OPB

# Ontario Pension Board
# 2019 Annual Report

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# Letter from the Chair

As Board Chair, I believe that a positive organizational culture and a strong governance structure is optimal in supporting and enabling OPB to deliver on our mandate. Our employees are committed to striving for exceptional client experiences through our Advise and Protect mission, and they do so in an increasingly fast-paced and complex environment. 2019 was a particularly demanding year with a higher-than-normal number of initiatives. I am very pleased that we were able to deliver on these initiatives without compromising the quality of service we provide and while maintaining strong employee engagement levels.

Our return, net of all expenses, increased to 10.2% in 2019, compared to a return of 1.3% in 2018, helping us maintain a strong funded status of over 92%. That said, we recognize that we are heading into what could be a prolonged challenging investment environment with low-interest rates and lower investment returns.

Our role is to protect the long-term health of the Plan by providing sound guidance and governance around pensions, investments and risk.

To that end, we remain focused on providing effective governance and oversight of IMCO as our investment manager. We meet regularly with our IMCO board representatives and the IMCO executive management to ensure our objectives and priorities are reflected in IMCO's strategies and practices. In 2019, we worked closely with IMCO on developing new investment policies and strategies that will enable IMCO to invest client assets, including assets owned by OPB, when asset pooling begins in 2020, while ensuring that we retain effective oversight of our assets.

Another key oversight function for us is Responsible Investing (RI), which we know is also important to our members. We are committed to working with IMCO to continue enhancing our RI practices. This past year, we advanced RI practices through:

- IMCO becoming a signatory of the UN-backed Principles for Responsible Investment (PRI), a responsibility they have taken over from OPB;
- supporting improved corporate governance practices and greater representation for women on corporate boards of directors through IMCO's membership in the 30% Club; and
- supporting shareholder proposals seeking enhanced disclosure and/or action on climate change risks and opportunities at companies in our portfolio.

As I mentioned earlier, while the Plan had strong returns and is solidly funded, we believe that the environment ahead will be more challenging and we continue to see member life expectancies increase. To protect the long-term sustainability of the PSPP, the Board oversees and works closely with management to develop strategies to help the Plan navigate these challenges. To ensure we have the information we need to make effective decisions, we are currently engaged with management in the following:

- Funding Risk Study: In 2019 OPB initiated a funding risk study which aims to stress test our current asset mix under various scenarios. This scenario analysis identifies the funding challenges the plan may face in the future. The study will identify appropriate strategies to mitigate these funding risks.
- Asset/liability (A/L) Study: The asset liability study considers the liabilities of the PSPP and will support our decision-making in identifying the optimal long-term strategic asset allocation considering the efficient trade-off between risk and return. The next study will be undertaken in 2020.

Annually, we engage directly with OPB's management team in considering the long-term strategies for the organization. Over the past two years, the Board has engaged with and supported management in the development of a new vision and strategic plan for the organization, Vision 2025. This new vision was adopted in 2019 and builds upon the previous Advise and Protect vision and strategies.

To fulfil our governance role, we need the right mix of skills and expertise on the Board, which is why we assess board candidates against a skills matrix. Keeping our skills current is equally important, which is why each year we choose one or two education priorities for board members. In 2019, we focused on enhancing our knowledge in business transformation as we also prepare to modernize our business processes and technology to improve the retirement planning experience for our members. The Board has engaged Blackline Consulting, a digital transformation consultant, to deepen our education and help us navigate the oversight of this important undertaking.

In 2019, the term of one of our dedicated Board members, Michelle Savoy, ended. On behalf of the Board, I'd like to thank her for her commitment and the valuable contributions she made while on the Board. Looking forward, we will be working closely with the Plan Sponsor to fill the Board vacancies with candidates who bring the right experience and skillsets to the table.

It has been a privilege to serve on the Board and work with the directors and OPB's senior management team. In closing, on behalf of the Board, I want to express our thanks and appreciation to the OPB team, who navigated an extremely demanding year while still maintaining excellent service to our members and stakeholders.

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**Geri Markvoort**
Chair

# Letter from the CEO

## 2019 Investment Performance

The investment return generated by the Investment Management Corporation of Ontario (IMCO) for the Plan in 2019 was 10.2% after all external and internal investment and pension administration expenses. The return was strong in absolute terms but fell short of the return of our portfolio benchmark, which was 12.1%. Riskier assets and sub-components of the capital markets, such as equities and technology stocks in particular, were prominent outperformers during the year while OPB's portfolio was comparatively more defensively positioned, resulting in our underperformance.

## Funded Ratio

The Plan's estimated year-end funded ratio, at over 92%, was stable compared to the end of 2018 (93%).

You may be asking yourself: with a 10.2% investment return, net of all expenses, in 2019, why didn't the funded ratio of the plan improve? The answer is that one of the main factors that contributed to the robust 2019 investment performance, namely the decrease in long-bond yields, also increased the amount we are required to add to the liability of the Plan under the new funding rules we became subject to in 2018. The "liability" is the value of the pension benefits promised to be paid to Plan members in today's dollars. The new funding rules require that a margin for conservatism be added to the liability of the Plan for the purposes of establishing the funded ratio. This additional margin is very sensitive to changes in Government of Canada long-bond yields from one valuation date to the next. The decrease in bond yields in 2019 was significant, meaning that the extra margin for conservatism in the 2019 valuation was large: it added approximately $1.5 billion or 5% to the liability of the Plan as of December 31, 2019. This is equivalent to reducing the discount rate used to calculate the liability from 5.64% at the end of 2018 to approximately 5.25% at the end of 2019, which is larger than any one-time change we have made to our discount rate assumption in the past. The increase in margin offset our strong investment returns and resulted in the funded ratio remaining stable. This shows that our funded ratio has become more volatile under the new rules and will be significantly impacted by changes in bond yields, and not just investment returns.

In the absence of the new funding rules, we would have applied some of the investment gains to build in some additional conservatism. This reflects our view that it will be difficult to replicate the strong investment returns generated in recent years. The discount rate reflects the long-term investment return we believe our portfolio can earn in the future. With today's low interest rates, a potential end to the longest equities bull market in history, and high valuations in other asset classes such as private equity and infrastructure, it is prudent to assume that the Plan's assets will earn modest returns over the next several years.

## Enhancing Plan Sustainability

Our most important function is to manage the Plan in a manner that contributes to its long-term sustainability. We are undertaking a number of steps in that regard.

First, we continually monitor the adequacy of contributions to the Plan and recommend increases as appropriate. In April 2019, Phase 2 of a two-part member and employer contribution rate increase was implemented: employee and employer contributions rose by 0.5%. We recommended this proactive step to the Plan Sponsor to support the long-term sustainability of the Plan. The increased regular contributions, together with the Plan Sponsor's additional special payments, will contribute significantly to restoring the Plan's funded status over time.

Second, we want to ensure that we are maximizing our investment returns within our risk appetite. To that end, in 2020, we will conduct a review of our strategic asset mix – that is, our allocation to fixed income securities, public equities, private equity, infrastructure and real estate. Asset mix is one of the most important drivers (if not the most important driver) of investment returns and risk, and we review it every three years. It will be particularly important in the current investment environment. Interest rates declined to historic lows in 2019 and there is little reason to believe they will rise significantly in the short to mid term. This means that fixed income returns will likely be very low. And after significant increases in global stock markets in 2019, equity market valuations are quite stretched; therefore, we do not expect double-digit returns in the foreseeable future. For these reasons, our outlook is for a lower investment return environment in the coming years. However, we believe that, over the long term, our investment strategies will generate returns that contribute to keeping the Plan well funded.

Third, our support for the creation of IMCO, our external investment manager, is a key OPB strategy intended to strengthen the long-term funded status of the Plan. We expect further benefits of investing through IMCO to emerge in 2020. For example, IMCO is working to improve the risk/return characteristics across our portfolio and is adopting less costly investment strategies, which will directly benefit OPB. During 2019, IMCO continued to assemble an excellent investment team. Though the operationalization of IMCO is a challenging undertaking, we are pleased with the progress made to date and remain convinced that, over the mid to long term, IMCO will generate higher net investment returns than OPB could have earned by investing assets on our own.

Finally, in 2020, we will complete an in-depth review of a range of future funding scenarios. This will provide deeper insight into the demographic and financial risks facing the Plan, and will enable us to develop strategies to mitigate those risks and identify options to restore the Plan's funded status should an adverse scenario occur.

## 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 88/100 from CEM Benchmarking, down from 91 in the prior year but still very strong. Our service level ranked third among our Canadian peers and eighth globally of leading pension plans in the CEM Benchmarking global universe. Our overall client satisfaction score, as measured by an independent external survey firm, held at 8.7/10 and our employer satisfaction score rose to 8.5/10, from 8.1 previously.

## Driving Cost Efficiency

If our expectation of a lower-return environment plays out, cost efficiency will be critical to maintaining the financial health of the Plan. In 2019, our expense ratio, including all pension and investment expenses, both internal and external, was 0.51% (or 51 cents per $100 of average net assets available for benefits). This compares to 0.53% in 2018. This high degree of cost efficiency is very competitive with our much larger public sector pension peers.

## New Chief Investment Officer

Chris Kautzky, our new Chief Investment Officer, joined us in April 2019. Chris has over 25 years of experience in the investment industry, including the last 10 as head of Aon's Outsourced CIO consulting practice. His background is ideally suited to overseeing our relationship with IMCO and supporting its growth and maturity.

I 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 the Plan remains affordable for our members and employers over the long term.

We are focused on providing unmatched service excellence to clients and managing the Plan to protect its sustainability, not just for our 90,000 current members but for members well into the future.

We formalized and updated this focus in 2019 by adopting a new vision and strategic plan for the organization, called Vision 2025. It builds upon our previous Advise and Protect vision and strategies.

Our new vision statement is: **“OPB is a premier pension delivery organization and a trusted advisor to all our stakeholders, whose effectiveness delivers sustainability for the PSPP.”** Each of our two core themes, **Sustainability** and **Service Excellence**, has a set of strategies, performance goals and metrics.

Quality of service remains paramount in our day-to-day operations and mission, as does risk management. We are vigilant in managing the key risks facing the Plan, and we incorporate risk management in the oversight of our investment activities and in pension administration.

As an agency of the Government of Ontario, OPB recognizes its obligation to effectively manage costs and constrain expenses, and we operate 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 investment rate of return was strong at 10.2%, net of all expenses, in 2019 and net assets grew to $29.3 billion.

The one-year rate of return was below our portfolio benchmark, which was 12.1%. Riskier assets and sub-components of the capital markets were prominent outperformers during the year while OPB’s portfolio was comparatively more defensively positioned, resulting in our underperformance. The result was well above the effective discount rate of 5.64% we use to determine the present value of Plan liabilities for funding purposes.

In the past, double-digit investment results would have led to an improvement in the Plan's funded status. However, new pension funding regulations that took effect in 2018 and apply to the PSPP (but not to comparable jointly sponsored pension plans in Ontario) made the Plan's funding calculations highly sensitive to changes in long-term Government of Canada bond yields.

As long-term bond prices rose in 2019, their yields declined substantially. This movement had a beneficial impact on investment returns, but also added significantly to the Plan's liabilities, with the result that the Plan's estimated funded ratio held steady at over 92% compared to 93% at the end of 2018. **The Funding section that follows contains a detailed discussion of the regulations and their impact on the Plan's funded status.**

Pensions are funded through a combination of investment income and contributions made by members, employers and the Plan Sponsor. The smooth implementation of the second phase of a contribution rate increase in 2019 will help to keep the Plan financially sustainable and contribute to improving the Plan's funded status over time.

OPB filed its December 31, 2018 funding valuation with the Ontario regulator and is not required to file another one until December 31, 2021.

Our service to members continued to be positively received in 2019, despite significant increases in demand for certain transactions and preparation for OPB's expanded role assuming full third-party administration for the Provincial Judges Pension Plan (starting in 2020). In regular surveys, our members continued to rate their OPB experience very highly, and we achieved a service score of 88/100 from benchmarking firm CEM Benchmarking, which placed us third in Canada and eighth among pension plans globally in the CEM Benchmarking universe.

Management also made progress on the pension modernization initiative, a major, multi-year commitment. Pension modernization will add new capabilities and reduce various system costs and risks over the long term. In 2019, we mapped our current-state business processes and the systems in need of replacement, and we prioritized projects.

We collaborated with our investment manager, IMCO, on a number of matters during the year, including development of IMCO's new investment strategies for various asset classes, and governing policies. We continue to be pleased with the development of IMCO, which progressed in its maturity in 2019 and attracted key personnel into senior roles. 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 our Strategic Asset Allocation (SAA) policy, with which IMCO must comply; and
- set our Statement of Investment Policies and Procedures (SIP&P), with which IMCO must comply.

## Funding

The Plan remains well funded, at over 92% at the end of 2019, compared to 93% at the end of 2018. Based on changes to contribution rates in the past two years, increased special payments being made by the Plan Sponsor, as well as additional conservatism in our funding calculations, the PSPP 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 benefit payments, or liabilities, 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. As at December 31, 2019, the Plan has an estimated going-concern shortfall of $2.5 billion. This is partly due to the method we are required to use to calculate liabilities. The Plan Sponsor is making additional special payments to cover this shortfall.

### *PBA* FUNDING CALCULATION

Under *Pension Benefits Act (PBA)* funding rules that became effective in 2018, a key factor that contributed to the robust 2019 investment performance, namely the decrease in long-bond yields, also increased the amount we were required to add to liabilities.

Previously, OPB management used a rigorous process to estimate a discount rate. We made a reasonable assumption about the investment returns that could be achieved over the long term, based on the asset mix targets in the Strategic Asset Allocation (SAA). This robust modelling also allowed for a cushion for unanticipated adverse events (what is known as a "margin").

In 2018, the methodology for valuing liabilities of single-employer pension plans such as the PSPP was changed so that we must first calculate the liabilities without any margin in the discount rate, and then add an explicit reserve, called a Provision for Adverse Deviation (PfAD), which is based on our target asset mix and the yields of the Government of Canada long bonds on the valuation date.

When this methodology was first applied to the PSPP in 2018, the total liabilities were similar to those calculated under the prior methodology. In other words, the impact of the rule change was not noticeable in 2018. However, in 2019, with the decline in long-bond yields at year-end, the PfAD, and therefore, the Plan's total liabilities increased substantially under the new methodology.

The yield for the Government of Canada Long-Term Bond Benchmark dropped to 1.76% at December 31, 2019, down from 2.18% at the end of 2018. The required PfAD, or extra margin for conservatism, was therefore large. It added approximately $1.5 billion or approximately 5% to the Plan liabilities as of December 31, 2019. This effectively offset the positive impact of the strong investment return.

The new rules result in a more conservative presentation of the funded status of the Plan in 2019, which may arguably be positive as it is based on more cautious expectations about future investment returns and bond yields. However, the current funding rules applicable to single-employer pension plans also make the Plan's funded status more volatile, since it is driven to a significant extent by changes in spot rates for long Canada bond yields from one valuation date to the next. For example, in the last three days of 2019, the long-bond yield increased by 10 basis points, which had an approximately $375 million favourable impact on the funded status. In our view, such day-to-day volatility is not appropriate for making long-term decisions about contribution rates and benefits.

OPB would have built in additional conservatism when setting our discount rate, without the new funding rules. This is because we believe it will be difficult to replicate the strong returns generated by the investment portfolio in recent years. The discount rate reflects the long-term investment return we believe our portfolio can earn in the future. With today's low interest rates, and high valuations in public equities, private equity and infrastructure, it is prudent to assume that the Plan's assets will earn more modest returns over the next several years.

## Managing Funding Risk

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. We then use that information to carefully manage elements of Plan funding that are within our or the Plan Sponsor's control – namely, investment asset mix, contribution levels and pension benefits – so as to avoid significant shortfalls.

We contribute to the long-term sustainability of the Plan and work to minimize funding risk by:

- performing funding scenario and data analysis, including stress testing;
- regularly reviewing the SAA to potentially improve investment returns, manage investment risk and achieve an appropriate matching of our investments and liabilities;
- advocating for investment asset pooling (through IMCO) to improve net investment returns, risk management and cost efficiency;
- implementing our consolidation strategy to maintain or improve Plan demographics and economies of scale; and
- meeting with the Plan Sponsor, participating employers and other government stakeholders to discuss possible funding scenarios and options.

We continually monitor the adequacy of contributions to the Plan and recommend contribution increases as appropriate. In April 2019, Phase 2 of a two-stage member and employer contribution rate increase was implemented: employee and employer contributions rose by 0.5%. We recommended this proactive step to the Plan Sponsor to support the long-term sustainability of the Plan. The increased regular contributions, together with the Plan Sponsor's additional special payments, will contribute significantly to restoring the Plan's funded status over time.

Asset mix is a critical driver of investment returns and risk, and it will be particularly important in the current low-interest-rate environment. OPB's Board of Directors adopted an updated SAA in 2017, with adjustments to the asset mix being phased in over several years. The SAA called for a gradual shift from public market assets toward private assets. In 2020, we will conduct a review of our SAA so that, over the long term, we have appropriate investment strategies that can generate returns that support the funded status of the Plan.

Our support for the creation of IMCO, our external investment manager, is also intended to strengthen the long-term funded status of the Plan, through improved risk/return characteristics across our portfolio, improved economies of scale, enhanced risk management and the use of less costly investment strategies, where appropriate. We remain convinced that, over the mid to long term, IMCO will generate higher net investment returns than OPB could have earned by investing assets ourselves.

Adding new members to the PSPP over time – known as our consolidation strategy – is another factor designed to improve Plan demographics and economies of scale in the long term.

OPB will complete a Funding Risk Study in 2020. This study will model a range of funding scenarios to develop a deeper understanding of the funding risks facing the PSPP, potential mitigation actions that could be taken to reduce the risk of funding shortfalls, and options for responding to potential shortfall scenarios.

We filed an actuarial valuation of the PSPP as at December 31, 2018 with the pension regulator, the Financial Services Regulatory Authority (FSRA) (formerly called the Financial Services Commission of Ontario). 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. The next required actuarial valuation will be as of December 31, 2021, which will be filed in 2022.

| What We Did | Why It Matters |
|---|---|
| Implemented the second phase of a contribution rate increase 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. |
| Filed a funding valuation with the pension regulator (formerly called the Financial Services Commission of Ontario, now the Financial Services Regulatory Authority). | We are required to file a funding valuation with the pension regulator at least once every three years. With the 2018 filing, we are not required to file another funding valuation before the 2021 year-end, which would be filed in 2022. |
| Brought in an additional 2,200 members and approximately $570 million in assets as part of the consolidation with the PSPP. | Bringing in additional members helps us maintain our membership levels and brings additional assets into the Plan, which helps support Plan sustainability. |
| Funded status held steady at over 92% compared to 93% in 2018. | The new funding rules have added some additional conservatism into the Plan's funding. We remain confident that with the increasing contribution rates and the additional special payments by the Plan Sponsor, the Plan remains financially healthy and well positioned to continue to meet the pension promise. |

## KEY ASSUMPTIONS

Effective pension plan management involves careful and prudent asset management and appropriate funding and 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.

In conducting funding valuations, some of the key analyses and assumptions we make in consultation with our actuaries include the discount rate, expected interest and inflation rates, the projected number of member retirements, members' age at retirement and member life expectancy.

### Discount Rate

The discount rate is a key assumption used in funding valuations and can influence decisions about contribution rates and pension benefits. It is used to calculate the present value of the future pensions expected to be paid by the Plan (the liabilities). For example, a pension payment that is expected to be made in 20 years is "discounted" back to today's dollars at the discount rate. 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.

Changes to the discount rate impact the Plan's projected liabilities (i.e., a lower discount rate means higher Plan liabilities) and, by extension, impact the Plan's funded position.

Setting a realistic discount rate is, therefore, a critical aspect of managing the long-term financial health of a defined benefit (DB) pension plan. We use a rigorous process to establish our "best estimate" of the discount rate, aligned with the investment returns OPB management believes can reasonably be achieved over the long term, based on the asset mix targets in the SAA. In our "best estimate discount rate," we also allow for a cushion for unanticipated events (what is known as a "margin"). We have to consider the current economic environment and outlook when determining our "best estimate discount rate". In recent OPB annual reports, we have noted that our expectations for future investment returns have moderated, primarily due to low interest rates, high valuations in many asset classes and intense competition for private markets assets (notably high-quality real estate and infrastructure).

In 2018, the methodology for valuing liabilities of single-employer pension plans such as the PSPP was changed so that we must first calculate the liabilities without any margin in the discount rate, and then add an explicit reserve, called a Provision for Adverse Deviation (PfAD), which is based on our target asset mix and the yields of the Government of Canada long bonds on the valuation date.

The funded status of pension plans that are required to use this new methodology has become much more directly sensitive to movements in long-term Canada bond yields.

For the PSPP, the effective discount rate (taking into account the impact of the PfAD) used in 2019 was approximately 5.25%, while OPB would likely have set it at 5.5% under the previous rules.

In 2018, the valuation of the liabilities including the PFAD was equivalent to using an effective discount rate of 5.64%.

### Members Are Living Longer

The most important demographic challenge 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 2019, a member retiring at the same age would be expected to receive their pension for 26 years – an increase of 4.6 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 and funding, to ensure that the Plan can continue to meet its future pension obligations.

**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 review 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 OPB's 2016 LTFS, we recommended a contribution rate increase of 1% of pensionable salary for members and employers because the cost of providing benefits was increasing, due to increasing lifespans and lowering our discount rate.

The contribution increase was phased in over two years. Phase 1 took effect in April 2018, and Phase 2 took 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 conducts an asset/liability (A/L) study every three to five years to analyze 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 2020. This will inform the development of our SAA, which we will then provide to IMCO for execution.

## 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 purposes, 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 Financial Services Regulatory Authority (formerly Financial Services Commission of Ontario) once every three years.<br><br>OPB filed an actuarial valuation of the Plan as at December 31, 2018. For purposes of the funding valuation, asset gains and losses relative to the discount rate are smoothed over a three-year period. This resulted in a funding shortfall of approximately $1.5 billion, which is being amortized by special payments by the Plan Sponsor. |
| Financial statements | For the purpose of the financial statements, the Plan's liabilities were calculated as at December 31, 2018 and extrapolated to December 31, 2019. The extrapolated numbers are based on the assumption that the Plan's 2019 experience (for factors such as salary increases, retirement ages, and termination and mortality rates) would match the Plan's actuarial assumptions.<br><br>For financial reporting purposes, we have calculated the Plan's 2019 year-end financial position by comparing the extrapolated liability with the actual market value of assets as of December 31, 2019. Based on this, the Plan had a deficit of $2,477 million (an over 92% funded ratio), compared to a deficit of $1,888 million (a 93% funded ratio) at the end of 2018. |

## Investments

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

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

To achieve these objectives, our overall approach to investment management is to position the Plan to remain financially healthy over the long term and not become overly focused on short-term market volatility.

As we have discussed in prior annual reports, 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 addition to the benefits mentioned above, outsourcing investment management to IMCO enables OPB to sharpen our focus on serving existing and new Plan members.

In 2019, IMCO continued to invest OPB's portfolio in accordance with OPB's overarching investment policies, including our Statement of Investment Policies and Procedures and individual asset class investment policies. In addition to the oversight of IMCO discussed below, OPB's Investment Committee meets with IMCO quarterly to review comprehensive material relating to IMCO's investment performance as well as key organizational and project updates.

### 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 OPB assets with other public sector 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 over the long term than we could achieve on our own. 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. A 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.

An Implementation and Support Agreement (ISA) deals with operating and governance matters such as IMCO corporate policies, asset pool development, budgeting and cost allocation, and cost containment principles.

## Monitoring and Oversight

OPB oversees how IMCO is performing through an ongoing monitoring program and continuous, open dialogue with IMCO executives. We regularly assess IMCO's investment performance and the performance of its duties, responsibilities and obligations to OPB as our sole investment manager.

This program helps to assure OPB management and board members that IMCO is prudently managing Plan assets and investment risk on behalf of the Plan and its members.

OPB's Chief Investment Officer, Chris Kautzky, oversees OPB's fiduciary responsibilities in relation to IMCO and ensures that IMCO is managing Plan assets and related investment risks in accordance with all relevant investment strategies and policies.

Chris joined OPB on April 29, 2019, assuming the position from Ken Lusk, who has retired. Chris previously served as Managing Director of Aon Hewitt Investment Management Inc. and provided strategic asset allocation and investment management services for defined benefit pension plans.

## CONTINUED PROGRESS AT IMCO

In 2019, IMCO continued building its operations to position it as a world-class investment manager – one that can offer top-quality portfolio construction advice, access to a wider range of investment products and potential investment partners, and superior reporting to clients such as OPB. IMCO continued to build its team, adding talent across all areas of the organization.

OPB worked with IMCO in 2019 in the comprehensive review and approval of a wide range of governing policies. These policies will serve as governing documents for IMCO as it develops pooled investment strategies. As IMCO shifts assets to investment pools, OPB expects to benefit from resulting operational efficiencies and higher relative investment returns.

In addition, IMCO began to rationalize the external investment management of a number of strategies, focusing its external manager roster with a smaller number of strategic partners. It also took steps to build its internal capability to invest directly in more asset classes. As a result, we expect that IMCO will be more cost effective and focused going forward.

## STRATEGIC ASSET ALLOCATION (SAA)

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 approved an updated SAA in 2017, upon completion of an A/L study in which OPB considered a number of factors, including liquidity requirements and the economic assumptions used in the Plan's actuarial valuation. Several changes were adopted, to be phased in through 2020 (see the table below), including a shift from public equities to private assets, including infrastructure and private equity, as well as a re-allocation within the fixed income portfolio. One of the key reasons for shifting assets into private markets is to improve portfolio diversification, benefit from an illiquidity premium often available and, in some cases, reduce volatility.

## SAA ASSET MIX TARGETS BY MID-2020

| Asset Class | Target |
|---|---|
| Cash | 3% |
| Fixed Income | 22% |
| Public Equities | 34% |
| Real Estate | 21% |
| Infrastructure | 11.5% |
| Private Equity | 8.5% |

### ASSET MIX AT DECEMBER 31, 2019

As the portfolio moves towards the 2020 SAA targets described above, we expect there will be some deviation to respond to market conditions and the ability to find attractive new investments. The table below illustrates where the plan was positioned at the end of 2019 against the interim SAA target weights.

## 2019 ASSET ALLOCATION VERSUS 2019 SAA TARGETS

| Asset Class | Allocation | SAA Target |
|---|---|---|
| Cash | 3.1% | 3% |
| Fixed Income | 26.2% | 23.5% |
| Public Equities | 38.8% | 36% |
| Real Estate | 17.7% | 21% |
| Infrastructure | 7.9% | 9.5% |
| Private Equity | 6.3% | 7% |
| Total investments | 100% | 100% |

## INVESTMENT HIGHLIGHTS

Investors entered 2019 with considerable trepidation about the prospect of a deceleration in world trade and manufacturing activity. However, markets recovered from the selloff in late 2018 due to lower policy interest rates and easing global financial conditions. This resulted in OPB earning an overall return of 10.2%, net of all expenses.

A dominant driver of the market rebound in 2019 was the decline in bond yields as several central banks lowered benchmark interest rates that dramatically eased global liquidity conditions. The major asset classes generally performed well, with public equities, longer duration government bonds and high-yield corporate credit among the best performing classes.

As a result, most of the asset classes in OPB's portfolio performed dramatically better in 2019 than in 2018. Canadian equities rebounded from a loss of almost 7% in 2018 to gain 15.6% in 2019, and similar improvements were experienced across all of the public equity portfolios. Our bond portfolio also had a strong year, gaining 9.3% versus a modest return of 1.9% in 2018. The only exceptions to this trend were the performances of our infrastructure and private equity portfolios. While they generated healthy returns in 2019, these were lower than the standout results achieved in 2018.

Despite these strong returns, our results were below their respective benchmarks in several asset classes. The reasons for the underperformance varied. For example, our equity portfolio has long had a bias to stocks that exhibited low price characteristics and, as in many recent years, these stocks did not perform well in 2019. We also experienced underperformance in our fixed income portfolio, where our relatively low allocation to long-term corporate bonds meant we missed some of the strong performance from that sector of the market. Finally, we continued to experience challenges with our Canadian retail property portfolio that struggled to retain tenants.

Another challenge experienced in 2019, which has been building for some time, is that the prices of many assets (particularly those that are privately held) are increasingly expensive, due to competitive bidding. This has resulted in greater effort required to find attractive investments, not just for OPB but for many other investors as well. One need only look at the amount of uninvested capital that has been committed to assets such as private equity and infrastructure for evidence of this dynamic at play.

Overall, 2019 was a very positive year from an investment standpoint. However, the decline in bond yields, which was a key driver for the strong returns, also meant the Plan's liabilities increased significantly over the past year. In addition, we look forward with increased caution about the ability to continue to earn strong returns given current asset valuations are elevated when compared to historical norms. However, despite this backdrop, OPB and IMCO will continue to focus on executing an investment strategy that produces sustainable results over the long term.

| Investment Activities | Why It Matters |
|---|---|
| Recorded an annual investment return of 10.2%, net of all expenses, in 2019 and a five-year net annual return of 6.9%. Since inception in 1990, our net rate of return stands at 8.1%. | While market conditions can affect short-term results, our diversified portfolio has performed well over the long term and supports Plan sustainability. |
| Continued to pursue investments in private equity, real estate and infrastructure, 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 $143 million by divesting our position in Caprion Biosciences, an outsourced healthcare laboratory services company (in the Private Equity portfolio). | Strong investor appetite for private equity investments led to a strong gain on this asset sale, and we can re-invest the proceeds in other companies. |
| Worked closely with IMCO to develop governance documents that support the 2020 transition of Plan assets into pooled investment funds managed by IMCO. | OPB and other IMCO clients should benefit from operational and cost efficiencies as assets are shifted into pooled funds (similar to mutual funds). |

## INVESTMENT PERFORMANCE

OPB's one-year return for 2019 was 10.2% net of expenses (10.7% before expenses but after other certain private market investment fees that are netted against returns at the individual investment level).

The 2019 investment return was above our long-term requirements to keep the Plan financially healthy. In previous years, it would have contributed to an improvement in our funded status. However, due to 2018 *Pension Benefits Act* funding rules that apply to the Plan, the Plan's funded status instead held steady at over 92%. Under the funding rules, our funding status has become highly sensitive to changes in long-term government of Canada bond yields, which dropped significantly in 2019. Further details about the rules and other factors affecting the Plan's funded status are discussed in the Funding section.

## RATES OF RETURN

OPB's one-year, five-year, 10-year and since-inception compounded annual rates of net investment return for the period ending December 31, 2019 are as follows:

| 1-year | 5-year | 10-year | Since 1990 |
|---|---|---|---|
| 10.2% | 6.9% | 7.4% | 8.1% |

Note: returns are net of all Plan administration and investment management expenses.

Note: You may have noticed a change in our approach to reporting investment returns this year. In the past we have reported investment returns before expenses but after other certain private market investment fees. We have decided that going forward, we will report returns after deducting all costs. This change is to reflect that pensions are paid for by our net assets, and not provided by gross returns. We intend to continue to take this approach in future annual reports and other investment communications, where applicable.

Since contributions to a pension plan and the subsequent pension payments happen 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 annualized net return of 6.9% was 0.3% below the corresponding portfolio benchmark of 7.2%.

## Asset Class Returns and Benchmarks

The overall plan and benchmark returns noted above are a function of the performance of the underlying asset class results. We have provided a comparison of the 2019 and 2018 numbers below. While the total Plan results above are net of all expenses, we are currently only able to present the returns in the table and subsequent commentary below, after deducting investment management expenses for the private market assets (i.e., Real Estate, Infrastructure and Private Equity) but before deducting any investment management expenses for the remainder of the assets (i.e., Cash and Equivalents, Fixed Income and Equities). That said, total investment management expenses were 0.37% in 2019 and 0.40% in 2018.

| | | 2019 | | 2018 | |
|---|---|---|---|---|---|
| Asset Categories | Benchmark | **Actual** | **Benchmark** | Actual | Benchmark |
| Cash and Equivalents | FTSE TMX 91-Day T-Bill | **2.2%** | **1.6%** | 3.4% | 1.4% |
| Fixed Income | Custom Fixed Income Index | **9.3%** | **9.6%** | 1.9% | 0.6% |
| Canadian Equities | S&P/TSX Composite Index | **15.6%** | **22.9%** | -6.9% | -8.9% |
| Global Equities | MSCI World Index (C$) | **20.1%** | **21.9%** | 1.4% | 0.1% |
| Emerging Markets Equities | MSCI Emerging Equity Index (C$) | **14.9%** | **12.4%** | -8.1% | -6.9% |
| Real Estate | Custom Real Estate Benchmark | **3.1%** | **6.7%** | 2.1% | 6.8% |
| Infrastructure | Custom Infrastructure Benchmark | **10.0%** | **9.6%** | 14.3% | 12.0% |
| Private Equity | Custom Private Equity Benchmark | **12.9%** | **13.5%** | 19.5% | 19.2% |

## PUBLIC MARKETS INVESTMENTS

While the Plan's SAA included a slight shift from public assets to private assets in 2019, the strong returns in the public markets and the challenge of finding reasonably priced private assets to acquire resulted in an increase in the actual allocation to public markets investments to approximately 69% of OPB's net assets at December 31, 2019, compared to 65% at the end of 2018.

### Interest-Bearing Investments

**Fixed Income** – We invest in fixed income assets to diversify the overall OPB portfolio and offset the changes in the value of the Plan's liabilities. The overall Fixed Income portfolio, which includes Canadian government bonds, real return bonds and private debt, provided a return of 9.3% in 2019. The year-end market value was $7.7 billion. In comparison, fixed income earned a 1.9% return in 2018 and was valued at $7.0 billion.

Against a backdrop of concerns about weakening economic conditions, especially as trade tensions mounted, several factors contributed to the strong returns from the fixed income assets in 2019. Yields across all maturities declined, with long-dated bonds generating double-digit returns as a result. In addition, credit spreads narrowed as these securities became relatively attractive.

Despite generating a very strong return, the OPB portfolio underperformed the benchmark, in large part due to a lack of exposure to long-term corporate bonds, which were among the strongest-performing components of the fixed income market.

**Private Debt** – These assets include investment and non-investment grade debts that are unavailable in the public market. Investing in these assets gives OPB the ability to capitalize on market opportunities while maintaining a focus on capital preservation and current cash yield. The Private Debt portfolio returned 9.4% in 2019 on a currency hedged basis, with a year-end market value of $656 million. That compares to a return of 8.2% and a year-end value of $530 million in 2018. IMCO continues to look for opportunities to add to this portfolio and had commitments to invest $297 million at the end of 2019.

**PUBLIC EQUITIES**

We invest in public equities to enhance long-term returns. Public equities are expected to generate higher returns than the Fund benchmark return over the long term. There are three main components to the portfolio, whose market values include the associated derivative positions:

- The ***Canadian equity portfolio*** had a return of 15.6% in 2019, compared to a negative return of 6.9% in 2018. The year-end market value of the portfolio was $2.8 billion, largely unchanged year over year;
- The Plan's ***foreign developed market equity portfolio*** generated a return of 20.1% in 2019, compared to 1.4% in 2018. At year-end 2019, the portfolio had a market value of $4.5 billion, up from $4.0 billion at year-end 2018; and
- The Plan's ***emerging markets equity portfolio*** return was 14.9% in 2019, compared to a negative return of 8.1% in 2018. As of December 31, 2019, the portfolio's market value was $4.2 billion, compared to $3.6 billion at year-end 2018.

The equity markets, while generating significantly higher returns than in 2018, continued to exhibit some of the same characteristics in 2019. Stocks with strong growth characteristics (e.g., technology stocks like Apple, Alphabet [Google] and others) performed very well. Conversely, stocks that exhibit "value" characteristics with low prices continued to underperform, a trend that has persisted for several years in many markets. These two factors had an impact on the relative performance of the OPB portfolio, which has a bias to "value" stocks. Traditionally, when investors express a preference for growth and are willing to accept more volatility, emerging markets stocks tend to perform well. OPB has a significant allocation to the emerging markets and, despite much better results in 2019 versus the year prior, these markets continued to lag behind the developed markets.

## PRIVATE MARKETS INVESTMENTS

Private market assets generated strong returns in 2019; however, such asset classes are to be assessed from a long-term perspective. We are pleased that we also have experienced positive contributions from the investment in private assets to the overall portfolio over the long term.

The Private Markets strategy involves acquiring first-class real estate properties, core infrastructure assets and private equity through a combination of direct investments, fund investments and co-investments to add to our legacy portfolios. Private markets assets tend to be more illiquid and longer-term holdings than those in public markets. Because of the greater 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, and provide a partial hedge against inflation. Private equity offers attractive risk-adjusted returns and allows improved diversification by asset type, industry and geography. As with OPB prior to the creation of IMCO, IMCO has access to high-quality deal flow and assets.

As of December 31, 2019, private markets investments accounted for 31.4% of OPB's net assets, compared to 35.3% at year-end 2018. The net market value of these investments at the end of 2019 was $9.2 billion ($9.4 billion at year-end 2018).

## 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 financing 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 3.1% in 2019, compared to 2.1% in 2018, on a currency hedged basis.

Our Real Estate investments as of December 31, 2019 stood at 17.2% of OPB's total investment portfolio (compared to its allocation in the SAA of 21%), compared to 19.5% in 2018. At year-end, OPB also had commitments to acquire an additional $1.3 billion in real estate funds and co-investments, compared to approximately $745 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 2019 was $5.1 billion, compared to $5.2 billion a year earlier.

Our Real Estate portfolio was hampered in 2019 by the ongoing deterioration of the value of retail properties, reflecting the broad shift by consumers in many suburban and smaller urban locations away from shopping in malls to purchasing goods online. IMCO continued to pursue a strategy to reduce the impact of the retail property performance, but it should be noted that this is expected to be a multi-year undertaking.

**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 2019. 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 hedge against the Plan's inflation-linked long-term pension liabilities.

The Infrastructure portfolio is diversified 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 gain access to a pipeline of opportunities in this competitive market.

With infrastructure investments at 7.9% of OPB's total investment portfolio as at December 31, 2019, the Infrastructure portfolio is slightly below its target allocation of 9.5%.

On a currency hedged basis, the Infrastructure portfolio generated a 2019 return of 10.0%, compared to 14.3% in 2018. The portfolio generated $125 million in income during the year, with a year-end market value of $2.3 billion, a $225 million increase over the market value at the end of 2018.

IMCO continued to add to the Infrastructure portfolio in 2019, most notably adding to the position in the 407 ETR and committing to investments in global infrastructure funds managed by Brookfield and AMP Capital.

Despite the strong overall return in 2019, the Infrastructure portfolio was negatively impacted by Calon Energy, a U.K. electricity-generation company in which OPB holds a co-ownership interest, due to unfavourable developments in the U.K.'s energy market which adversely impacted the company's liquidity and its valuation.

**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 12.9% in 2019, compared to 19.5% in 2018, on a currency hedged basis. The portfolio had a year-end value of $1.8 billion, compared to $2.1 billion at the end of 2018.

Very strong returns from funds and co-investments continued in 2019, with approximately $649.5 million received in distributions from dividends and asset dispositions during the year. Realized returns on the co-investment portfolio in 2019 generated a 58.9% Internal Rate of Return (IRR) and a 2.8x Multiple on Invested Capital (MOIC) and included the sale of the position in Caprion Biosciences which produced a gain of $143 million.

The 6.3% allocation to Private Equity is slightly below its 2019 target allocation of 7%. Unfunded commitments were approximately $866.7 million as at December 31, 2019, compared to $940 million at the end of 2018. Since inception in 2012, the Private Equity portfolio has generated a compounded annual return of 18.9%.

## RESPONSIBLE INVESTING

We believe that Responsible Investing (RI) – effectively managing environmental, social and governance (ESG) risks – supports our ability to pay pensions because we believe companies with strong ESG practices will perform better over the long term. In general, we believe engagement is the most effective way to improve corporate practices and enable long-term investors, such as OPB, to better evaluate investment opportunities and risks.

Our Statement of Investment Policies and Procedures (SIP&P) includes information about how ESG factors are incorporated into the Plan's Investment strategies. 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 addition, IMCO made important progress and became a signatory to the United Nations-backed Principles for Responsible Investment (PRI) in 2019 and established its Responsible Investing Policy, a fundamental governing policy for the overall investment strategy.

Voting proxies at shareholder meetings enables investors to convey their views to the board of directors and management of public companies. In 2019, IMCO voted on OPB's behalf at 976 public company meetings in 56 markets. On OPB's behalf, IMCO voted against the management recommendation for 8.4% of agenda items at shareholder meetings. This included election of directors and advisory votes on executive compensation, among other items. We supported 82% of 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 |
|---|---|
| On OPB's behalf, IMCO voted our proxies based on the Institutional Shareholder Services (ISS) Sustainability Proxy Voting Guidelines. | Adopting the ISS Guidelines, which are updated each year to take into account emerging issues and trends on ESG topics, allows OPB to ensure our approach to proxy voting remains current. |
| On OPB's behalf, IMCO supported collaborative initiatives, such as improved corporate governance practices and greater representation for women on corporate boards of directors. | Collaborative engagement on ESG factors amplifies the resources and potential effect that a single investor can bring to bear on policy-makers and companies. |

## 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.

Our agreement with IMCO states that IMCO will manage investment 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, and is overseen by its Chief Investment Officer and Chief Risk Officer.

IMCO took steps in 2019 to strengthen the organization's risk management capabilities, systems and practices. For example, IMCO now utilizes its risk management system to monitor risk on a daily basis and began monitoring liquidity across OPB's assets and liabilities. In addition, IMCO added to its capabilities to monitor idiosyncratic risk in the private asset portfolio.

Looking ahead, IMCO expects to further develop the asset/liability risk monitoring process and enhance its credit risk monitoring capability in 2020.

### Risk Monitoring

OPB's Chief Investment Officer and other executives have regular dialogue with IMCO about the investment risks pertaining to OPB's investment portfolio. These include traditional portfolio risks (interest rate, liquidity, credit, etc.) as well as material ESG and climate risks.

Asset prices were driven up further in 2019 and ended the year at high levels, which is a double-edged sword for investors: Plan assets benefited and our returns were stronger than in 2018. However, elevated asset valuations also heighten the risk of a significant or prolonged correction in those prices. We have held discussions with IMCO about the strategy and actions it would take to respond to a possible market correction.

However, as stated above, OPB is investing for the long term. This perspective ensures we respond in a measured and thoughtful way to what might be fleeting risks and transitory market conditions.

## INVESTMENT OUTLOOK

Over the course of writing the Annual Report and the outlook for our investments, the COVID-19 pandemic evolved from a modest concern to one that created significant volatility across global capital markets. While some of the issues mentioned in the Investment Outlook section remain of concern to OPB, it looks like COVID-19 will be one of the strongest factors impacting the markets. The reality is that we do not know how long this pandemic will last or what the full impact will be, but we expect it will continue to have a material effect on the markets and the results of our investment strategy over the balance of 2020 and possibly beyond.

We have been in a global economic expansion for over 10 years, which has contributed to strong demand for riskier assets such as equities. While many geopolitical and market uncertainties could produce a range of investing outcomes over the next decade, capital markets are generally expected to enter a sustained period of low interest rates and relatively subdued returns compared to recent years. High valuations and low yields in key asset classes are the major factors underlying this outlook. Historically, high asset prices relative to fundamentals (i.e., low asset class yields) have reliably predicted lower long-term returns.

There are several long-term considerations that present challenges to achieving strong returns in the coming decade. This includes structural economic factors, such as the unprecedented monetary stimulus since the Financial Crisis in 2008. This is unsustainable indefinitely, and means that governments have reduced capacity to address future economic downturns. In addition, these monetary conditions have contributed to a contraction of the illiquidity premium that one earns when investing in private assets and reduces the benefit of holding these assets going forward.

While the comments above are more focused on the long term (i.e., over 10 years or more), there are near-term issues that must be factored into our investment decisions now. The heightened geopolitical risks as exhibited by increased tension in U.S.–Iran relations, the fallout from Brexit, the possible re-emergence of North Korean military activity and a myriad of other developments could episodically, or possibly on a prolonged basis, weigh on capital markets. Another concern is that trade wars and associated tensions may very well continue into 2020, particularly as the U.S. and China tackle phase two of their trade negotiations. And finally, developments in the U.S. domestic political arena as the November presidential election unfolds may impact the financial markets not only there but in other markets, including Canada.

## SERVICE EXCELLENCE

At OPB, we believe that delivering on the pension promise goes beyond simply paying pensions and processing transactions. It means offering the information, support, services and tools our 90,000 members need to make sound pension decisions in the context of their unique financial circumstances and retirement goals.

In 2019, we continued to deliver outstanding service while managing the arrival of new members, planning for additional consolidation and being diligent about costs across our service teams.

- Met one-on-one with more than 3,700 members to advise them on important pension and retirement decisions.
- Enhanced our advisory services offerings by holding advisory workshop planning sessions outside the Greater Toronto Area for the first time in Sudbury, London and Peterborough.
- Overall client satisfaction held steady at 8.7/10 (2019 target: 8.7 or higher).

We successfully integrated the TVO pension plans and members, and began the integration of Ontario Northland Pension Plan into the PSPP (as we received consent for this consolidation in the third quarter of 2019). Our employees worked hard to integrate the 2,600+ new members into the PSPP, while maintaining strong service levels for all our clients.

We also set up the necessary infrastructure to assume full third-party administration of the Provincial Judges Pension Plan (PJPP) in 2020. This entailed determining data reporting requirements, processes and responsibilities; testing and implementing a data management system and changes to pension payroll; determining member service support requirements and processes; and collecting and validating historical data.

These initiatives support the government's objective to increase cost effectiveness of public sector pension administration by consolidating smaller plans like TVO and Ontario Northland into the PSPP and leveraging our existing administrative capabilities for plans like the PJPP. This allows these public sector employers to provide more cost-effective pensions. Consolidation also allows us to grow our client base and enhance the sustainability of the PSPP.

| What We Did | Why It Matters |
| --- | --- |
| Integrated new members from TVO and Ontario Northland and prepared to administer the Provincial Judges Pension Plan while maintaining excellent service for all clients. | Growth in membership contributes to the sustainability of the Plan. |
| Met one-on-one with 3,756 members to help them navigate key pension decisions in their lives. | We provide expert, unbiased 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. |
| Advisory services client satisfaction score rose to 8.8 out of 10, up from 8.7 in 2018. | Our advisory services distinguish us from other pension plans, and our members recognize the additional value we provide. |
| Answered 99% of client care calls within 30 seconds. Managed a 34% increase in retirement transactions and a 34% increase in clients visiting our office. | We are committed to maintaining world-class service to members, even as more members join the Plan. |
| Advanced our Advise and Protect mission by continuing to educate 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 third among Canadian peer pension plans and eighth globally 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. |
| Received an employer satisfaction survey score of 8.5/10 in 2019 versus 8.1 in 2018. This exceeded our benchmark of 7.8 or higher. | Strong partnerships with our employers help ensure that we have the information and data we need to provide our members with excellent service. |

## 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 2019, we:

- Supported Plan members through our advisory and other services, including new members from TVO and Ontario Northland.
- Earned a service score of 88/100 from CEM Benchmarking, a leading pension benchmarking firm, versus 91/100 in 2018. This placed us third among eight Canadian peer plans for excellence in service and pension administration, and eighth on a global basis. The year-over-year change was largely due to changes in CEM Benchmarking methodology which favours speed of service; our advisory model focuses not on speed, but on ensuring clients have the information they need to make sound pension decisions.
- Received high scores from OPB members surveyed about their experience with us: 90% of OPB members surveyed were satisfied or extremely satisfied with our service, versus 86% in 2018. This speaks to our professionalism and agility in responding to changing regulatory, industry and Plan circumstances.
- Began to improve our plain-language communications with members by updating our information letters and packages, and will complete this effort in 2020.

At OPB, we feel strongly about the importance of retirement and financial literacy. OPB has provided Advisory Services for our members since 2015. These services are very popular with members, and they are attractive inducements to prospective and current provincial employees.

Advisory Services are now part of our standard operations. Our Client Service Advisors are pension experts who also have the Certified Financial Planner® (CFP®) designation. To advise and protect our members, and to act as their primary point of contact on retirement and personal finance matters, we believe our staff should have industry-recognized credentials. Our in-house team of CFP®s helped more than 3,700 members to understand how their pension decisions fit into their broader financial and life circumstances. Demand for advisory services declined slightly in 2019 from the high levels of 2018 (almost 4,000 advisory meetings). Demand was elevated in 2018 due to Ontario Lottery Gaming members leaving the Plan.

Feedback from members who have used our Advisory Services and tools has been overwhelmingly positive: three-quarters of our members rate their satisfaction with their OPB Advisor a 9 or 10 out of 10. These members also agree that their OPB Advisor:

- was responsive to their needs and questions (94%); and
- provided the pension advice they needed (90%).

In addition, 94% found the information and guidance they received from their OPB Advisor to be helpful, and 94% were likely to recommend contacting an OPB Advisor to another member of the PSPP.

### Education and Financial Literacy

OPB exists to provide value and retirement security for our members, primarily by paying pension benefits. The initial purpose of our client education sessions was to educate members about the Plan and its benefits, as well as the challenges facing the Plan. In recent years, it became clear that we can also contribute to members' retirement security by helping to improve their retirement and financial literacy.

We therefore introduced tailored financial and retirement planning sessions that are designed to get members engaged earlier in planning for their retirement. 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 in the late stages of their career.

Our educational programming continues to evolve, based on client needs. In 2019, we:

- expanded our advisory workshops outside of the Greater Toronto Area;
- conducted 107 member presentations; and
- had 10 out of 12 client care centre staff certified as Registered Retirement Consultants® (RRC®), a program offered by the Canadian Institute of Financial Planning. The client care centre is the first point of contact for clients, and our intent is to have all staff obtain the RRC® certification.

We continued to offer advisory articles in our newsletters and website to help active and retired members navigate topics like estate planning, tax planning and maximizing retirement savings, and regularly published articles and resources on the OPB website about some aspect of personal finance.

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.

### Digital and Online Services

Increasingly, members expect to be able to exchange information, complete transactions and receive their communications online.

More than 61% of our active members and 47% of retired members are registered for e-services.

Our e-services traffic reached its highest level in 2019 with almost 79,000 logins, and approximately one-quarter of those were from a mobile device. Popular member services included obtaining pension estimates, viewing their annual pension statement and viewing their retired member statement.

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.

**Cybersecurity**

We ran several education campaigns on cybersecurity in 2019 to help members to better understand and implement best practices for cybersecurity in their daily activities.

**Service Outlook**

We plan to further develop our Advisory Services offering in the next few years by providing more tailored services and timely, relevant communications to meet members' retirement planning needs. In the future, using sophisticated data analysis and tools, we plan to proactively reach out to members at critical stages, so they are aware of key pension decisions they may need to make and have sufficient information to make sound decisions.

We also plan to integrate more financial planning material in our client and stakeholder presentations, with particular emphasis on issues affecting younger members, and intend to enhance the online learning experience by offering recorded webinars and short videos. This will make information available at a time that is convenient for members.

As part of our pension modernization initiative, we aim over the next few years to upgrade our member and employer portals, which will enable additional digital services, tools and resources, including more self-serve options.

## PENSION MODERNIZATION

Our pension modernization initiative began in 2017, in response to the need to replace OPB's increasingly outdated and nearing end-of-life pension administration systems. To help members make sound pension decisions, we must deliver personalized services and tools. 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 existing and new members.

Pension modernization is a multi-year business transformation and risk mitigation program that will enhance our data security and our clients' experience. It will allow us to improve our operational effectiveness by updating and re-engineering our business processes, systems and tools, and to provide the services clients want and need.

This requires a well-considered capital investment to ensure we meet members' current and future needs, while providing cost-effective and efficient service.

To date, we have mapped our current-state business processes and the systems in need of replacement and developed a multi-year modernization roadmap that identifies and prioritizes required projects.

Clients expect to be able to access account information and execute transactions online, anywhere and anytime. OPB offers online self-service options as well as an employer portal through which employers can do business with OPB. However, the infrastructure and applications for both portals are older and need to be replaced.

In 2019, we identified upgrading the member and employer portal platforms as the first priority project.

With new and improved technology, OPB's online services will be more user-friendly and accessible, more efficient and more secure. We initiated a request for proposal (RFP) process in 2019 to design and build the replacement portal solution or solutions. The RFP was issued in early 2020 and we expect to have the vendors in place by mid-2020 to advance this part of the program. Improved technology will not only reduce risk – it will advance our digital strategy. Greater use of online self-services is expected to free up OPB's resources to meet the growing demand for our advisory services.

We also made further progress on moving to a cloud-based technology platform, which will better enable us to respond to changing needs more quickly and cost-effectively than we can when we are managing our own data centre. It will also make it easier for us to remain up to date with security upgrades in the future.

In other areas of the pension modernization program, we slowed the pace of activity in 2019 in order to make necessary systems changes to complete other emerging priorities, such as the TVO and Ontario Northland pension plan consolidations, preparing to take on full third-party administration for the Provincial Judges Pension Plan (PJPP) starting in January 2020, and supporting other key government priorities. Adapting our current systems to support our new members through these consolidations has provided valuable insights into the flexibility and adaptiveness we need to build in as we modernize our systems.

## Outstanding Stakeholder Relations

OPB works closely with the Plan Sponsor to ensure that it has the information needed on issues to make decisions 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 believe defined benefit plans are the most effective approach in achieving retirement income while still being affordable to both employers and employees. We also believe that, as an attractive part of a total compensation package, defined benefit plans can help public sector employers attract and retain key talent.

We undertake advocacy efforts through:

- direct OPB submissions to government, regulators and employee groups;
- partnerships with our peer plans on matters of mutual concern; and
- collaboration with industry organizations such as the Association of Canadian Pension Management (ACPM) and the Ontario Bar Association (OBA).

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 2019, we:

- delivered 107 presentations, workshops and webinars to 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 16 presentations and forums for employers.

We had almost 200,000 visits to OPB's public website in 2019, down from the almost 230,000 visits recorded the previous year. Mobile traffic rose proportionally in 2019, with approximately one in three visitors accessing opb.ca via smartphone or tablet and one in four 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 2019 was 0.51% (or 51 cents per $100 of average net assets available for benefits). This compares to 0.53% in 2018.

In recent years, with members both joining and leaving the Plan, and the outsourcing of our asset management to IMCO, OPB has managed 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. The Plan's expenses are a combination of investment management costs and operating costs for pension administration and investment oversight.

**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 2019, these two costs were 0.37% (or 37 cents per $100) of average net assets available for benefits, compared to 0.40% (or 40 cents per $100) in 2018. 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 included in 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 0.14% of the average net assets available for benefits in 2019, compared to 0.13% in 2018.

The above costs add up to a 0.51% expense ratio in 2019, compared to 0.53% in 2018. We will continue to maintain our costs at industry lows through strong budget management and adjusting staffing costs only as needed to meet business requirements, while focusing on competitive procurements for essential services and technologies.

## RETURNS

OPB's one-year return for 2019 was 10.2% net of all expenses and 6.9% on the same basis over the past five years. The comparison of the Plan's net return against the effective 5.25% 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 Order-in-Council under 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 recently implemented a phased contribution rate increase to keep the pension plan financially healthy.

The increase of 1% of pensionable salary for PSPP members and employers was phased in over two years. Phase 1 of this increase (0.5%) took effect in April 2018, and Phase 2 (the remaining 0.5%) took effect in April 2019. For Ontario Provincial Police (OPP) officers in the PSPP, the increase in contribution rates was 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, 2019, members contributed 7.4% of their salary below the Year's Maximum Pensionable Earnings (YMPE) and 10.5% of their salary above the YMPE ($57,400 for 2019 and $58,700 for 2020). Employers contribute a matching amount.

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 7.775% of salary up to the YMPE and 10.875% of salary above the YMPE. These higher contribution rates are matched by the employer.

During 2019, contributions for all OPB members and employers totalled $889 million, compared to $887 million in 2018. This small increase is primarily due to increases in regular contribution rates.

### PENSIONS PAID

OPB made pension payments totalling $1.28 billion in 2019, up from $1.21 billion in 2018.

The increase is attributable to a 2.2% inflation protection adjustment (Escalation Factor) that was applied to pensions on January 1, 2019. 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 reviews for executives based on corporate and individual objectives. Accordingly, performance-based incentives are provided in line with OPB's Executive Compensation Program. 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, the three senior executives who report directly to the CEO and the most senior Finance position. 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 | 2019 | $ 526,165[4] | $ 276,989 | $ 662 | $ 803,816 |
| | 2018 | $ 526,015 | $ 271,410 | $ 719 | $ 798,144 |
| Valerie Adamo, Chief Technology Officer | 2019 | $ 323,093 | $ 121,490 | $ 459 | $ 445,042 |
| | 2018 | $ 323,093 | $ 119,043 | $ 501 | $ 442,637 |
| Armand De Kemp, Vice-President, Finance | 2019 | $ 205,912 | $ 60,235 | $ 342 | $ 266,489 |
| | 2018 | $ 205,912 | $ 56,820 | $ 368 | $ 263,100 |
| Christian Kautzky[5], Chief Investment Officer | 2019 | $ 226,760 | $ 91,573 | $ 983 | $ 319,316 |
| | 2018 | n/a | n/a | n/a | n/a |
| Peter Shena, Executive Vice-President & Chief Pension Officer | 2019 | $ 342,479[4] | $ 128,779 | $ 479 | $ 471,737 |
| | 2018 | $ 342,404 | $ 131,555 | $ 517 | $ 474,476 |

1 Base salary is based upon amounts paid during the year. In 2018 and 2019, there were 26 bi-weekly pays.

2 Short-term incentive earned is paid in March of the following year. The Compensation Framework Regulation requires that the performance-related pay envelope for all designated employers cannot increase from what was previously provided in the most recently completed pay year. As a result, the short-term incentives reflected in the table above, and as paid, were reduced to ensure that all executive payouts remained within the established Executive Compensation Envelope.

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

4 Mr. Fuller and Mr. Shena did not receive base salary increases in 2019. The difference in base salary from 2018 to 2019 reflects the timing of the pay cycle and payment dates.

5 Mr. Kautzky was appointed to CIO on April 29, 2019. 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 to 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 is critical in enabling OPB to pursue innovative strategies so that the Plan is Designed for Service and Built to Last.

### 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 or circumstances, and competing demands.

While OPB tries to anticipate all material risks that it faces, unforeseen and unprecedented events will occur. Our ERM program delivers value by providing a consistent framework to evaluate and manage the uncertainty that will naturally arise from administering a major defined benefit pension plan and adding value for our stakeholders.

We segment enterprise risks into three principal categories:

1. **Strategic** – These are risks taken to pursue 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. These risks are actively managed by ensuring that the development of corporate strategy is aligned with OPB's risk profile.
2. **Operational** – These are 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 is 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 and processes. In 2019, we implemented new, intuitive web-based ERM software to digitize the ERM process and align risks with strategic objectives and desired business outcomes. Over the next year, we will continue to focus efforts to create, preserve and realize value by delivering an integrated view of key risks and their interdependencies.

## Key Risk Mitigation Activities

Our top three risks and mitigation activities are as follows.

1. **Plan sustainability.** All defined benefit pension plans face the risk that they may be unable to meet all current and future obligations while remaining affordable over the long term. To mitigate this risk, we carefully manage funding of the Plan within our ability to control or influence funding levels to avoid significant shortfalls. We do this by:
   - performing funding scenario and data analysis, including stress testing;
   - regularly reviewing the Fund's SAA to potentially improve investment returns, manage investment risk and achieve an appropriate matching of our investments and liabilities;
   - advocating for investment asset pooling (through IMCO) to improve net investment returns, risk management and cost efficiency;
   - implementing our consolidation strategy to maintain or improve Plan demographics and economies of scale; and
   - meeting with the Plan Sponsor, participating employers and other government stakeholders to discuss possible funding scenarios and options.
2. **Investment performance.** We rely on the ability of our investment manager, IMCO, to execute OPB's SAA with the objective of achieving performance that can meet or exceed our target returns. We have a supplier monitoring program to oversee our relationship with IMCO. We receive regular reporting on requirements under the Investment Management Agreement (IMA), advances in IMCO's risk management activities and detailed fund performance reports. See the Investment section for more detailed information on investment risk management.

3. **Modernization of core systems.** Pension modernization presents a significant opportunity while at the same time introducing enterprise-wide, program-level risks such as unexpected program costs or delays, breakdowns in change management and data governance processes or failure to deliver expected outcomes. Our pension modernization initiative will update our service offerings, improve efficiency of delivery and address at-risk legacy technology. We will address potential risks by using a combination of our enterprise program management framework and a deliberate, incremental and modular approach to pension modernization.

## 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 2019, OPB transitioned its various IT platforms from one outsourced arrangement to three separate arrangements to leverage current market best practices and current competitive market pricing.

We also focused on making the systems changes necessary for third-party administration of the Provincial Judges Pension Plan, starting in 2020. A vendor was selected to replace our human resources system and the upgrade is to be completed in 2020.

### Legal Risk

Occasionally, OPB is involved in legal actions arising from the ordinary course of business. All significant litigation is 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 2019, we completed several internal audits: actuarial data collection; employee performance measurement, compensation and payroll; and pension transfers. In addition, our internal auditor completed a review of the costs, efficiency and effectiveness of our operating expenses.

**Privacy, Information Security and Compliance**

Like other public institutions and financial services organizations, OPB carefully manages risks related to privacy, cybersecurity 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 cybersecurity front, we continue to enhance security of our systems, people and data. Our cybersecurity advancements in 2019 included improved perimeter defences (firewalls and rules) and new endpoint (desktop, laptop, cell phone) defence tools. We use industry-leading cybersecurity and threat intelligence suppliers and have a cross-functional cyber-action team. We also have a third-party cyber 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.

| What We Did | Why It Matters |
|---|---|
| Transitioned our various IT platforms from one outsourced arrangement to three separate arrangements. | Enables IT services to support current and future digital business processes and outcomes, and reduces the risk associated with reliance on a single vendor. |
| 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. |
| Made security improvements to OPB's perimeter access points and endpoint devices to protect against cyber attacks. | Improves our ability to detect threats and stop potential breaches of information managed by OPB. |

## 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 & Ethics.

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 products, 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 IMCO governance policies, budgeting and cost allocation, development of asset pools 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;
- approves non-Ministerial appointments to the IMCO Board of Directors;
- approves material amendments to the IMA and ISA;
- supervises and approves all audit and risk management 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 Regulatory Authority (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. In 2019 we closed the plan after implementing all of the planned improvements, including:

1. a review of the Statement of Mandate & Authority for each Committee to determine if the structure continued to be appropriate in light of the creation of IMCO;
2. a schedule for educational sessions; and
3. a discussion and determination as to the frequency and type of future third-party Board assessments and Board self-evaluations.

# Board of Directors

## BOARD MEMBERS

### Geri Markvoort (Chair)

Geri Markvoort is Chair of the Ontario Pension Board and a member of the Human Resources, Investment, Pensions and Governance Committees. She 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 human resources function have challenged and engaged her throughout her career. A passionate champion for change and strong human resources 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 at the Rotman School of Management.

### Patti Croft

Patti 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 Governance Committee, and a member of the Audit and Investment Committee and Human Resources and Compensation Committee. 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. 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 at the Rotman School of Management.

### Michael Briscoe

Michael Briscoe is Chair of OPB's Human Resources Committee and a member of the Pensions Committee. He has worked for 27 years in the Ontario and municipal government as a human resources professional. With a focus on labour relations, he was Chief Negotiator and Senior Manager of human resources 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 Chair of OPB's Governance Committee and a member of the Human Resources and Pensions Committees. He 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 the Rotman School of Management, and he has completed SHARE's Pension Investment and Governance certification and Trustee Master Class certification. 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.

**Lynne Clark**

Lynne Clark is Chair of OPB's Audit Committee and a member of the Pensions and Investment Committees. She is a 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 at the Rotman School of Management. 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.

**Elana Hagi**

Elana Hagi is Chair of OPB's Pensions Committee and member of the Audit Committee. She is a Principal in Mercer's Global Consulting Group. 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. 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.

## BOARD APPOINTMENTS AND REMUNERATION

| Appointee Name | Appointment Start Date | Appointment End Date | Position | 2019 Total Remuneration |
|---|---|---|---|---|
| Geri (Geraldine) Markvoort | 1/5/2015 | 2/1/2023 | Chair of the Board | $69,192 |
| Patti Croft | 5/1/2013 | 5/29/2022 | Vice-Chair | $49,555 |
| Michael Briscoe | 8/15/2016 | 10/30/2022 | Member | Nil[1] |
| Dave Bulmer | 11/16/2016 | 11/15/2022 | Member | Nil[1] |
| Lynne Clark | 6/22/2016 | 6/21/2022 | Member | $33,512 |
| Elana Hagi | 1/17/2019 | 1/16/2022 | Member | $27,612 |
| Michelle Savoy | 1/15/2016 | 7/16/2019 | Member | $15,812 |

1 Representing a bargaining agent.

OPB Board members are appointed by the Ontario Lieutenant Governor in Council. The Management Board of Cabinet Agencies & Appointments Directive (the "Directive") sets out the principles and high-level criteria for the compensation of Board members. By Order in Council 1150/2007, the per diem compensation rates payable to OPB Board members are set at the rates payable to appointees to Regulatory and Adjudicative Agencies specified in the Directive, as may be amended from time to time. The current per diem compensation rates payable to the Chair, the Vice-Chair and members are:

Chair: $744

Vice-Chair: $583

Member: $472

The number of days compensated is based upon attendance at Board and management meetings as well as preparation, training and debriefing activities.

Members employed by the Ontario Government or employed by bargaining agents who receive their normal salaries while participating as an OPB Board member do not receive any additional compensation.

# Five-Year Review

| (in millions of dollars) | 2019 | 2018 | 2017 | 2016 | 2015 |
|---|---|---|---|---|---|
| **Opening net assets** | **$ 26,561** | $ 26,482 | $ 24,381 | $ 23,075 | $ 22,231 |
| Investment income (loss) | **2,724** | 361 | 2,531 | 1,751 | 1,224 |
| Contributions | **889** | 887 | 804 | 765 | 731 |
| Transfers from other plans | **644** | 234 | 137 | 85 | 111 |
| | **4,257** | 1,482 | 3,472 | 2,601 | 2,066 |
| Pension payments | **1,275** | 1,211 | 1,175 | 1,099 | 1,038 |
| Terminations | **166** | 156 | 148 | 146 | 137 |
| Operating expenses | **39** | 36 | 48 | 50 | 47 |
| | **1,480** | 1,403 | 1,371 | 1,295 | 1,222 |
| **Closing net assets** | **$ 29,338** | $ 26,561 | $ 26,482 | $ 24,381 | $ 23,075 |
| Annual net rate of return | **10.2%** | 1.3% | 10.3% | 7.6% | 5.6% |

## Looking Ahead

Designed for Service, Built to Last is not merely a theme for our 2019 annual report – it has been our reality for a century. 2020 marks the 100th anniversary of the PSPP and the 30th anniversary of the founding of OPB.

Since 1920, the Plan has provided retirement security for Ontario Public Service employees as well as employees of provincial agencies, boards and commissions. OPB was created in 1990 to administer the PSPP and to invest the funds in a manner that secures the long-term sustainability of the PSPP.

Much has changed – but our long-term focus and commitment has not. That's why, in 2019, we adopted a new vision and strategic plan for the organization, called Vision 2025.

**VISION 2025**
**OPB is a premier pension delivery organization and a trusted advisor to all our stakeholders, whose effectiveness delivers sustainability for the PSPP.**

Vision 2025 builds upon our previous Advise and Protect vision and strategies. It is guided by two core strategies: **Sustainability** and **Service Excellence**.

| Sustainability Focus | Service Excellence Focus |
|---|---|
| Investment Excellence | Digital and Online Services |
| Plan Funding and Design | Advanced Business Processes and Systems |
| Cost Efficiency | Advisory and Education Services |

We have developed short-term and long-term goals around these core strategies. Our key initiatives and performance metrics in the coming years will align with either the three Sustainability strategies (Investments, Plan Funding and Design, and Cost Efficiency) or the three Service Excellence strategies (Digital and Online Services, Advanced Business Processes and Systems, and Advisory and Education Services).

## SUSTAINABILITY

We will continue to work closely with IMCO as it implements new investment strategies in 2020, and we will monitor its adherence to agreements with respect to the management of OPB assets. OPB will complete an asset mix review in 2020 to ensure we are maximizing our potential investment returns within our established risk appetite. This review will help determine the best investment allocation for navigating through what we expect will be a challenging, low-return investment environment.

In 2020, 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.

## CONSOLIDATION

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.

## SERVICE EXCELLENCE

Our modernization focus in 2020 will be on updating the elements of our pension administration technology systems which are now nearing end-of-life, including our member and employer portals. This work is necessary to ensure we effectively manage our systems and cyber risks. We will continue to monitor the business and IT risks that need to be addressed and adjust the modernization roadmap accordingly.

# Appendix I – Key Performance Indicators and Metrics

OPB has adopted a number of key performance indicators (KPIs) in its annual Business Plan to measure the success of our vision and strategies as well as our success with execution. The KPIs represent the outcomes relating to the Plan that are most important to the Plan stakeholders. The KPIs are set forth in the following table relating to the objectives set out for 2019 as indicated in the 2019 Business Plan submitted to the Plan Sponsor in the fall of 2018.

| Business Objective | Defined Output | Performance Metric | 2019 Outcome | Discussion of Outcome |
|---|---|---|---|---|
| Investment execution | OPB's investment return versus the Strategic Asset Allocation benchmark | Outperform the benchmark | Investment return was 1.4% below benchmark | Total Plan underperformance was primarily due to below-benchmark results for the Public Equity and Real Estate portfolios |
| Investment risk management | OPB's actual risk versus risk budget | Less than 2% | Risk level ranged from 0.6% to 0.8%, significantly better than the performance objective | Risk was regularly monitored, discussed and maintained within the target level during 2019 |
| Member and pensioner service | Overall satisfaction with client services | 8.7 or higher | 8.7 | Achieved performance benchmark target |
| Employer service | Employer satisfaction scores | 7.8 or higher | 8.5 | Exceeded performance benchmark target |
| Business Plan achievement | Advancement of strategies and initiatives (both planned and emergent) | Substantial delivery/ achievement of Business Plan initiatives | Substantial achievement of 2019 Business Plan initiatives, including many emergent initiatives | Some planned initiatives had been deferred in order to advance new initiatives requested by the Province |
| Managing to budget | Actual versus budgeted expenses | Within budget | 2019 actual operating expenses were 0.1% below budget | Achieved performance target |

| Business Objective | Defined Output | Performance Metric | 2019 Outcome | Discussion of Outcome |
| --- | --- | --- | --- | --- |
| Cost efficiency | Expense management ratios (cost per net assets available for benefits):<br>1. OPB operating expenses<br>2. IMCO costs<br>3. Consolidated | 1. 15 basis points or lower<br>2. 50 basis points or lower<br>3. 65 basis points or lower | 1. 14 basis points for operating expenses<br>2. 37 basis points for IMCO costs<br>3. 51 basis points for consolidated expenses | Expense management ratios are within acceptable target ranges |
| Financial health of PSPP | Level of, and year-over-year change in, going-concern funded status | Plan remaining 90% or more funded on a going-concern basis | Plan is over 92% funded at December 31, 2019 | PSPP remains well funded |

# 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, 2018, 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, 2018 was then rolled forward to December 31, 2019 to determine the pension obligations as at December 31, 2019 for financial statement purposes.

The actuarial valuation of the PSPP prepared on a funding basis as at December 31, 2018 was based on membership data provided by OPB as at December 31, 2018.

We have prepared a valuation of the liabilities as of December 31, 2018 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, 2019. The valuation and extrapolation was based on assumptions that reflect OPB's best estimates of future events as of December 31, 2019 such as future rates of inflation, future retirement rates and future rates of return on the pension fund. The valuation reflects 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, 2018 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

**Andrew Hamilton**
Fellow of the Canadian Institute of Actuaries

March 6, 2020

# 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

March 6, 2020

**Armand de Kemp**
Vice-President, Finance

# Independent Auditor's Report

To the Directors of the Ontario Pension Board

## Opinion

We have audited the financial statements of the Ontario Pension Board ("OPB"), which comprise the statement of financial position as at December 31, 2019, 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 OPB, and its changes in net assets available for benefits and its 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 OPB 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 OPB'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 OPB or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing OPB'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 OPB’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 OPB’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 OPB 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 6, 2020

# Statement of Financial Position

| As at December 31<br>(in thousands of dollars) | 2019 | 2018 |
|---|---|---|
| **Assets** | | |
| Cash | **$ 7,154** | $ 4,011 |
| Investments (Note 4) | **29,275,011** | 26,724,438 |
| Investment-related assets (Note 4) | **73,921** | 47,251 |
| Contributions receivable | | |
| Members | **27,989** | 26,434 |
| Employers | **43,034** | 40,426 |
| Capital assets, net (Note 10) | **172** | 448 |
| **Total assets** | **29,427,281** | 26,843,008 |
| **Liabilities** | | |
| Investment-related liabilities (Note 4) | **34,034** | 234,752 |
| Accounts payable and accrued charges | **53,681** | 46,046 |
| Contributions payable | **1,370** | 1,400 |
| **Total liabilities** | **89,085** | 282,198 |
| **Net assets available for benefits** | **29,338,196** | 26,560,810 |
| Pension obligations (Note 11) | **31,814,856** | 28,449,124 |
| **Deficit** | **$ (2,476,660)** | $ (1,888,314) |

*See accompanying notes*

On behalf of the Board:

**Geri Markvoort**
Chair

**Lynne Clark**
Chair, Audit Committee

# Statement of Changes in Net Assets Available for Benefits

| For the year ended December 31<br>(in thousands of dollars) | **2019** | 2018 |
|---|---|---|
| **Increase in net assets** | | |
| Net investment income (Note 6) | **$ 2,724,440** | $ 360,623 |
| Contributions (Note 12) | | |
| Members | **407,339** | 397,400 |
| Employers and sponsor | **481,741** | 489,189 |
| Transfer of service from other plans (Note 15) | **644,255** | 234,180 |
| **Increase in net assets** | **4,257,775** | 1,481,392 |
| **Decrease in net assets** | | |
| Retirement pension benefits | **1,275,383** | 1,210,527 |
| Termination and other benefits (Note 14) | **166,314** | 155,630 |
| Operating expenses (Note 13) | **38,692** | 36,309 |
| **Decrease in net assets** | **1,480,389** | 1,402,466 |
| **Increase in net assets for the year** | **2,777,386** | 78,926 |
| **Net assets, at beginning of year** | **26,560,810** | 26,481,884 |
| **Net assets, at end of year** | **$ 29,338,196** | $ 26,560,810 |

*See accompanying notes*

# Statement of Changes in Pension Obligations

| For the year ended December 31<br>(in thousands of dollars) | **2019** | 2018 |
|---|---|---|
| **Pension obligations, at beginning of year** | **$ 28,449,124** | $ 27,219,906 |
| **Increase in pension obligations** | | |
| Interest on pension obligations | **1,748,297** | 1,515,398 |
| Past service cost | **29,631** | – |
| Benefits accrued | | |
| Service accrual | **709,333** | 754,801 |
| Transfer of service from other plans (Note 15) | **644,255** | 234,180 |
| Past service buybacks | **45,062** | 58,728 |
| Changes in actuarial assumptions (Note 11) | **1,579,647** | – |
| Experience losses | **51,204** | 245,489 |
| **Total increase** | **4,807,429** | 2,808,596 |
| **Decrease in pension obligations** | | |
| Changes in actuarial assumptions (Note 11) | **–** | 213,226 |
| Benefits paid | **1,441,697** | 1,366,152 |
| **Total decrease** | **1,441,697** | 1,579,378 |
| **Net increase in pension obligations** | **3,365,732** | 1,229,218 |
| **Pension obligations, at end of year** | **$ 31,814,856** | $ 28,449,124 |

*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* ("PSP Act") 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 PSP Act. 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 PSP Act 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 PSP Act.

### 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 PSP Act. 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 Regulatory Authority of Ontario ("FSRA"), which assumed the regulatory duties of 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 providing 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.

On May 1, 2018, The Ontario Northland Transportation Commission ("ONTC") and its employees ceased contributing to ONTC's registered pension plan and began contributing to the PSPP, which constitutes a plan merger under section 81 of the PBA. On September 27, 2019, FSRA consented to the transfer of assets relating to those members' past service and the benefits of the ONTC plan's retired and deferred members to the PSPP and OPB became responsible for administering the pension benefits of all current and former ONTC employees.

**FUNDING POLICY**

The PSPP is a contributory 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 7.4% (6.9% prior to April 1, 2019) of the salary on which contributions are made up to the Year's Maximum Pensionable Earnings ("YMPE") and 10.5% (10% prior to April 1, 2019) of the salary above the YMPE. Employers contribute matching amounts.

Ontario Provincial Police ("OPP") officers are required to contribute an additional 2.3% 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 2.3% 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 ("OPPC") are 7.775% (7.275% prior to April 1, 2019) of the salary on which contributions are made up to the YMPE, and 10.875% (10.375% prior to April 1, 2019) of the salary above the YMPE. On January 1, 2020 the contribution rates for OPPC will increase to 8.545% of salary up to the YMPE and 11.645% of salary above the YMPE. These additional contributions are used to fund a Factor 85 unreduced early retirement benefit.

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 annual 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. OPPC are eligible for a pension payable based on the average annual 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 annual 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, Plan Sponsor 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 2019 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 industry recognized valuation methodologies.

Private equity and infrastructure investments held through funds or fund co-investments are valued using 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 the estimated fair values 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 based 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<br>(in thousands of dollars) | 2019<br>Fair Value | 2018<br>Fair Value |
|---|---|---|
| **Cash held in trust and short-term investments** | | |
| Canada | $ 1,966,174 | $ 353,629 |
| Foreign | 198,441 | 230,317 |
| | 2,164,615 | 583,946 |
| **Bonds and private debt**[1] | | |
| Canada | 6,867,221 | 6,126,939 |
| Foreign | 841,227 | 768,722 |
| | 7,708,448 | 6,895,661 |
| **Public equities** | | |
| Canada | 2,110,765 | 2,559,472 |
| Foreign | 8,075,540 | 7,334,721 |
| | 10,186,305 | 9,894,193 |
| **Real estate** (net of financing, Note 4e) | 5,055,844 | 5,158,159 |
| **Infrastructure** | 2,314,452 | 2,089,638 |
| **Private equity** | 1,845,347 | 2,102,841 |
| **Total investments** | 29,275,011 | 26,724,438 |
| **Investment-related assets** | | |
| Pending trades | 826 | 4,410 |
| Derivatives receivable (Note 5) | 73,095 | 42,841 |
| **Total investment-related assets** | 73,921 | 47,251 |
| **Investment-related liabilities** | | |
| Pending trades | 14,586 | 8,806 |
| Derivatives payable (Note 5) | 19,448 | 225,946 |
| **Total investment-related liabilities** | 34,034 | 234,752 |
| **Total net investments** | $ 29,314,898 | $ 26,536,937 |

1 As at December 31, 2019 there were no investments in pooled funds (2018 – $211.5 million).

## a) INVESTMENT ASSET MIX

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

| | **2019** | | 2018 | | |
|---|---|---|---|---|---|
| | **Asset Allocation %** | | Asset Allocation % | | |
| | **Total Plan** | **Target** | Total Plan | Target | SIP&P Range |
| **Asset categories**[1] | | | | | |
| Cash | **3.1%** | **3.0%** | 0.5% | 3.0% | 0.0%–10.0% |
| Fixed income[2] | **26.2%** | **23.5%** | 25.8% | 25.0% | 18.5%–28.5% |
| Public equities[3] | **38.8%** | **36.0%** | 38.4% | 39.0% | 31.0%–41.0% |
| Real estate | **17.7%** | **21.0%** | 19.5% | 20.0% | 16.0%–26.0% |
| Infrastructure | **7.9%** | **9.5%** | 7.9% | 7.5% | 4.5%–14.5% |
| Private equity | **6.3%** | **7.0%** | 7.9% | 5.5% | 2.0%–12.0% |
| **Total investments** | **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 universe and long bonds, and real return bonds.

3 Public equities include Canadian equity, global equity, and emerging markets equity.

OPB's Statement of Investment Policies and Procedures ("SIP&P") was amended and approved on December 18, 2019. The SIP&P was updated for the addition of the SAA, changes in the SIP&P asset mix ranges, performance benchmarks, permitted investments, description of the class action lawsuit process, conflicts of interests, related party transactions, and addition of investment beliefs.

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.

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, 2019 and 2018, 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.

## b) 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, 2019 (in thousands of dollars) | Level 1 | Level 2 | Level 3 | Total Fair Value |
|---|---|---|---|---|
| **Financial assets** | | | | |
| Cash in trust and short-term investments | | | | |
| Canada | $ 407,797 | $ 1,558,377 | $ – | $ 1,966,174 |
| Foreign | 124,944 | 73,497 | – | 198,441 |
| Bonds and private debt | | | | |
| Canada | – | 6,602,629 | 264,592 | 6,867,221 |
| Foreign | – | 456,777 | 384,450 | 841,227 |
| Public equities | | | | |
| Canada | 2,110,765 | – | – | 2,110,765 |
| Foreign | 8,075,540 | – | – | 8,075,540 |
| Real estate | – | – | 5,055,844 | 5,055,844 |
| Infrastructure | – | – | 2,314,452 | 2,314,452 |
| Private equity | – | – | 1,845,347 | 1,845,347 |
| Forwards | – | 70,858 | – | 70,858 |
| Futures | 2,237 | – | – | 2,237 |
| | $ 10,721,283 | $ 8,762,138 | $ 9,864,685 | $ 29,348,106 |
| **Financial liabilities** | | | | |
| Forwards | $ – | $ 16,718 | $ – | $ 16,718 |
| Credit default swaps | – | 3 | – | 3 |
| Futures | 2,727 | – | – | 2,727 |
| | $ 2,727 | $ 16,721 | $ – | $ 19,448 |

| 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 |

There were no transfers between Levels 1 and 2 during the years ended December 31, 2019 and 2018. Transfers in and out of Level 3 are shown in the Level 3 investment reconciliation.

## c) LEVEL 3 INVESTMENT RECONCILIATION

The following tables present a reconciliation of Level 3 assets and liabilities measured at fair value for the years ended December 31, 2019 and 2018.

| (in thousands of dollars) | Fair Value as at January 1, 2019 | Net Transfers In/(Out)[1,2] | Acquisitions | Dispositions | Fair Value Changes | Fair Value as at December 31, 2019 |
|---|---|---|---|---|---|---|
| **Financial assets** | | | | | | |
| Private debt | | | | | | |
| Canada | **$ 288,501** | **$ (8,972)** | **$ 10,130** | **$ (25,475)** | **$ 408** | **$ 264,592** |
| Foreign | **242,104** | **9,066** | **184,100** | **(42,855)** | **(7,965)** | **384,450** |
| Real estate | **5,158,159** | **–** | **380,782** | **(245,193)** | **(237,904)** | **5,055,844** |
| Infrastructure | **2,089,638** | **–** | **338,399** | **(124,871)** | **11,286** | **2,314,452** |
| Private equity | **2,102,841** | **–** | **312,292** | **(380,278)** | **(189,508)** | **1,845,347** |
| | **$9,881,243** | **$ 94** | **$1,225,703** | **$ (818,672)** | **$ (423,683)** | **$ 9,864,685** |

1 Transfers between levels of the fair value hierarchy are deemed to have occurred at the end of the reporting period.

2 Gross transfers out of Level 3 amounted to $21,555 thousand and gross transfers in amounted to $21,649 thousand.

| (in thousands of dollars) | Fair Value as at January 1, 2018 | Transfers In/(Out)[3] | Acquisitions | Dispositions | 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 |

3 Transfers between levels of the fair value hierarchy are deemed to have occurred at the end of the reporting period.

## d) 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<br>(in thousands of dollars) | 2019 | 2018 |
|---|---|---|
| **Canada** | | |
| Cash in trust | **$ 394,686** | $ 43,246 |
| Short-term notes and treasury funds | **1,555,053** | 289,304 |
| Term deposits | **13,851** | 20,703 |
| Accrued interest | **2,584** | 376 |
| | **$ 1,966,174** | $ 353,629 |
| **Foreign** | | |
| Cash in trust | **$ 124,944** | $ 146,891 |
| Short-term notes and treasury funds | **73,337** | 83,298 |
| Accrued interest | **160** | 128 |
| | **$ 198,441** | $ 230,317 |

## e) REAL ESTATE

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

| As at December 31<br>(in thousands of dollars) | 2019 | 2018 |
|---|---|---|
| **Assets** | | |
| Wholly owned real estate[1] | **$ 1,839,000** | $ 2,027,000 |
| Partially owned investments[2] | **5,553,747** | 5,344,391 |
| Participating mortgages[3] | **107,441** | 97,873 |
| Total assets | **7,500,188** | 7,469,264 |
| **Liabilities** | | |
| Debentures[4] | **2,424,801** | 2,309,259 |
| Other liabilities, net[5] | **19,543** | 1,846 |
| Total liabilities | **2,444,344** | 2,311,105 |
| **Net investment in real estate** | **$ 5,055,844** | $ 5,158,159 |

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.

## f) 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, 2019 and December 31, 2018. 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.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | **2019** |
| | | | | | | | | **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 | $ | **73,095** | $ | **(1,673)** | $ | **(791)** | $ | **70,631** |
| Securities lending[2] | | **31,848** | | **–** | | **(31,848)** | | **–** |
| **Total financial assets** | $ | **104,943** | $ | **(1,673)** | $ | **(32,639)** | $ | **70,631** |
| **Financial liabilities** | | | | | | | | |
| Derivatives | | **(19,448)** | | **1,673** | | **17,775** | | **–** |
| **Total financial liabilities** | $ | **(19,448)** | $ | **1,673** | $ | **17,775** | $ | **–** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 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.

## g) SIGNIFICANT INVESTMENTS

The following table summarizes where the fair value of an individual investment, excluding derivatives, exceeds 1% of the fair value of the Plan. As at December 31, 2019, 1% of the Plan was approximately $293 million and as at December 31, 2018 it was $265 million.

| (in thousands of dollars) | **2019 Fair Value** | 2018 Fair Value |
|---|---|---|
| **Public Equities** | | |
| iShares Core MSCI Europe | **$ 462,570** | $ – |
| **Real Estate, gross of financing[1]** | **5,231,104** | 5,260,275 |
| **Private Equity** | | |
| OPB Private Equity 3 Limited (holding company, 100% owned) | **466,615** | 415,761 |
| OPB Private Equity 5 Limited (holding company, 100% owned) | **420,994** | 517,655 |
| OPB Private Equity 6 Limited (holding company, 100% owned) | **232,252** | 288,183 |
| **Infrastructure** | | |
| OPB Infrastructure 2 Limited (holding company, 100% owned) | **773,566** | 628,569 |
| OPB Infrastructure 4 Limited (holding company, 100% owned) | **472,777** | 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 Inc., OPB (EMTC) Inc., and OPB (Southgate) Inc. The last valuation of each real estate investment was as at December 31, 2019.

# 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. Conversely, the seller has the obligation to sell (call option) or buy (put option) an underlying asset at a predetermined price if the option is exercised by the buyer on or before a specified future date.

## a) DERIVATIVE NOTIONAL AND FAIR VALUES

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

| | **2019** | | | 2018 | | |
|---|---|---|---|---|---|---|
| | | **Fair Value** | | | Fair Value | |
| As at December 31 (in thousands of dollars) | **Notional Value** | **Assets** | **Liabilities** | Notional Value | Assets | Liabilities |
| **Currency derivatives** | | | | | | |
| Forwards | **$ 7,226,813** | **$ 70,858** | **$ (16,718)** | $ 7,572,730 | $ 34,855 | $ (199,640) |
| **Equity derivatives** | | | | | | |
| Futures | **1,302,537** | **2,162** | **(2,727)** | 1,324,835 | 7,911 | (25,772) |
| **Fixed income derivatives** | | | | | | |
| Futures | **377,359** | **75** | **-** | 72,515 | 75 | (533) |
| **Credit derivatives** | | | | | | |
| Credit default swaps | **130** | **-** | **(3)** | 137 | – | (1) |
| **Value of derivative contracts** | **$ 8,906,839** | **$ 73,095** | **$ (19,448)** | $ 8,970,217 | $ 42,841 | $ (225,946) |

## b) DERIVATIVE NOTIONAL VALUES BY TERM TO MATURITY

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

| | **2019** | | | | 2018 | | | |
|---|---|---|---|---|---|---|---|---|
| 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 | **$ 7,226,813** | **$ -** | **$ -** | **$ 7,226,813** | $ 7,572,730 | $ – | $ – | $ 7,572,730 |
| **Equity derivatives** | | | | | | | | |
| Futures | **1,302,537** | **-** | **-** | **1,302,537** | 1,324,835 | – | – | 1,324,835 |
| **Fixed income derivatives** | | | | | | | | |
| Futures | **377,359** | **-** | **-** | **377,359** | 72,515 | – | – | 72,515 |
| **Credit derivatives** | | | | | | | | |
| Credit default swaps | **-** | **-** | **130** | **130** | – | – | 137 | 137 |
| **Total** | **$ 8,906,709** | **$ -** | **$ 130** | **$ 8,906,839** | $ 8,970,080 | $ – | $ 137 | $ 8,970,217 |

## Note 6: Net investment income

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

| | 2019 | | | 2018 | | |
|---|---|---|---|---|---|---|
| (in thousands of dollars) | **Investment Income[1,2]** | **Fair Value Changes[3]** | **Total** | Investment Income[1,2] | Fair Value Changes[3] | Total |
| **Cash in trust and short-term investments** | | | | | | |
| Canada (Note 6a) | **$ 15,068** | **$ 2,743** | **$ 17,811** | $ 12,252 | $ 10,123 | $ 22,375 |
| Foreign[4] (Note 6a) | **7,777** | **262,262** | **270,039** | 1,622 | (305,014) | (303,392) |
| | **22,845** | **265,005** | **287,850** | 13,874 | (294,891) | (281,017) |
| **Bonds and private debt** | | | | | | |
| Canada | **212,297** | **365,832** | **578,129** | 209,181 | (125,009) | 84,172 |
| Foreign | **39,984** | **(4,548)** | **35,436** | 22,461 | 56,398 | 78,859 |
| | **252,281** | **361,284** | **613,565** | 231,642 | (68,611) | 163,031 |
| **Public equities** | | | | | | |
| Canada | **74,523** | **350,352** | **424,875** | 80,904 | (274,207) | (193,303) |
| Foreign | **188,459** | **1,107,484** | **1,295,943** | 182,072 | (329,120) | (147,048) |
| | **262,982** | **1,457,836** | **1,720,818** | 262,976 | (603,327) | (340,351) |
| **Real estate** | **237,022** | **(267,873)** | **(30,851)** | 227,761 | (6,071) | 221,690 |
| **Infrastructure** | **101,338** | **9,902** | **111,240** | 124,704 | 140,755 | 265,459 |
| **Private equity** | **325,178** | **(189,667)** | **135,511** | 161,437 | 284,126 | 445,563 |
| **Total investment income** | **$1,201,646** | **$1,636,487** | **$2,838,133** | $ 1,022,394 | $ (548,019) | $ 474,375 |
| Investment management and related fees (Note 6b) | | | **(113,693)** | | | (113,752) |
| **Net investment income** | | | **$2,724,440** | | | $ 360,623 |

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 $1,076 million and unrealized gains of $560 million in 2019 and realized gains of $898 million and unrealized losses of $1,446 million in 2018.

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

### a) 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) | | **2019** | | 2018 |
|---|---|---|---|---|
| Canada | | | | |
| Cash in trust | **$** | **1,425** | $ | 4,386 |
| Short-term notes and treasury funds | | **13,643** | | 7,866 |
| | **$** | **15,068** | $ | 12,252 |
| Foreign | | | | |
| Cash in trust | **$** | **6,248** | $ | 221 |
| Short-term notes and treasury funds | | **1,529** | | 1,401 |
| | **$** | **7,777** | $ | 1,622 |

### b) INVESTMENT MANAGEMENT AND RELATED FEES

| For the year ended December 31<br>(in thousands of dollars) | | **2019** | | 2018 |
|---|---|---|---|---|
| External investment management fees | **$** | **52,149** | $ | 58,567 |
| IMCO management fees | | **46,170** | | 40,188 |
| Transaction costs | | **8,375** | | 7,641 |
| Custodial fees | | **5,686** | | 6,862 |
| Private market expenses | | **1,313** | | 494 |
| | **$** | **113,693** | $ | 113,752 |

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 clients on a cost-recovery basis. 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 modified duration of the fixed income securities and interest rate derivatives of 12 years at December 31, 2019 (2018 – 11 years), a parallel shift in the yield curve of +/-1% would result in an approximate impact of +/-$1,000 million (2018 – $738 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, 2019 (in thousands of dollars) | **Gross Exposure** | **Foreign Exchange Contracts Receivable** | **Foreign Exchange Contracts Payable** | **Net Exposure** | **Impact of +/- 5% change** |
|---|---|---|---|---|---|
| U.S. dollar | **$ 5,914,351** | **$ 358,038** | **$ (3,868,075)** | **$ 2,404,314** | **+/- $ 120,216** |
| Euro currency unit | **291,243** | **153,056** | **(1,400,617)** | **(956,318)** | **+/- 47,816** |
| Hong Kong dollar | **890,565** | **15,650** | **(147,126)** | **759,089** | **+/- 37,954** |
| Chinese renminbi | **679,698** | **13,402** | **–** | **693,100** | **+/- 34,655** |
| Indian rupee | **464,329** | **–** | **–** | **464,329** | **+/- 23,216** |
| South Korean won | **400,144** | **132** | **(32)** | **400,244** | **+/- 20,012** |
| Japanese yen | **103,532** | **314,318** | **(57,329)** | **360,521** | **+/- 18,026** |
| Other | **1,495,630** | **117,574** | **(713,750)** | **899,454** | **+/- 44,973** |
| Total foreign | **10,239,492** | **972,170** | **(6,186,929)** | **5,024,733** | **+/- $ 251,237** |
| Canadian dollar | **19,021,264** | **6,239,817** | **(970,916)** | **24,290,165** | |
| | **$ 29,260,756** | **$ 7,211,987** | **$ (7,157,845)** | **$ 29,314,898** | |

| 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 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 | |

**(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)

| Public Equities | Stock Market Benchmark | Change in Price Index | Change in Net Assets as at **December 31, 2019** | December 31, 2018 |
|---|---|---|---|---|
| Canadian | S&P/TSX Composite Index | +/- 10% | **+/- $ 280** | +/- $ 257 |
| Foreign | MSCI World (C$) | +/- 10% | **+/- 446** | +/- 399 |
| Emerging | MSCI Emerging Equity Index (C$) | +/- 10% | **+/- 416** | +/- 364 |
| | | | **+/- $ 1,142** | +/- $ 1,020 |

The sensitivity analysis is performed using the total Plan actual investment asset mix weights summarized in Note 4a as at December 31, 2019 and 2018.

## 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, 2019, the Plan's greatest credit exposure to a securities issuer is with the Government of Canada in the form of interest-bearing securities for $2.8 billion (2018 – with the Government of Canada for $1.7 billion).

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

| As at December 31<br>(in thousands of dollars) | **2019<br>Total Credit<br>Risk Exposure** | 2018<br>Total Credit<br>Risk Exposure |
|---|---|---|
| **Bonds** | | |
| AAA | **$ 2,942,581** | $ 2,336,680 |
| AA | **2,813,158** | 2,243,421 |
| A | **357,951** | 485,649 |
| BBB | **443,290** | 433,052 |
| BB | **56,847** | 115,226 |
| B | **50,073** | 61,652 |
| CCC | **–** | 12,267 |
| Not rated | **391,868** | 677,109 |
| Total bonds | **$ 7,055,768** | $ 6,365,056 |
| **Private debt** | **$ 652,339** | $ 530,605 |
| **Short-term investments** | | |
| AAA | **63,842** | 166,468 |
| AA | **941,444** | 142,728 |
| A | **–** | – |
| Not rated | **626,588** | 72,914 |
| Total short-term investments | **$ 1,631,874** | $ 382,110 |
| **Counterparty risk** | | |
| Derivative assets | | |
| AA | **33,050** | 19,310 |
| A | **40,044** | 23,531 |
| Total derivative assets | **$ 73,094** | $ 42,841 |
| Securities lending | | |
| AA | **1,204** | 11,886 |
| A | **30,642** | 74,391 |
| BBB | **2** | 11,580 |
| Not rated | **–** | – |
| Total securities lending | **$ 31,848** | $ 97,857 |

## 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 Plan 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:

| | | | | | **2019** |
|---|---|---|---|---|---|
| (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 | **19,445** | **3** | **–** | **–** | **19,448** |
| **Total** | **$ 19,445** | **$ 750,003** | **$ 1,000,000** | **$ 500,000** | **$ 2,269,448** |

| | | | | | 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 |

## Note 8: Collateral

### COLLATERAL PLEDGED AND RECEIVED

Derivative transactions are supported by a CSA which 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, 2019, OPB pledged $62.5 million (2018 – $72.7 million) and received $0.8 million (2018 – $6.3 million) in collateral. Note 4f illustrates how OPB's net exposure on derivatives is reduced by the collateral.

### 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, $31.8 million (2018 – $97.8 million) of OPB's securities were on loan to third parties. At year-end, $33.9 million (2018 – $105.8 million) of securities were held as collateral, providing a 6.6% (2018 – 8.2%) cushion against the potential credit risk associated with these securities lending activities. Note 4f illustrates how OPB's net exposure on securities lending is reduced by the collateral.

## Note 9: Commitments and guarantees

As at December 31, 2019, OPB had unfunded commitments for certain investments of $2,878 million (2018 – $2,572 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 wholly-owned 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, 2019:

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, $5.0 million in letters of credit is guaranteed by OPB as at December 31, 2019 ($9.3 million as at December 31, 2018).

The Plan leases its office premises with minimum future lease payments as follows:

| (in thousands of dollars) | Minimum Lease Payments |
|---|---|
| 2020 | $ 4,377 |
| 2021 | 3,426 |
| 2022 | 3,530 |
| 2023 | 3,530 |
| 2024 | 3,530 |
| **Total** | $ 18,393 |

During 2019 and 2018, IMCO subleased office space from OPB. Refer to Note 16 for the future lease commitment from IMCO.

## Note 10: Capital assets

Capital assets as at December 31 consist of the following:

| | | **2019** | | | 2018 | |
|---|---|---|---|---|---|---|
| (in thousands of dollars) | **Cost** | **Accumulated Depreciation** | **Net Book Value** | Cost | Accumulated Depreciation | Net Book Value |
| Computer equipment | **$ 4,762** | **$ (4,734)** | **$ 28** | $ 4,762 | $ (4,671) | $ 91 |
| Furniture and fixtures | **2,025** | **(1,939)** | **86** | 1,984 | (1,923) | 61 |
| Leasehold improvements | **1,827** | **(1,769)** | **58** | 1,845 | (1,549) | 296 |
| **Total capital assets** | **$ 8,614** | **$ (8,442)** | **$ 172** | $ 8,591 | $ (8,143) | $ 448 |

## 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, 2018 on the basis of the accounting methodology required by the CPA Canada Handbook – Accounting, Section 4600 and extrapolated those liabilities to December 31, 2019. The obligations as of December 31, 2018 have been extrapolated to December 31, 2019 based on the estimated service cost, benefit payments, asset transfers, buybacks, and expected cost of implementing unreduced early retirement for OPPC. The pension obligations as at December 31, 2019 are $31.8 billion (2018 – $28.4 billion).

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 Ontario Regulation 250/18 that 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.

During 2019, changes were made to actuarial assumptions related to updated capital market assumptions, and the decrease in Government of Canada long-term bond yields.

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:

| | **2019** | 2018 |
|---|---|---|
| Nominal discount rate before the application of the PfAD | **5.90%** | 6.15% |
| Inflation | **2.00%** | 2.00% |
| Real rate of return before the application of the PfAD | **3.90%** | 4.15% |
| PfAD, a percentage of non-indexed liabilities and service cost | **11.43%** | 8.69% |
| Effective nominal discount rate[1] | **5.25%** | 5.64% |
| **Salary increases** | | |
| 2019 | **2.0% + promotional scale** | 2.0% + promotional scale |
| 2020 | **2.0% + promotional scale** | 2.0% + promotional scale |
| 2021 | **2.0% + promotional scale** | 2.0% + 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 PSP Act 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, 2018, which disclosed pension obligations of $26,662 million (2017 – $25,444 million), a newly prescribed Provision for Adverse Deviation of $1,881 million (2017 – $1,815 million) and a funding shortfall of $1,453 million shortfall (2017 – $777 million shortfall) on a going-concern basis. A smoothed actuarial value of assets methodology was adopted to smooth investment gains and losses over a 3-year period. 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, 2021.

## Note 12: Contributions

The contribution requirements are set out in the PSP Act and summarized in Note 2. The Province, as sponsor of the Plan, contributed $115 million in 2019 (2018 – $130.7 million) in special payments towards the funding shortfall identified in the filed funding valuation as at December 31, 2017.

For 2019 and 2018, 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 $166 thousand in required contributions past due as at December 31, 2019 ($654 thousand as at December 31, 2018).

| For the year ended December 31<br>(in thousands of dollars) | | **2019** | | 2018 |
|---|---|---|---|---|
| **Members** | | | | |
| Current service required | **$** | **366,096** | $ | 342,523 |
| Prior service | | **40,536** | | 54,391 |
| Long-Term Income Protection benefits | | **707** | | 486 |
| | | **407,339** | | 397,400 |
| **Employers** | | | | |
| Current service | | | | |
| Regular contributions | | **365,997** | | 342,250 |
| PSSBA transfer | | **(18,145)** | | (18,352) |
| For members receiving Long-Term Income Protection benefits | | **14,363** | | 12,469 |
| Prior service | | **4,526** | | 4,337 |
| | | **366,741** | | 340,704 |
| **Sponsor** | | | | |
| Special payments | | **115,000** | | 130,725 |
| Additional current service | | **–** | | 17,760 |
| | | **115,000** | | 148,485 |
| **Total contributions** | **$** | **889,080** | $ | 886,589 |

## Note 13: Operating expenses

| For the year ended December 31 (in thousands of dollars) | 2019[1] | 2018[1] |
|---|---|---|
| Staffing | $ 20,422 | $ 20,120 |
| IT & project management | 9,726 | 6,753 |
| Office premises & operations | 4,803 | 4,890 |
| Professional services | 2,166 | 2,142 |
| Depreciation | 299 | 737 |
| Staff development & support | 312 | 369 |
| Communications | 275 | 501 |
| Audit | 495 | 586 |
| Board remuneration | 194 | 211 |
| | $ 38,692 | $ 36,309 |

1 Included in the above operating expenses are actuarial services provided to OPB amounting to $554 (2018 – $485) and external audit services provided to OPB amounting to $240 (2018 – $245).

Note: Recorded by subsidiary operations are external audit services provided to and recorded by subsidiaries amounting to $266 (2018 – $286).

## Note 14: Termination and other benefit payments

| For the year ended December 31 (in thousands of dollars) | 2019 | 2018 |
|---|---|---|
| Transfers to other plans | $ 23,244 | $ 30,216 |
| Commuted value transfers and death benefits[1] | 143,070 | 125,414 |
| **Total benefit payments** | $ 166,314 | $ 155,630 |

1 Disability payments amounted to $nil in 2019 and 2018.

## 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.

On May 1, 2018 the registered pension plans representing the employees and designated executives from ONTC merged with the PSPP. Consent was received from the regulator for the transfer of assets from the ONTC plan on September 27, 2019. OPB assumed ownership of all assets effective September 27, 2019.

| For the year ended December 31<br>(in thousands of dollars) | | **2019** | | 2018 |
|---|---|---|---|---|
| Transfers from ONTC merger | **$** | **570,667** | $ | – |
| Transfers from TVO merger | | **-** | | 99,745 |
| Transfers from OPSEU Pension Plan | | **50,987** | | 117,763 |
| Transfers from MOPPs | | **19,059** | | 9,827 |
| Transfers from other plans | | **3,542** | | 6,845 |
| **Total transfers of service from other plans** | **$** | **644,255** | $ | 234,180 |

## 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 2019, IMCO subleased office space from OPB for $1,449 thousand (2018 – $1,458 thousand). The future sublease commitment from IMCO for 2020 is $1,527 thousand. In 2018, IMCO entered into an arrangement to lease office space in a building partially owned by OPB and the lease commences in 2020.

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 did 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. IMCO has been managing OPB's investment assets since July 2017. OPB pays its share of IMCO's operating expenses on a cost-recovery basis (Note 6b). External investment manager and custodial fees are 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 annualized real rate of return has been set in the SIP&P at equal to or greater than 3.60%, net of expenses.

# Directory of Key Personnel

## Officers

**Mark J. Fuller**
President & Chief Executive Officer

**Christian Kautzky**
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.