counterparty.

Management

This risk is significantly mitigated by the fact that for any counterparties where the Plan transacts in OTC derivatives of greater than one year in duration, an International Swaps and Derivatives Association ("ISDA") master agreement must be in place accompanied by a Credit Support Annex ("CSA"), which forms part of the ISDA. Under these agreements, collateral is exchanged with counterparties on a daily basis to manage the credit risk arising from any existing OTC derivative contracts with that counterparty. In addition, under the ISDA master agreement for OTC derivatives, the Plan has the right to settle obligations on a net basis in the event of default, insolvency, bankruptcy or other early termination event. Note 4f illustrates the maximum exposure to credit risk by summarizing the amount of collateral held or pledged as security and their financial effect to mitigate credit risk exposure.

Measurement

Counterparty and credit risk exposure is measured by the fair value of contractual obligations less any collateral or margin received from the counterparties. The use of credit ratings allows the Plan to assess the creditworthiness of counterparties using an independent source.

As at December 31, 2018, the Plan's greatest credit exposure to a securities issuer is with the Government of Canada in the form of interest-bearing securities for $1.7 billion (2017 – with the Government of Canada for $1.6 billion).

The credit risk exposure, without taking into account any collateral held, is as follows:

As at December 31 (in thousands of dollars)	**2018 Total Credit Risk Exposure**	2017 Total Credit Risk Exposure
Bonds		
AAA	**$ 2,336,680**	$ 1,823,697
AA	**2,243,421**	1,925,795
A	**485,649**	706,133
BBB	**433,052**	547,703
BB	**115,226**	130,647
B	**61,652**	71,615
CCC	**12,267**	14,708
Not rated	**677,109**	608,561
Total bonds	**$ 6,365,056**	$ 5,828,859
Private debt	**$ 530,605**	$ 449,355
Short-term investments		
AAA	**166,468**	443,184
AA	**142,728**	102,368
A	**–**	40,998
Not rated	**72,914**	113,504
Total short-term investments	**$ 382,110**	$ 700,054
Counterparty risk		
Derivative assets		
AA	**19,310**	47,749
A	**23,531**	21,955
Total derivative assets	**$ 42,841**	$ 69,704
Securities lending		
AA	**11,886**	30,079
A	**74,391**	42,707
BBB	**11,580**	–
Not rated	**–**	796
Total securities lending	**$ 97,857**	$ 73,582

LIQUIDITY RISK

Liquidity risk is the risk that the Plan has insufficient cash flows to meet its pension obligations and operating expenses as they become due. The typical cash requirements of the Plan are in the form of monthly retirement benefit payments as well as periodic termination and other benefit payments and expenses.

Management

OPB manages liquidity risk by maintaining a minimum physical cash reserve. Further cash requirements and the fulfillment of any financial liabilities are typically met through cash sources such as investment income, proceeds from the sales of investments, and member and employer contributions. The majority of the Plan's assets are also invested in securities that are traded in active markets and can be divested on a timely basis. The largest sources of cash during the year were the member, employer and sponsor contributions.

Measurement

Liquidity risk is measured by the projection of contractual and contingent cash flows within three months and identifying any shortfalls in funding requirements. All funding requirements should be met without causing physical cash to drop below the established minimum level.

The maturities of the Plan's investment-related liabilities are as follows:

					2018
(in thousands of dollars)	**< 1 year**	**≥ 1–5 years**	**> 5–10 years**	**> 10 years**	**Total**
Debentures	**$ –**	**$ 750,000**	**$ 1,000,000**	**$ 500,000**	**$ 2,250,000**
Derivatives payable	**225,945**	**1**	**–**	**–**	**225,946**
Total	**$ 225,945**	**$ 750,001**	**$ 1,000,000**	**$ 500,000**	**$ 2,475,946**

					2017
(in thousands of dollars)	< 1 year	≥ 1–5 years	> 5–10 years	> 10 years	Total
Debentures	$ –	$ 500,000	$ 1,250,000	$ 500,000	$ 2,250,000
Derivatives payable	18,027	508	–	–	18,535
Total	$ 18,027	$ 500,508	$ 1,250,000	$ 500,000	$ 2,268,535

Note 8: Collateral

COLLATERAL PLEDGED AND RECEIVED

Derivative transactions are supported by a CSA that regulates the collateral required when entering into an ISDA master agreement. The collateral received mitigates the risk of potential losses. In the event of default, OPB has the right to offset credit risk with the collateral held. Securities pledged under derivatives arrangements continue to be recognized as OPB's investments as OPB retains the risks and rewards associated with these securities. Securities received under derivative arrangements are segregated from OPB's investments, and OPB has the obligation to return the collateral to the owner on termination of the agreement.

As at December 31, 2018, OPB pledged $72.66 million (2017 – $9.03 million) and received $6.29 million (2017 – $nil) in collateral (Note 4f).

SECURITIES LENDING

Pursuant to a securities lending agreement, OPB's custodian and lending agent arranges loans with approved borrowers and OPB earns a fee. The lending agent follows strict lending criteria and over-collateralizes the loans with securities that have credit ratings equal to or better than the securities loaned. OPB does not employ cash collateral or letters of credit in its securities lending program. Securities under lending arrangements continue to be recognized as OPB's investments as OPB retains the rewards and risks associated with these securities. OPB may request the redelivery of any or all loaned securities at any time or from time to time by providing notice of at least one business day.

At year-end, $97.8 million (2017 – $73.5 million) of OPB's securities were on loan to third parties. At year-end, $105.8 million (2017 – $77.5 million) of securities were held as collateral, providing an 8.2% (2017 – 5.4%) cushion against the potential credit risk associated with these securities lending activities (Note 4f).

Note 9: Commitments and Guarantees

As at December 31, 2018, OPB had unfunded commitments for certain investments of $2,572 million (2017 – $1,891 million).

OPB Finance Trust was established for the benefit of OPB and its related entities. It raises funds through the issuance of debentures. These debentures are recorded at fair value. The proceeds of the Series A, B, D, E and F debentures were loaned to a number of OPB real estate subsidiaries. In turn, these real estate companies used the proceeds to repay amounts owed to OPB and/or to acquire real estate investments. The proceeds from the issuance of the Series C debentures were loaned to a real estate trust established for the benefit of OPB. OPB's real estate investments are shown net of the OPB Finance Trust debentures and any other financings specifically assumed by these real estate entities.

OPB has provided a guarantee for the payment of principal and interest on $2,250 million in debentures that were issued by OPB Finance Trust. Six series of debentures have been issued as at December 31, 2018:

1. $350 million, Series A, 30-year debentures due 2042, with a 3.89% coupon payable semi-annually.
2. $150 million, Series B, 50-year debentures due 2062, with a 3.87% coupon payable semi-annually.
3. $250 million, Series C, 10-year debentures due 2023, with a 2.90% coupon payable semi-annually.
4. $500 million, Series D, 7-year debentures due 2022, with a 1.88% coupon payable semi-annually.
5. $250 million, Series E, 10-year debentures due 2026, with a 2.95% coupon payable semi-annually.
6. $750 million, Series F, 10-year debentures due 2027, with a 2.98% coupon payable semi-annually.

In addition to the guarantee on the debentures, $9.28 million in letters of credit is guaranteed by OPB as at December 31, 2018 ($16 million as at December 31, 2017).

Note 10: Capital Assets

Capital assets as at December 31 consist of the following:

		2018				2017
(in thousands of dollars)	**Cost**	**Accumulated Depreciation**	**Net Book Value**	Cost	Accumulated Depreciation	Net Book Value
Computer equipment	**$ 4,762**	**$ (4,671)**	**$ 91**	$ 5,137	$ (4,661)	$ 476
Furniture and fixtures	**1,984**	**(1,923)**	**61**	1,993	(1,780)	213
Leasehold improvements	**1,845**	**(1,549)**	**296**	1,758	(1,336)	422
Total capital assets	**$ 8,591**	**$ (8,143)**	**$ 448**	$ 8,888	$ (7,777)	$ 1,111

Note 11: Pension Obligations

FINANCIAL STATEMENT VALUATION

For the purposes of these financial statements, Aon, the Plan's actuary, used the funding valuation as at December 31, 2017 on the basis of the accounting methodology required by the *CPA Canada Handbook – Accounting*, Section 4600, and extrapolated those liabilities to December 31, 2018. The actuarial obligation was based on the projected unit benefit cost method pro-rated on service. The obligations as of December 31, 2017 have been extrapolated to December 31, 2018 based on the estimated service cost, benefit payments, and asset transfers or buybacks. The pension obligations as at December 31, 2018 are $28.4 billion (2017 – $27.2 billion).

The non-economic assumptions include mortality, withdrawal and retirement rates. During 2017, changes in actuarial assumptions related to mortality, the real rate of return and total investment return resulted in an increase of $778 million to the Plan's pension obligations. The annual expected real rate of return had been lowered based on the long-term investment mix policy and expected returns and volatility for each of the asset classes. Mortality tables had been updated to reflect improved longevity assumptions.

During 2018, changes to actuarial assumptions related to lowered salary increase expectations, changes to the discount rate and the provision for an adverse deviation associated with legislative changes. The valuation reflects new Ontario Regulation 250/18, which modifies the funding rules for Ontario registered single-employer defined benefit pension plans including the funding of a reserve in the Plan (referred to as a Provision for Adverse Deviation – PfAD), the amortization of a going-concern deficit over 10 years, instead of 15 years, and the requirement to fund a solvency deficiency up to the level that the Plan would be 85% funded on a solvency basis.

The actuarial assumptions used in determining the value of the pension obligations reflect management's best estimate of future economic and non-economic events. The primary economic assumptions as at December 31 are:

	2018	2017
Pre-legislative changes		
Nominal discount rate	**5.60%**	5.60%
Inflation	**2.00%**	2.00%
Real rate of return	**3.60%**	3.60%
Post-legislative changes		
Effective nominal discount rate[1]	**5.64%**	n/a
Nominal discount rate before the application of the PfAD	**6.15%**	n/a
Inflation	**2.00%**	n/a
Real rate of return before the application of the PfAD	**4.15%**	n/a
PfAD, a percentage of non-indexed liabilities and service cost	**8.69%**	n/a
Salary increases		
2018	**2.0% + promotional scale**	2.0% + promotional scale
2019	**2.0% + promotional scale**	2.0% + promotional scale
2020	**2.0% + promotional scale**	2.25% + promotional scale
2021	**2.0% + promotional scale**	2.5% + promotional scale
2022 and thereafter	**2.75% + promotional scale**	2.75% + promotional scale

1 The effective nominal discount rate is the rate that includes the impact of a margin for adverse deviation, rather than splitting out the PfAD as a percentage of liabilities, as required by post-legislative changes.

FUNDING VALUATION

An actuarial valuation prepared for funding purposes ("funding valuation") is used as the basis for funding, Plan design decisions and the periodic determination of the Plan's pension obligations. This funding valuation is based on methods required under the *PSPAct* and the PBA. The PBA and the ITA require that a funding valuation of the PSPP be completed and filed with the regulatory authorities at least every three years.

The most recent regulatory filing of a funding valuation was as at an effective date of December 31, 2017, which disclosed pension obligations of $25.444 billion (2016 – $25.324 billion), a newly prescribed Provision for Adverse Deviation of $1.815 billion, and a funding shortfall of $777 million (2016 – $943 million shortfall) on a going-concern basis. The funding valuation was prepared by Aon. The next required funding valuation to be filed with the regulatory authorities will have an effective date no later than December 31, 2020.

Note 12: Contributions

The contribution requirements are set out in the *PSPAct* and summarized in Note 2. The Province, as sponsor of the Plan, contributed $130.7 million (2017 – $99 million) in special payments in 2018 toward the funding shortfall identified in the filed funding valuation as at December 31, 2017.

For 2018 and 2017, the contributions to the Plan were made in accordance with the funding requirements as specified by the most recently filed actuarial funding valuation.

There was $654 thousand in required contributions past due as at December 31, 2018 ($nil as at December 31, 2017).

For the year ended December 31 (in thousands of dollars)	**2018**	2017
Members		
Current service required	**$ 342,523**	$ 309,518
Prior service	**54,391**	38,393
Long Term Income Protection benefits	**486**	234
	397,400	348,145
Employers		
Current service		
Regular contributions	**342,250**	309,598
PSSBA transfer	**(18,352)**	(12,863)
For members receiving Long Term Income Protection benefits	**12,469**	12,878
Prior service	**4,337**	4,098
	340,704	313,711
Sponsor		
Special payments	**130,725**	98,989
Additional current service	**17,760**	43,308
	148,485	142,297
Total contributions	**$ 886,589**	$ 804,153

Note 13: Operating Expenses

For the year ended December 31 (in thousands of dollars)		2018[1]		2017[1]
Staffing	$	**20,120**	$	25,370
IT and project management		**6,753**		7,786
Office premises and operations		**4,890**		5,709
IMCO set-up costs		**–**		5,048
Professional services		**2,142**		2,328
Depreciation		**737**		697
Staff development and support		**369**		545
Communications		**501**		436
Audit		**586**		352
Board remuneration		**211**		187
	$	**36,309**	$	48,458

1 Included in the above operating expenses are actuarial services provided to OPB amounting to $485 (2017 – $564) and external audit services provided to OPB amounting to $245 (2017 – $251).

Note: Recorded by subsidiary operations are external audit services provided to and recorded by subsidiaries amounting to $286 (2017 – $270).

Note 14: Termination and Other Benefit Payments

For the year ended December 31 (in thousands of dollars)		2018		2017
Transfers to other plans	$	**30,216**	$	31,317
Commuted value transfers and death benefits[1]		**125,414**		116,572
Total benefit payments	$	**155,630**	$	147,889

1 Disability payments amounted to $nil in 2018 and 2017.

Note 15: Transfers of Service from Other Plans

The Major Ontario Pension Plans ("MOPPs") Pension Portability Agreement recognizes that employees often move among the larger Ontario public sector employers throughout their careers. Transfers under this agreement include but are not limited to the PSPP, OMERS, HOOPP and CAAT.

On September 13, 2018, FSCO consented to the transfer of assets relating to past service and the benefits of the TVO plans' retired and deferred members to the PSPP, and OPB became responsible for administering the pension benefits of all current and former TVO employees. The assets of TVO were liquidated and transferred in cash to OPB's custodian, CIBC Mellon, with the exception of $6 million on a monthly declining basis, which remains with RBC Investor & Treasury Services, the custodian for TVO, until May 31, 2019.

For the year ended December 31 (in thousands of dollars)		2018		2017
Transfers from TVO merger	$	**99,745**	$	-
Transfers from MOPPs		**9,827**		6,386
Transfers from OPSEU Pension Plan		**117,763**		127,946
Transfers from other plans		**6,845**		3,177
Total transfers of service from other plans	$	**234,180**	$	137,509

Note 16: Related Party Transactions

In the normal course of business, OPB transacted with various ministries, agencies and Crown corporations over which the Government of Ontario has control or significant influence. The Government of Ontario is the sponsor of the Plan. OPB purchased investments with the Government of Ontario and related entities at normal commercial terms.

During 2018, OPB administered payroll and benefits for IMCO employees. OPB's technology infrastructure was also made available to IMCO for certain business activities. OPB does not charge IMCO for providing these services. OPB administers the PSPP, in which all eligible IMCO employees participate. In relation to this service, IMCO remits to OPB the employee contributions and employer matching portion. In July 2017, IMCO began managing OPB's investment assets. OPB pays its share of IMCO's operating expenses on a cost-recovery basis (Note 6b). External investment manager and custodial fees, previously paid directly by OPB, are now paid by IMCO on OPB's behalf.

Note 17: Capital Management

The funding surpluses or deficits determined periodically through the funding valuations prepared by the independent actuary are defined as the Plan's capital. The actuary's funding valuation is used to measure the long-term health of the Plan. The objective of managing the Plan's capital is to ensure the Plan is funded to fully pay out the Plan's benefits. The funding valuation determines the annual minimum contribution levels to eliminate any shortfalls. The Plan's SIP&P also provides guidance with respect to the investment of the Plan's assets (see Note 4a) in order to assist with the management of any funding excesses or shortfalls. The Plan's expected average real rate of return has been set in the SIP&P at equal to or greater than 3.60%, net of expenses.

Board of Directors

Appointee Name	Appointment Start Date	Appointment End Date	Position
Geri (Geraldine) Markvoort	2/2/2017	2/1/2020	Chair of the Board
Michelle Savoy	1/15/2016	7/16/2019	Member
Dave Bulmer	11/16/2016	11/15/2019	Member
Kevin Costante	12/2/2015	12/1/2018	Former Member
John Por	6/22/2016	6/21/2019	Former Member – Resigned
Lynne Clark	6/22/2016	6/21/2019	Member
Patricia Croft	5/2/2016	5/1/2019	Vice-Chair
Michael Briscoe	8/15/2016	8/14/2019	Member
Elana Hagi	1/17/2019	1/16/2022	Member – recently appointed

Geri Markvoort (Chair)

Geri is a retired senior human resources executive, with more than 40 years' experience in large complex organizations. She has aligned the delivery of human resources with the needs of business in various sectors (natural resources, manufacturing, banking and professional services). Significant organizational change, global service models, total rewards delivery, effective client relationships and the evolution of the HR function have challenged and engaged her throughout her career. A passionate champion for change and strong HR leadership, Geri's board experience has included governance roles as Chair of the Board of Governors, George Brown College; Chair of the Board, Dress for Success Toronto; and board member of Lawn Summer Nights and the Cystic Fibrosis Toronto Chapter. Geri holds an ICD.D designation from the Institute of Corporate Directors.

Patricia Croft

Patricia Croft is Vice-Chair of the Ontario Pension Board as well as Chair of the Investment Committee and a member of the Audit and Governance Committees. She is also a member of the Ontario Teachers' Pension Plan Board, where she is Chair of the Benefits Adjudication and Governance Committees, as well as a member of the Audit and Investment, and Human Resources and Compensation Committees. She is the former Chief Economist of RBC Global Asset Management. Her community involvement has included the Oakville Humane Society and the Oakville Fairshare Food Bank. She is currently providing pet therapy visits in Toronto through the St. John Ambulance program. Patricia has been a member of the Ontario Pension Board since 2013. She holds a Bachelor of Arts degree in Economics from the University of Toronto as well as an ICD.D designation from the Institute of Corporate Directors.

Lynne Clark

Lynne Clark is a recently retired senior Deloitte partner with over 35 years of public accounting experience and a former leader of the Deloitte National Financial Services Industry. She is the 2012 recipient of the Queen Elizabeth II Diamond Jubilee Medal for community service, is a former Treasurer of the Junior Achievement Foundation (Canadian Business Hall of Fame) and is past chair of Junior Achievement of Canada. She was also a Director of The Easter Seals Society of Ontario. Lynne is a Fellow Chartered Professional Accountant of Ontario and received her ICD.D designation from the Institute of Corporate Directors. She also holds a Master's in Business Administration from the Schulich School of Business and a Bachelor of Science from the University of Toronto.

Michael Briscoe

Michael Briscoe worked for 27 years in the Ontario and municipal government as an HR professional. With a focus on labour relations, he was Chief Negotiator and Senior Manager of HR for the Simcoe County District School Board. Michael was hired by the Ontario Provincial Police Association in 2013 as its Executive Labour Advisor and as its Chief Administrative Officer in 2015. He is also a former Strategic Issues Advisor with the Ontario Provincial Police, and a former Strategic HR Business Advisor, Senior Staff Relations Officer and Client Relationship Coordinator with the Ministry of Community Safety and Correctional Services. Michael holds a Bachelor of Arts degree and is a Certified Human Resources Professional and Certified Human Resources Leader.

Dave Bulmer

Dave Bulmer is the President and Chief Executive Officer of AMAPCEO – Ontario's Professional Employees (15,000 members) and has been since 2015. He previously held the offices of Chief Financial Officer, Board Chair, Director-at-Large, Finance Committee Chair and Pension Committee Chair. His home position in the Ontario Public Service is within the Emergency Health Services Branch of the Ministry of Health & Long-Term Care. Dave has attained his ICD.D designation from the Institute of Corporate Directors at Rotman's School of Management, and completed SHARE's Pension Investment and Governance, and Trustee Master Class certifications. Dave lectures on labour relations at several Ontario universities and is a long-time community activist who has volunteered his time as a coach in elite-level sports and as a volunteer with PFLAG and Crohn's & Colitis Canada.

Michelle Savoy

Michelle is a corporate director with over 25 years' experience in the financial services industry, including investment management and capital markets. She currently serves as a Director for the Laurentian Bank of Canada (LB-T), Pizza Pizza Royalty Corp. (PZA-T) and NAV CANADA, and held numerous senior executive positions with The Capital Group of Companies, a global investment management organization, including President of Capital Guardian Canada, until her retirement in 2011. Michelle is a member of the Institute of Corporate Directors.

Elana Hagi

Based in Mercer's Toronto office, Elana is a Principal and a senior pension consultant in Mercer's Wealth business.

Elana has 23 years of experience in the pension industry, and is responsible for building and maintaining effective working partnerships with diverse clients – sponsors of a variety of funded and unfunded pension arrangements in various jurisdictions (defined benefit and defined contribution). In providing strategic advice tailored to a variety of businesses, corporate philosophies and evolving pension environments, she assists clients in understanding and solving various challenges that apply to their employee benefit programs, including design, funding, governance and risk management of their pension plans.

Elana leads Mercer's national group responsible for developing intellectual capital and providing support and expertise to Mercer colleagues involved in various financial reporting activities.

Elana holds an Honours Bachelor of Mathematics and Actuarial Science degree from the University of Toronto. She is a Fellow of the Canadian Institute of Actuaries and a Fellow of the Society of Actuaries. Elana is also enrolled in the Chartered Financial Analyst (CFA) program (completed Level I and Level II exams).

Directory of Key Personnel

Officers

Mark J. Fuller
President & Chief Executive Officer

Ken Lusk
Chief Investment Officer

Mila Babic
Vice-President, Client Services

Jasmine Kanga
Vice-President, Human Resources & Corporate Services

Peter Shena
Executive Vice-President & Chief Pension Officer

Valerie Adamo
Chief Technology Officer

Armand de Kemp
Vice-President, Finance

Glossary

Active risk: The volatility or fluctuations of portfolio returns compared to the portfolio benchmark.

Asset class: A group of securities that exhibit similar characteristics.

Asset mix: The categorization of asset classes within the pension plan portfolio (e.g., cash, Canadian equities, real estate, etc.). Each category is measured as a percentage of the total pension plan portfolio's fair value.

Assumptions: Estimates of what certain variables – such as interest rates, investment returns and mortality rates – will be in the future. Assumptions are used to estimate the future cost of pensions and the future value of pension assets.

Benchmark: A point of reference that is used to compare portfolio performance and risk. The S&P/TSX Composite Index is a commonly used benchmark to compare Canadian equity portfolio performance and risk. OPB's Strategic Asset Allocation (SAA) is a benchmark against which the overall Plan is assessed from a risk and return perspective.

CEM Benchmarking Inc.: An international pension administration benchmarking company.

Counterparty risk: The risk of a counterparty not fulfilling its contractual financial obligations.

Debenture: A long-term debt security normally yielding a fixed rate of interest, not secured against assets.

Discount rate: The expected rate of future investment return used to calculate the present value of pensions.

Factor risk: Shows which investment factors – macroeconomic (such as gross domestic product, inflation and interest rate) and fundamental (such as value, momentum and size) – drive the level of portfolio risk and return.

Funded status: A measure of the amount of assets the pension plan currently holds to pay out its future pension benefits (present value of projected future pension benefits). The funded status is regarded as the "health check" of a pension plan, and is determined by undertaking a funding valuation of the pension plan.

IMCO: Investment Management Corporation of Ontario.

Implementation and Support Agreement (ISA): The ISA deals with operating and governance matters such as employee transition in the short term, shared services, IMCO governance policies, and cost allocation and cost containment principles.

Investment Management Agreement (IMA): The IMA governs the investment management relationship between IMCO and OPB, and focuses largely on investment-related matters.

LEED: Leadership in Energy and Environmental Design (LEED) is a program that sets standards used internationally for the design, construction and maintenance of environmentally sustainable buildings and infrastructure.

Options: Options are contractual agreements under which the buyer has the right, but not the obligation, to either buy (call option) or sell (put option) an underlying asset at a predetermined price on or before a specified future date.

Passive investing: Passive investing is an investment strategy that aims to mimic the returns of a specific index. This type of strategy is generally lower cost.

Pension modernization: A program we are initiating to re-engineer our business processes and review and upgrade our pension administration system to allow us to meet the evolving needs of our clients and stakeholders, and ensure our technology remains current and secure.

PSPP: The Public Service Pension Plan.

Renminbi: General term for the currency of the People's Republic of China (PRC). The renminbi (or yuan) is made up of 10 jiao and 100 fen and is often either abbreviated as RMB or presented with the symbol ¥. Renminbi is issued by the People's Bank of China, which is controlled by the PRC.

Responsible Investing (RI): The integration of environmental, social and governance (ESG) factors into the investment decision-making and monitoring process, which supports long-term investment performance.

Risk-adjusted return: A measurement used to analyze an investment's return based on how much risk is involved in producing that return. Risk-adjusted returns can be used to compare the return of a portfolio against a benchmark with a known return and risk profile.

Strategic Asset Allocation (SAA): A long-term strategy that involves setting target allocations of the Plan's asset mix with the purpose of achieving highest returns on investment to meet current and projected future pension benefits given the Plan's risk tolerance and investment horizon.

Total risk: The volatility or fluctuations of portfolio returns over a defined period of time.

WELL certification: WELL Building Standard™ (WELL) is a performance-based system for measuring, certifying and monitoring features of buildings that impact the health and well-being of the people who live, work and learn in them.

WSIB: Workplace Safety and Insurance Board, a Crown agency of the Government of Ontario.

Yield to maturity (YTM): Total return anticipated on a bond if the bond is held until the end of its lifetime. Yield to maturity is considered a long-term bond yield, but is expressed as an annual rate.