Ontario Pension Board
2020 Annual Report

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Letter from the Chair

2020 was a very challenging year.

Our focus was on four key priorities as the pandemic progressed: supporting our people's safety and well-being, paying pensions without interruption, continuing excellent service to our clients and stakeholders, and managing through the market volatility to protect the pension promise.

I want to commend OPB staff and leadership for their resilience and ability to quickly adapt to a remote working environment. Throughout the year they have been repeatedly confronted with new challenges, and they have stepped up to find innovative solutions to ensure we were able to continue to effectively support our clients.

Working with IMCO, we successfully navigated through the market volatility in 2020 to end the year with a solid return of 7.0% (net of all expenses), which exceeded our benchmark of 6.5% as well as the discount rate.

However, we recognize that the impacts of the pandemic will continue, and we expect they will make the investment environment even more challenging over the coming years. More information about the Plan's funding can be found in the CEO's letter and the Funding section in the MD&A.

Going into 2020, we had already planned to conduct a funding risk study and an asset/liability (AL) study. Overseeing these activities became even more critical to the Board's governance role as the pandemic unfolded.

We expect to complete both studies in 2021. The results will help guide our sustainability strategies to protect the long-term health of the Plan.

We continued our governance and oversight of IMCO as our investment manager. We supported IMCO in the development of their near-term strategic and operational priorities, confirming that our needs and objectives as a key client would be realized. We continued to advance our objective to enhance Responsible Investing (RI) practices. We are pleased that IMCO has appointed its first Head of Responsible Investing and look forward to working together to further progress our Responsible Investing approach across a range of issues including diversity, equity and inclusion, human rights, the environment and climate change.

I want to acknowledge that Hugh Mackenzie, former OPB Board member and OPB nominee on the IMCO Board, completed his term with IMCO. I thank him for his valuable contributions and service to both OPB and IMCO. I want to acknowledge the appointment of, and look forward to working with, Eric M. Wetlaufer as OPB's nominee to the IMCO Board.

- Mr. Wetlaufer has over 35 years of experience as an institutional investor. Most recently, he was responsible for leading the CPP Investment Board's Public Market Investments department, investing over CAD$200 billion globally in publicly traded assets and related derivatives. Prior to that, he held executive roles in the investment management industry, including Group Chief Investment Officer, International at Fidelity Investments, Chief Investment Officer at Putnam Investments and Managing Director at Cadence Capital Management.

In addition to the work that IMCO has undertaken in Responsible Investing, we supported OPB management in the development of an OPB Responsible Investing Action Plan. This year, OPB:

- Rejoined the UN Principles for Responsible Investment (PRI) as an asset owner (OPB was a signatory prior to the formation of IMCO). The PRI is an important forum for working with other investors globally;
- Conducted a thorough review and update of our Investment Beliefs relating to environmental, social and governance (ESG) issues; and
- Shifted our approach to ESG issues to extend beyond mere consideration of issues and engagement with investee companies. We included more proactive consideration of ESG factors across the investment portfolio and are in the process of developing a screening framework.

More information on our progress on ESG can be found in this report.

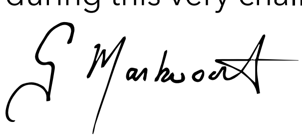
This year made it clear that, as a society, we need to do more to create safe and inclusive communities. We acknowledge that while OPB has long held diversity and inclusion as core values, we have more work to do – and I join CEO Mark Fuller in saying to both our employees and clients that this is a priority for us. We also recognized that as a Board we need to deepen our understanding in this area. In addition to making diversity, equity and inclusion an education priority for the Board, we will also receive quarterly updates from management as they develop their action plan. The Board and leadership team are committed to this critical work and to creating an inclusive and safe environment for our employees, clients and stakeholders.

Effective governance demands a committed board with the right mix of skills and expertise to govern effectively. I am pleased to announce that the Board is now at full complement. This year, we welcomed the following individuals to the OPB Board:

- Earl Dumitru as the representative for the Association of Law Officers of the Crown (ALOC); Professional Engineers, Government of Ontario (PEGO); Ontario Crown Attorneys Association (OCAA); and Association of Ontario Physicians and Dentists in the Public Service (AOPDPS). Earl is a policy lawyer with the Ontario Ministry of the Attorney General. He brings to the Board over 20 years' experience in policy development, public sector expertise in collective bargaining and member education program development;
- Suzann Pennington is a retired senior finance executive who brings more than 30 years' experience in strategic planning, complex investments, M&A, risk management and ESG in public and private companies to the Board; and
- Rob Ritchie is the CEO of a defined benefit plan and has over 35 years of experience in the pension and financial services industries. Rob brings extensive experience in pensions and investment management to the Board.

The Board is proud of how OPB staff and leadership managed through the pandemic. OPB kept a strong focus on the critical priorities – people, delivering pensions, excellent client service and oversight of IMCO in managing our investments. Remarkably, key strategic business objectives as set out in the 2020 Business Plan were also advanced despite the challenges presented by the pandemic. Pension consolidations continued, pension modernization targets were met, and new technology and systems improvements proceeded as planned.

On behalf of the Board, I thank the OPB leaders and staff for their commitment and efforts during this very challenging year.



Geri Markvoort
Chair

Letter from the President & CEO

OPB's purpose is to protect the interests of our members in their pension plan, deliver outstanding service to our members and stakeholders, and protect the long-term sustainability of the Plan. While the ongoing COVID-19 pandemic had a significant impact on everyone during 2020, and OPB was no exception, we remained focused on our purpose. I am pleased that we managed successfully through the immediate impacts of the pandemic. We are also taking steps to manage through what we expect to be the long-term effects of the pandemic on the global economy and investment markets. I will report on these matters in this letter through the themes of Safety, Service and Sustainability.

Managing Through the Immediate Impacts of the Pandemic

HEALTH, SAFETY AND WELL-BEING

The health, safety and well-being of our employees, clients and stakeholders has been, and continues to be, a top priority for us. The onset of the pandemic led us, in the middle of March, to transition to a work-from-home (WFH) environment and serve our clients remotely. A small group of staff continued to work on-site periodically to issue cheques, process mail, manage our facilities and keep our systems operating. Through strict compliance with public health guidelines, we have been able to protect the health and safety of our employees, business partners, clients or stakeholders who have had to come into our offices for critical activities. We have taken a number of steps to support our employees' well-being and mental health, including sharing educational articles and holding sessions on resilience, self-care, and stress management; reminding staff about the mental health resources and supports available to them; and, of course, additional check-ins with their managers and senior leadership to understand what supports they might need. We will continue to focus on these efforts throughout 2021.

SERVICE

As a pension administrator, OPB provides essential services to its clients and stakeholders. It was therefore imperative that these services continue while we work from home. The modernization of our information technology services over the last five years, combined with the adaptability and dedication of our employees and business partners, enabled us to do so seamlessly. All pension payments continued to be made on time.

To ensure that we could continue to deliver all other services, we introduced a number of innovations to facilitate remote service delivery, including e-signature functionality for staff approvals and applicable client transactions, secure electronic document upload and enhanced electronic fund transfers for vendor payments.

These new online capabilities were part of the planned modernization of our pension administration systems, but were accelerated immediately upon moving to WFH. In addition to facilitating the delivery of remote services during the pandemic, they will also create long-term efficiencies and service enhancements.

Funded Status

As I reported in my letter in the 2019 Annual Report, the year-to-year change in the funded status of the Plan is driven by two primary variables: our investment return for the year and the change in long-term bond yields during the year.

Investment Returns: The immediate impact of crises such as the pandemic can result in investment losses that undermine the sustainability of retirement plans. Shortly after I was appointed President of OPB in 2008, OPB was faced with the challenge of stewarding the Plan through the Financial Crisis and the Great Recession: a one-in-one-hundred-year event. While OPB was not immune from the impact of the resulting market declines, our loss was significantly lower than most other institutional investors and we quickly recovered over the following two years. This demonstrated the value of having a strong investment portfolio with well-understood and well-managed risk.

The COVID-19 pandemic is the second such event in 12 years.

In March 2020, the markets were severely impacted, and investors suffered substantial losses. Severe market events such as this tend to reveal latent risks in investment portfolios that result in outsized losses relative to the broader market performance. I can advise that OPB's portfolio reacted with the markets and we incurred no such unexpected losses.

Prior to the pandemic, IMCO had developed a liquidity management policy and a plan to manage through a significant market downturn, both of which it activated when the equity market plunged in March. These were important contributors to positioning IMCO to avoid deep losses and to position it to take advantage of opportunities created by the volatility. At the worst point of the decline, OPB's investment portfolio was down almost 10% but by year-end, we had generated a positive return of 7.0% net of all investment and pension administration expenses.

This result exceeded the annual return required to maintain the funded status of the Plan, before considering the impact of the decline in long-bond yields on the future expected investment return and the margin for conservatism we are required to maintain. The investment section of the MD&A provides more detail around this year's performance.

Long-Term Bond Yields: As I reported in my letter last year, the *Pension Benefits Act* (PBA) rules for single-employer pension plans (such as the Public Service Pension Plan (PSPP)) introduced in 2018 prescribe an additional amount to be included in the cost of pensions as a margin for conservatism. This amount is referred to as a Provision for Adverse Deviations (PfAD). The PfAD must be calculated as prescribed by the PBA and is very sensitive to changes in Government of Canada long-term bond yields from one valuation date to the next. This, in turn, makes the Plan's funded status more volatile.

At the end of 2019, long-bond yields stood at 1.76%, very low by historical standards. The economic impact of the pandemic drove long-term Government of Canada bond yields down even further to 1.21% by the end of 2020.

In recognition of this, we reduced our real discount rate from 3.90% to 3.65% per year, which increased the cost of pensions. As a result of this change, our funded status before applying the prescribed PfAD would have been 99% (with a shortfall of $333 million). After applying the prescribed PfAD (or margin for conservatism) of $3.1 billion to our liabilities, our shortfall grew to $3.46 billion, driving our estimated funded status down to 90% compared to 92% in 2019.

The PBA requires a plan to discharge a shortfall, including the PfAD component, in full over the 10 years following the filing of an actuarial valuation with the Financial Services Regulatory Authority.

During 2020, we filed the December 31, 2019 actuarial valuation, which included a plan to discharge the funding shortfall as at the end of 2019 ($2.1 billion) and return the Plan to fully funded status through special payments by the Plan Sponsor over the following 10-year period.

The PBA requires us to file a valuation every three years. Accordingly, we will not be required to file again until the valuation as at December 31, 2022. This allows for the possibility that long-bond yields could rise modestly again, which would reduce the magnitude of the PfAD and the shortfall. In fact, at the time of writing this letter in early March 2021, the long-bond yield has risen to over 1.80%. Such an increase, were it to hold at the date of the next filing valuation, would materially reduce the magnitude of the PfAD and have a material positive impact on the funded status of the Plan.

SUSTAINABILITY: MANAGING THROUGH THE LONGER-TERM IMPACTS OF THE PANDEMIC

With the arrival of vaccines, our hope is that the public health aspects of the pandemic will be largely in the rear-view mirror by the end of 2021. However, for institutional investors and, particularly, for retirement plans, the impact of the pandemic may be with us for years to come and, we expect, will depress economic growth, investment returns and long-bond yields for some time. This will exacerbate long-term trends that we were already facing prior to the pandemic that pose challenges to the funding of the Plan. These include slow economic growth, continuing low interest rates and lower investment returns over the next 10 years than the past 10.

Despite this, we believe that we can successfully manage through these conditions and maintain the sustainability of the Plan. Even before the pandemic, we had in motion several initiatives to support the sustainability of the Plan. This included a review of our investment strategy, in partnership with IMCO, with a view to generating incremental returns while staying within our risk appetite. It also included progressing a funding risk study to identify the primary risks to the funding of the Plan and steps that could be taken to mitigate those risks. We will finalize those reviews in 2021 and develop plans with respect to matters that are within OPB's authority and consult with the Plan Sponsor on items that are reserved to the Plan Sponsor.

Client Service Performance

We strive to deliver outstanding service to all our stakeholders. Our focus on service is reflected in two key metrics: our CEM Benchmarking Service Score and Ranking, and our Client Satisfaction Survey Score. Our performance against both metrics continues to be outstanding. Our CEM Service Score was 90/100, up from 88/100 for the prior year. CEM ranked us second among our Canadian peers and fourth among its universe of leading global pension plan administrators. Our overall client satisfaction score, as measured by an independent external survey firm, improved to 8.8/10 for 2020. Our satisfaction score for participating employers also improved to 8.7/10.

Despite the pandemic, we made good progress on our Business Plan initiatives during 2020, including the planned multi-year modernization of our pension administration business processes and information technology systems. Pension modernization is discussed further in the MD&A of this report.

Driving Cost Efficiency

In what we expect to be a lower-return environment over the next 10 years, cost efficiency will be a vital contributor to the financial health of the Plan. As a result, we continue to closely manage and monitor the expenses we incur in managing the Plan. In 2020, our expense ratio, including all pension administration and investment expenses, both internal and external, was 0.50% (or 50 cents per $100 of average net assets available for benefits). This compares to 0.51% in 2019 and reflects a high degree of cost efficiency that is very competitive with our much larger public sector pension administration peers.

Diversity, Equity and Inclusion

Diversity, equity and inclusion are core OPB values. In 2020, well-publicized events in Canada and the United States brought diversity, inclusion and racism issues to the fore, particularly the challenges facing Black and Indigenous communities.

On reflection, management and the Board recognized that, while diversity and inclusion have been part of OPB's core values, there was much more we could do to live those values – our words need to be backed by concrete actions. We know that supporting a truly diverse, inclusive and anti-racist culture at OPB will not happen overnight and that a continuing commitment will be required. During the year, we publicly committed to develop and share an action plan on our public website. We also committed to take action in the interim.

In Closing

In 2020, our talented management and staff demonstrated their strong commitment to fulfilling our purpose. I am incredibly proud of how they rose to the occasion in what were very challenging circumstances, and I consider myself privileged to lead them. I am also very grateful for the calm and thoughtful counsel, guidance, oversight and support of our highly capable Board of Directors.

Mark J. Fuller
President & CEO

Management's Discussion & Analysis

OPB's vision is to be a premier pension delivery organization and a trusted advisor to all our stakeholders.

This section provides management's analysis of how the Public Service Pension Plan (PSPP or 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.

Introduction

At OPB, our primary objective is to effectively and efficiently manage 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.

In 2020, safety, service and sustainability were top of mind for management: **safety** amid the global COVID-19 pandemic; continuing to provide unmatched **service** excellence to our clients; and protecting the Plan's **sustainability**, not just for our 91,200 current members and retired members but for members well into the future.

Our investment manager, IMCO, manages the Plan's assets. 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.

Service excellence and risk management are paramount in our day-to-day operations. 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 our obligation to effectively manage costs. We operate within the objectives and guidelines on transparency established by the government.

Overview

The Plan's investment rate of return was 7.0%, net of all expenses, in 2020 and net assets grew to $31 billion.

The one-year return was above our portfolio benchmark return of 6.5% and was above the effective nominal discount rate of 5.25% used to determine the present value of Plan benefits.

That said, interest rates and bond yields, which have been low, by historical standards, for many years, continue to present a challenging environment for all pension and retirement plans. A further decline in long-term bond yields in 2020 drove a change in our discount rate which increased the liabilities significantly. As a result, despite our returns exceeding the discount rate, the Plan's estimated funded ratio with the PfAD applied was 90% at the end of 2020, compared to 92% a year earlier. Year-to-year changes in the funded status of the Plan are driven by two primary variables: our investment return and the change in long-term bond yields during the year. **The Funding section that follows contains a detailed discussion of the Plan's funded status.**

Pensions are funded through a combination of investment income and contributions made by members, employers and the Plan Sponsor. We expect the challenge of a long-term, low-interest rate environment to persist. We initiated a funding risk study in late 2019/early 2020 and the study results will help us determine whether additional steps should be considered to ensure Plan sustainability over time. This could include changes to benefits or contributions, among other options.

As the impact of the coronavirus pandemic became clear in early 2020, OPB's principal concern was the safety of our employees and our clients. At the same time, we had to ensure that essential day-to-day business – most importantly, making pension payments to retired members – continued uninterrupted.

In March, our employees began working from home and continued to deliver excellent service by phone, video conferencing and email. In regular surveys, our members continued to rate their OPB experience very highly, and we achieved a service score of 90/100 from benchmarking firm CEM Benchmarking Inc. (compared to 88/100 the year prior). That placed OPB second among Canadian plans and fourth globally.

When the pandemic started and capital markets were severely disrupted for a short time, OPB worked closely with our investment manager, IMCO, with a focus on maintaining liquidity. As people and businesses began to adjust to pandemic-related restrictions, markets began to stabilize and then to rebound. IMCO was able to successfully navigate the market volatility created by the pandemic to end the year with a solid return.

Funding

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.

We filed the December 31, 2019 actuarial valuation with the pension regulator, the Financial Services Regulatory Authority (FSRA). Under the Ontario *Pension Benefits Act* (PBA), any funding shortfall in a filed valuation must be resolved – that is, a filed valuation cannot maintain a deficit. OPB's filed valuation included a plan to discharge the $2.1 billion funding shortfall as at December 31, 2019 and return the Plan to fully funded status through special payments to be made over a 10-year period by the Plan Sponsor.

OPB is not required to file another funding valuation for three years – the actuarial valuation as at December 31, 2022 would be filed in 2023. This will allow time for the economy to recover from the impact of the pandemic and the possibility that long-bond yields could start recovering. While we do not expect bond yields to rise significantly, even a modest rise would be expected to improve the funded status of the Plan.

PBA FUNDING CALCULATION

Under PBA funding rules that became effective in 2018, movements in long-bond yields have a more pronounced impact on Plan liabilities than they did in the past.

In 2018, the methodology for valuing liabilities of single-employer pension plans such as the PSPP was changed so that we must first calculate Plan liabilities without any margin in the discount rate, and then add an explicit reserve, called a Provision for Adverse Deviations (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 impact of the rule change was not noticeable. However, in 2019, with a significant decline in long-bond yields at year-end, our liabilities increased substantially under the new methodology.

That trend continued in 2020, with investors seeking a safe haven in government bonds during the COVID-19 uncertainty. Long Government of Canada bond yields dropped to 1.21% at December 31, 2020, down from an already low 1.76% at the end of 2019.

Before applying the PfAD, the Plan's funded ratio for financial reporting purposes stood at 99% at the end of 2020 with an estimated shortfall of $333 million, compared to 2019 when the Plan was fully funded before applying the PfAD. The small decline in funded ratio was a result of lowering our effective real discount rate to 2.98% (from 3.25% in 2019).

With the inclusion of the PfAD required by the regulator, the Plan's funded ratio was 90% at December 31, 2020, down from 92% in 2019.

The funding rules applicable to single-employer pension plans make the Plan's funded status more volatile, as it is driven to a significant extent by changes in spot rates for long Canada bond yields from one valuation date to the next valuation date.

Going into 2020, OPB had already planned to conduct a funding risk study and asset/liability (A/L) study.

The goal of a funding risk study is to identify the primary risks to the long-term funding of the Plan and options that could be taken to mitigate those risks. The purpose of an A/L study is to determine whether the risk/return profile of OPB's investments is optimal and whether the Plan's asset mix is the optimal match with its liabilities in the current and future environments and, if not, to determine what adjustments need to be made.

We initiated both studies in 2020 and expect to complete them in 2021. The results will help guide our sustainability strategies to protect the long-term health of the Plan. We will share any resulting decisions with Plan members.

What We Did	Why It Matters
Filed an actuarial valuation with the pension regulator, the Financial Services Regulatory Authority, in 2020.	We are required to file a funding valuation at least once every three years and mitigate any funding shortfall. We are required to file another funding valuation no later than the valuation as at December 31, 2022, allowing time for long-bond yields to possibly rise and the economy to begin to recover and improve the Plan's funded status before we have to file again.
Excluding the Provision for Adverse Deviations (PfAD) required by the pension regulator, the Plan's funded status was 99% in 2020, compared to being fully funded in 2019. With the PfAD applied, the funded status decreased to 90% compared to 92% in 2019.	Since 2018, Ontario pension funding rules have built extra conservatism into the Plan's funding calculations. We believe that the Plan remains financially healthy and well positioned to continue to meet the pension promise.
Conducted a funding risk study and an asset/liability study, with results to be completed and reviewed in 2021.	The results of these studies will help to guide our sustainability strategies to protect the long-term health of the Plan.

MANAGING FUNDING RISK

We believe it will be difficult over the next 10 years to replicate the strong returns generated by the investment portfolio in the recent past. 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.

To keep the Plan sustainable over the long term, we must ensure it can withstand many challenges that may occur, such as periodic downturns in investment returns 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 control or the Plan Sponsor's control – namely, investment asset mix, contribution levels and pension benefits – 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 Strategic Asset Allocation (SAA) to potentially improve investment returns, manage investment risk and achieve an appropriate matching of our investments and liabilities;
- participating in investment asset pooling (through IMCO) to improve net investment returns, gain economies of scale, attract skilled talent, and enhance risk management and cost efficiency; and
- implementing our consolidation strategy to maintain or improve Plan demographics and reduce public sector pension administration redundancies.

We continually monitor the adequacy of contributions to the Plan and recommend contribution increases as appropriate. The most recent increase took effect in April 2019.

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, under which adjustments to the asset mix were phased in over the last three years. That SAA called for a gradual shift from public market assets toward private assets. In 2020, we initiated a new asset/liability study to determine the future changes required to our SAA to help generate returns required to return the Plan to a fully funded status within appropriate risk parameters.

Outsourcing investment management services to IMCO 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 through our consolidation strategy will help us improve Plan demographics and produce economies of scale in the long term.

Under the provisions of the PBA, we are required to file an actuarial valuation with the pension regulator at least once every three years. As described earlier in this MD&A, we filed the December 31, 2019 valuation in 2020. The next required actuarial valuation will be the December 31, 2022 report, which will be filed in 2023.

OPB initiated a funding risk study in 2020 and will complete the study and review results in 2021. This study modelled a range of economic scenarios and their effects on Plan funding 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.

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.

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. That means the discount rate can influence decisions about contribution rates and pension benefits.

Setting a realistic discount rate is a critical aspect of managing the long-term financial health of a defined benefit 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. In our "best estimate discount rate", we consider the current economic environment and outlook, and also allow for a cushion for unanticipated events (what is known as a "margin").

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. In the past, low bond yields and lower expected investment returns would indirectly influence the "best estimate discount rate" assumption, as described above. However, using the valuation methodology required by our pension regulator, the funded status of the Plan has become much more directly sensitive to movements in long-term Government of Canada bond yields.

In 2020, we reduced the inflation assumption to 1.75% to align with the assumption we used for our funding valuation. This resulted in an effective real discount rate (which is the effective nominal discount rate less our inflation assumption) of 2.98% in 2020, compared to 3.25% in 2019.

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 2020, a member retiring at the same age would be expected to receive their pension for 26 years – an increase of 4.6 years.

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 remains financially healthy.

Funding Risk Study

Going into 2020, OPB had already planned to conduct a funding risk study as well as an asset/liability study. We initiated both studies and expect to complete them in 2021. The results will help guide our sustainability strategies to protect the long-term health of the Plan.

The goal of a funding risk study is to identify the primary risks to the long-term funding of the Plan and options that could be taken to mitigate those risks.

Asset/Liability Study

OPB conducts an asset/liability (A/L) study every three to five years. The purpose is to analyze our various asset allocations and consider long-term capital market assumptions to determine whether the risk/return profile of our investments provides an optimal match with the Plan's liabilities. The study helps to determine what adjustments, if any, should be made to our Strategic Asset Allocation (SAA). The SAA drives investment performance and is OPB's most important investment decision.

OPB completed its most recent study in 2017. 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.

OPB initiated a new A/L study in 2020 and we expect to complete it and review results in 2021. We may decide to make changes to our SAA to ensure that the asset mix is appropriate for the coming years, given projected future liabilities. In that case, we would provide the updated SAA to our investment manager, 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 the contributions required to be made to the Plan under the *Pension Benefits Act*. 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 once every three years. In 2020, OPB filed an actuarial valuation of the Plan as at December 31, 2019. For purposes of the funding valuation, asset gains and losses relative to the discount rate are smoothed over a three-year period. The funding shortfall of \$2.1 billion that existed at the end of 2019 is being amortized by special payments by the Plan Sponsor. The December 31, 2019 actuarial valuation for funding purposes and the December 31, 2020 valuation for financial statements both assumed an inflation rate of 1.75%, down from 2.00% used in the December 31, 2019 financial statements. As a result, other related assumptions in 2020, such as the discount rate, salary increases, and increases in the Year's Maximum Pensionable Earnings (YMPE) and *Income Tax Act* maximum pension, were also adjusted downward by 0.25%. These changes (plus the expectation of lower returns in the future) meant that the effective real discount rate went from 3.25% at the end of 2019 to 2.98% at the end of 2020.

Valuation Type	Purpose and Description
Financial statements	For the purpose of the financial statements, the Plan's liabilities were calculated as at December 31, 2019 and extrapolated to December 31, 2020. The extrapolated numbers are based on the assumption that the Plan's 2020 experience (for factors such as salary increases, retirement ages, and termination and mortality rates) would match the Plan's actuarial assumptions. For financial reporting purposes, we have calculated the Plan's 2020 year-end financial position by comparing the extrapolated liability with the actual market value of assets as of December 31, 2020. Excluding the Provision for Adverse Deviations (PfAD) required by the pension regulator, the Plan's funded status for financial reporting purposes was 99% in 2020 (with a $333 million shortfall), compared to being fully funded in 2019. With the PfAD applied, the funded status decreased to 90% compared to 92% in 2019. The PfAD, the required extra margin for conservatism, added approximately $3.1 billion to the Plan liabilities as of December 31, 2020. This results in a funded ratio of 90% with an estimated shortfall of approximately $3.46 billion. This compares to the approximately 92% funded ratio at the end of 2019.

Investments

The Plan's pension obligations drive OPB's long-term investment strategy. Since 1990, approximately 71% of pension payments have come from investment income, so strong investment returns are critical to the long-term health of the Plan.

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.

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

As our sole investment manager, IMCO invests the Plan assets in accordance with OPB's overarching investment policies, including our Statement of Investment Policies and Procedures, and our Strategic Asset Allocation (SAA).

Outsourcing investment management to IMCO provides us with best-in-class advice around portfolio construction, cost-efficient access to a diverse range of asset classes, and superior reporting on investment risks and returns. It has also enabled OPB to sharpen our focus on serving existing and new Plan members.

INVESTMENT ROLES AND RESPONSIBILITIES

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, investment policies and other contractual requirements.
Monitors IMCO's investment performance with respect to the SAA, investment policies and other contractual requirements.	Regularly reports on investment performance and risk management to OPB.

MONITORING

OPB has an ongoing program to monitor IMCO's investment performance and assess how well IMCO is meeting its responsibilities and obligations to OPB.

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.

Minor modifications to this governing framework have been made in recent years as IMCO has taken the necessary governance and operational steps to begin transferring Plan assets into structured pools, but the key elements remain unchanged.

We have continuous, open dialogue with IMCO executives, and OPB's Investment Committee receives regular updates from IMCO executives and investment professionals on key developments and other matters of interest.

The monitoring program helps to assure OPB management and Board members that IMCO is prudently managing Plan assets and investment risk on behalf of OPB and its members, in accordance with all relevant investment strategies and policies.

DRIVING PROGRESS THROUGH COLLABORATION WITH IMCO

As one of IMCO's key clients, we have developed a strong relationship; we are pleased with the progress IMCO is making as it continues to grow and mature. IMCO added individuals to key positions on investment teams in 2020 and continued to build operational capacity.

For example, IMCO hired a new leader of private equity. This enabled IMCO to evolve the Private Equity portfolio in terms of strategy, key partners and fund managers.

There has also been a significant evolution of our Public Equity portfolios, which are segmented into Canadian equity, global equity and emerging markets equity, with each of these implementing a much more diverse strategy than OPB had prior to IMCO managing our Plan assets. Additionally, IMCO built out OPB's Global Credit portfolio – this is a new actively managed strategy, distinct from government fixed income, that focuses on corporate and private debt opportunities.

These changes highlight IMCO's ongoing commitment to provide OPB with access to new investment opportunities, which would have been difficult for OPB to accomplish with the same scale and speed, prior to the formation of IMCO.

We worked closely with IMCO during the year to prepare the documentation to enable asset pooling. In the fourth quarter of 2020, IMCO launched its first structured pool of assets – a key operational milestone in helping to ensure the long-term sustainability of the PSPP. The IMCO Canadian Public Equity Limited Partnership, with approximately $3.5 billion in assets, provides OPB and other IMCO clients with demonstratable operational efficiencies and economies of scale. Rather than making multiple trades on behalf of multiple clients, for example, IMCO can complete a single transaction at the pool level, resulting in cost savings and other efficiencies.

We look forward to the expected launch of additional pools in 2021. We expect the efficiencies of asset pooling to result in better net investment returns, which will support returning the Plan to a fully funded status over time.

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.

The SAA targets are developed with the goal of meeting the Plan's long-term funding objectives while effectively managing investment risk through diversification across several asset classes.

The 2017 Board-approved SAA included changes that were phased in through 2020. We continued a modest shift from public equities to private assets, including infrastructure and private equity. The objective of this shift was to improve portfolio diversification, benefit from an illiquidity premium often available in private assets and, in some cases, reduce volatility.

In 2020, OPB undertook a new asset/liability (A/L) study to determine whether our SAA continues to be appropriate. The study involved projecting the Plan's assets and liabilities under numerous economic and capital markets scenarios, and it modelled several investment portfolios with varying levels of risk and return characteristics. The process was designed to give OPB a full understanding of the range of investment strategies available to the Plan and their expected returns and risks.

We expect to complete the A/L study in 2021 and will work with IMCO to implement changes to the SAA in the coming years. Any changes to our SAA that are decided on following the completion of the A/L study will be communicated in future annual reports.

ASSET MIX AT DECEMBER 31, 2020

As the portfolio moved towards the 2020 SAA targets, we anticipated some deviation depending on prevailing market conditions and the ability to find attractive new investments. The table below illustrates where the plan was positioned at the end of 2020 compared to the SAA target weights.

2020 ASSET ALLOCATION VERSUS SAA TARGETS

Asset Class	Allocation	SAA Target
Cash	0.1%	3%
Fixed Income	27.1%	22%
Public Equities	43.1%	34%
Real Estate	13.2%	21%
Infrastructure	8.3%	11.5%
Private Equity	8.2%	8.5%
Total investments	100.0%	100.0%

The allocation to Real Estate was below the SAA target at year-end due to the significant portfolio losses and the challenging conditions in which to restructure the composition of the portfolio. With regards to Infrastructure and Private Equity, the pace of making additional investments was slowed as stretched valuations and market volatility made finding new investments difficult. This, in turn, led those asset classes to be below the SAA target. These below-target private market allocations were offset by the allocations to Fixed Income and Public Equities, both of which performed well in 2020.

RESPONSIBLE INVESTING

We believe that companies and investment managers who effectively address environmental, social and governance (ESG) issues are more likely to improve shareholder value over the longer term.

Furthermore, failure to identify and mitigate ESG issues may impede long-term investment performance. It is increasingly important to PSPP members that ESG factors are considered and integrated in the investment decisions made on their behalf.

Governance

The Ontario *Pension Benefits Act* requires OPB and other pension plan administrators to establish a Statement of Investment Policies and Procedures (SIP&P) that contains information about whether ESG factors are incorporated into the Plan's investment policies and procedures and, if so, how those factors are incorporated.

In 2020, the OPB Board of Directors reviewed and updated our Investment Beliefs relating to environmental, social and governance (ESG) issues. The Board approved the new Investment Beliefs in OPB's SIP&P.

Our SIP&P states that ESG factors should be integrated into the evaluation of an individual security, asset or external investment manager. The objectives are to improve shareholder value, reduce risk and ensure alignment with OPB's values. We also stated our belief in the benefits of active ownership. We expect IMCO not only to integrate ESG considerations in the investment process, but also to influence investee companies through engagement and shareholder voting to improve corporate practices and to avoid investments with problematic ESG issues. We also expect IMCO to consider divesting from investments where insufficient action is taken to address those issues.

While OPB has delegated the responsibility for considering ESG factors when making and managing the Fund's investments, OPB regularly engages with and actively monitors IMCO on ESG. Additionally, we are also developing our own policy to guide the strategy for addressing ESG issues. We expect this will be completed and approved in 2021.

In parallel, IMCO appointed a Vice-President of Responsible Investing in 2020, updated its own Responsible Investing Policy and worked with clients, including OPB, to develop a robust Responsible Investing strategy that will guide its work in the coming years. Together, the two organizations are using a Responsible Investing lens to not only make investment decisions that meet the needs of our Plan members, but that can drive positive change across a range of ESG issues including climate change, diversity and inclusion, and corporate board effectiveness.

OPB AND IMCO RESPONSIBLE INVESTING (RI) ACTIVITIES

OPB's RI Activities	IMCO's RI Activities
Our SIP&P delegates responsibility to IMCO to consider all ESG factors in managing the Fund's investments. OPB actively monitors IMCO's execution.	IMCO integrates ESG considerations into investments on our behalf and reports regularly on its Responsible Investing activities.
OPB rejoined the UN-backed Principles for Responsible Investment (PRI) in 2020 in the asset owner category. The PRI is an important forum for working with other investors globally.	IMCO became a signatory to the PRI in the asset manager category in 2019.
OPB revised its Investment Beliefs related to Responsible Investing in 2020, adding that we support the consideration of investments that would reduce greenhouse gas emissions and slow the rise in global temperatures.	IMCO engages with companies through investor initiatives that encourage better disclosure and performance on ESG factors, such as climate change and diversity on corporate boards of directors.
OPB views proxy voting as an important tool to encourage companies and other enterprises to provide adequate disclosure to shareholders relating to ESG factors, policies and initiatives.	IMCO, on OPB's behalf, exercises voting rights for all securities owned by OPB, in accordance with its Proxy Voting Guidelines and Responsible Investing Policy. IMCO reports proxy voting results to OPB.

Strategy

In 2020, OPB's Board of Directors supported OPB management in the development of our Responsible Investing Action Plan. The Action Plan focuses on strategy, governance, and communication and advocacy.

Initial aspects of the Action Plan were implemented in 2020 as OPB rejoined the UN-supported Principles for Responsible Investment (PRI) as an asset owner (OPB was a signatory prior to the formation of IMCO) and conducted a review and update of our Investment Beliefs relating to ESG issues.

IMCO is also a PRI signatory, but as an asset manager, so the two organizations approach and participate in the PRI with different yet complementary perspectives. The benefits to OPB of being a PRI signatory include access to global resources and a network of peers, and the ability to stay abreast of global developments and best practices. Being part of the PRI also will support us in evaluating our performance as an asset owner and making improvements to our Responsible Investing governance and oversight practices.

IMCO appointed a new Vice-President of Responsible Investing in 2020, and both IMCO and OPB are increasing the breadth and depth of the incorporation of a range of ESG factors in the investment process to drive positive change across the OPB portfolio. Climate change, corporate governance, and diversity and inclusion are top priorities for both organizations.

This year made it clear that, as a society, we need to do more to create safe and inclusive communities. In various communications to stakeholders, we acknowledged that diversity and inclusion have been core OPB values, yet we have more work to do. Diversity and inclusion are priorities for our Board, for our executive team and for IMCO as our investment manager.

We engaged IMCO in discussions around diversity and inclusion within our investment portfolio. IMCO has included diversity and inclusion as one of their core ESG Beliefs, has incorporated diversity and inclusion into its due diligence process for new investments, and has signed on to the Responsible Investing Association's pledge to address systemic racism within the investment industry. We will continue to work together with IMCO on this important issue over the coming year.

Proxy Voting

Voting proxies at shareholder meetings enable investors to convey their views to the Board of Directors and management of public companies.

In 2020, IMCO voted on OPB's behalf at 1,115 public company meetings in 47 markets. On OPB's behalf, IMCO voted against the management recommendation for 8.2% of agenda items at shareholder meetings, versus 9.3% in 2019. This included election of directors and advisory votes on executive compensation, among other items. IMCO supported 189 shareholder proposals related to ESG issues, including 13 proposals to improve disclosure and practices to address climate risks and 10 diversity-related proposals to report on diversity and the gender pay gap.

We supported 189 shareholder proposals related to ESG issues, including climate risk disclosure, diversity, human rights risk assessment, and board compensation or board effectiveness.

INVESTMENT HIGHLIGHTS

OPB's investment portfolio earned a one-year return of 7.0%, net of all expenses, which exceeded the benchmark return of 6.5%. Overall, we were pleased with this outcome, given the market and economic uncertainties related to the COVID-19 pandemic.

When the pandemic started and equity markets shuddered in March, OPB and IMCO worked closely together with an acute focus on maintaining the liquidity necessary to meet near-term cash-flow requirements, including pension payroll. As central banks and governments stepped in with emergency measures, society and businesses began to adjust to the impact of the pandemic and markets began to stabilize, IMCO was able to seize investment opportunities presented by the volatile markets, some of which came and went quickly. To the surprise of many, equity markets began to rebound over the summer despite ongoing business restrictions and economic difficulties.

Some asset classes, such as fixed income, weathered the storm well and posted strong returns. Other assets, such as retail real estate, struggled in 2020 due to the impact of the pandemic. OPB has significant exposure to Canadian retail properties, including suburban shopping malls. Amid lockdowns and shop closures, this segment of the real estate market felt the effects of closures and the abrupt shift to online shopping. To help reduce the effect of economic dislocation on one component of the portfolio, the real estate strategy is well into a multi-year effort to enhance diversification by, for example, investing in new market segments and outside Canada.

We are pleased with IMCO's investment strategies, which evolved out of the legacy investment strategies of the founding members and were collaboratively developed in 2019 with effect at the start of 2020. For OPB, this means we are able to access a new and growing asset class, the Global Credit portfolio – which consists of corporate and private debt managed separately from the fixed income (government bonds) asset class. This strategy evolved considerably during 2020 and IMCO was able to take advantage of the market dislocations when the pandemic hit.

Likewise, in private equity, IMCO made a number of new investments over the summer and fall. In all private market asset classes, IMCO is opting to focus on relationships by working with a smaller number of strategic external fund managers.

As mentioned above, fixed income assets generated strong returns in part because bond yields continued to decline in 2020. However, this is the same development that drove down our valuation discount rate and increased the PfAD which, together, increased the Plan's liabilities. The capital appreciation of our bond portfolio helped offset the increases in Plan liabilities.

For several years, we have maintained caution about the ability to continue to earn strong investment returns because asset valuations have been elevated (compared to historical norms).

Investment Activities	Why It Matters
Earned a net investment return of 7.0% in 2020 and a five-year compounded annual return of 7.2%. Since inception in 1990, our net rate of return stands at 8.1%.	OPB's diversified portfolio has performed well over the long term and supports Plan sustainability.
Continued to pursue investments in private markets – private equity, real estate and infrastructure, in line with our SAA targets.	These types of assets are expected to help generate the long-term returns required to pay future pensions.
Completed the disposition of $206.1 million worth of real estate assets (six properties).	Proceeds from the real estate dispositions are used to fund new investments and reposition the Real Estate portfolio with greater diversification.
Committed $607 million to four private equity strategic fund partners and made $33 million in direct investments flowing from key partners.	Committing significant capital with a smaller number of key partners helps generate efficiencies and direct investment deal flow.
Realized an investment within the Infrastructure portfolio in a Spanish-based electric distribution company and committed US$100 million to an Emerging Markets (EM) infrastructure fund with a key Fund partner.	Realized a net value add of €85 million with the asset sale. The EM fund commitment is OPB's first private market EM investment.
Underwent a significant transition of the legacy Canadian and global public equities managers.	New activities provided approximately 40 basis points in value add and better positioned the portfolios for success going forward.
Worked closely with IMCO to facilitate the launch of its first pooled fund, the $3.5 billion Canadian Public Equity pool.	OPB and other IMCO clients should benefit from operational and cost efficiencies as various types of assets are shifted into pooled funds (similar to mutual funds).

INVESTMENT PERFORMANCE

Our one-year return in 2020 (net of all expenses) was 7.0%. This exceeded the portfolio benchmark return primarily due to the strong performance of our investments in public and private equity as well as global infrastructure. This was offset by losses in our Real Estate portfolio.

The 2020 investment return was above our discount rate, which is the long-term investment return required to fund the Plan.

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, 2020 are as follows:

	1-year	5-year	10-year	Since 1990
Fund return	7.0%	7.2%	7.3%	8.1%
Benchmark return	6.5%	7.4%	7.2%	7.9%

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

Since pensions are accrued and paid out over decades, pension plans need to take a long-term perspective. They also need to calibrate their investment risk to their risk appetite, which is primarily a function of plan maturity. Since the PSPP is a very mature Plan, our investment approach emphasizes capital preservation and seeks to generate stable, long-term investment returns within an acceptable risk framework by minimizing unrewarded risk, reducing total risk, focusing on fundamental research and analysis to make investment decisions, and sourcing diversified investment opportunities that provide predictable cash flow.

On a five-year basis, our compounded annualized return of 7.2% was below the portfolio benchmark of 7.4% by 0.2 percentage points.

ASSET CLASS RETURNS AND BENCHMARKS

The aggregate performance of all asset classes determines our overall plan return.

We provide a comparison of the 2020 versus 2019 asset class returns below. The rates of return are net of all private markets investment fees and prior to public markets external investment management fees, including IMCO's management fees, custodial costs and OPB's internal operating expenses. These fees, costs and expenses amounted to 0.50% in 2020, compared to 0.51% in 2019 and 0.53% in 2018.

The benchmarks are defined in IMCO's investment policy statements and enable us to determine the value added by active investment management.

		2020		2019	
Asset Categories	Benchmark	**Actual**	**Benchmark**	Actual	Benchmark
Cash and Equivalents	FTSE Canada 91-Day T-Bill	**1.4%**	**0.9%**	2.2%	1.6%
Government Mid-Term Fixed Income	FTSE Canada Mid Government Bond	**9.7%**	**9.7%**	5.1%	4.9%
Government Long-Term Fixed Income	FTSE Canada Long Government Bond	**12.2%**	**12.1%**	12.0%	12.2%
Inflation-Linked Bonds (ILB)	Custom ILB Benchmark	**10.6%**	**12.1%**	8.1%	8.2%
Global Credit	Custom Global Credit Benchmark	**12.6%**	**6.1%**	N/A	N/A
Canadian Equities	S&P/TSX Composite Index	**2.9%**	**5.6%**	15.6%	22.9%
Global Equities	MSCI World Index (C$)	**16.5%**	**13.9%**	20.1%	21.9%
Emerging Markets Equities	MSCI Emerging Equity Index (C$)	**17.0%**	**16.2%**	14.9%	12.4%
Public Market Alternatives	Bloomberg Barclays US Treasury 7–10 Yr Hedged Index	**9.2%**	**10.2%**	N/A	N/A
Real Estate	Custom Real Estate Benchmark	**-19.2%**	**-10.1%**	3.1%	6.7%
Infrastructure	Custom Infrastructure Benchmark	**6.4%**	**-10.1%**	10.0%	9.6%
Private Equity	Custom Private Equity Benchmark	**36.0%**	**9.3%**	12.9%	13.5%

PUBLIC MARKETS INVESTMENTS

While the Plan's SAA included a slight shift from public assets to private assets in 2020, the strong returns in the public markets and the challenge of finding reasonably priced private assets to acquire resulted in a slight increase in the actual allocation to public markets investments to approximately 70% of OPB's net assets at December 31, 2020, compared to 69% at the end of 2019.

INTEREST-BEARING INVESTMENTS

Government Fixed Income – We invest in fixed income assets to diversify the overall OPB portfolio and hold government fixed income assets primarily to provide liquidity and offset the changes in the value of the Plan's liabilities. The Government Fixed Income portfolio, which includes nominal and inflation-linked bonds, provided a return of 9.7% for government mid-term fixed income, 12.2% for government long-term fixed income and 10.6% for inflation-linked bonds in 2020. The year-end market value was $6.6 billion. In comparison, these assets earned a combined 9.3% return in 2019 and were valued at $7.7 billion.

The largest component of the government fixed income assets was long-term nominal bonds, which returned 12.2%, thereby positively contributing to the Plan's return.

Global Credit – These assets are invested in a globally diversified portfolio of public and private credit securities. Investing in these assets gives OPB the ability to capitalize on market opportunities while seeking to gain exposure to a wide range of credit strategies. The Global Credit portfolio returned 12.6% in 2020 on a currency hedged basis, with a year-end market value of $1.8 billion. That compares to the legacy Private Debt portfolio, which had a return of 9.4% and a year-end value of $656 million in 2019. We continue to look for opportunities to add to this portfolio and had commitments to invest $757 million at the end of 2020.

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:

- The ***Canadian equity portfolio*** had a return of 2.9% in 2020, compared to a return of 15.6% in 2019. The year-end market value of the portfolio was $3.4 billion, up from $2.8 billion at year-end 2019;
- The Plan's ***Global equity portfolio*** generated a return of 16.5% in 2020, compared to 20.1% in 2019. At year-end 2020, the portfolio had a market value of $5.1 billion, up from $4.5 billion at year-end 2019; and
- The Plan's ***Emerging Markets equity portfolio*** return was 17.0% in 2020, compared to a return of 14.9% in 2019. As of December 31, 2020, the portfolio's market value was $4.4 billion, compared to $4.2 billion at year-end 2019.

OPB's Public Equity performance in 2020 was driven by significant strength in the Global equity portfolio, which exceeded its benchmark by more than 250 basis points, and in emerging markets equity, which outperformed the benchmark by more than 75 basis points. This was partially offset by underperformance in the Canadian equity portfolio, which underperformed the benchmark by more than 250 basis points. The Global equity portfolio benefited from favourable exposure to stocks with growth and quality characteristics, while the Emerging Markets equity portfolio was buoyed by small cap exposures. Conversely, in Canada, much of the underperformance was because the portfolio held a below-market weight in Shopify, which rose 178%.

PRIVATE MARKETS INVESTMENTS

Private market assets include real estate, infrastructure and private equity. On our behalf, IMCO invests in private markets through a combination of direct investments, fund investments and co-investments. Private market assets tend to be more illiquid and longer-term holdings than those in public markets. Because of this greater liquidity risk, returns are typically higher than those expected from public markets investments.

Over the long term, real assets (such as real estate and infrastructure) help partially protect the Plan from public markets volatility. A larger proportion of their returns are generated from predictable, ongoing cash flows versus capital appreciation. Real assets also provide a partial hedge against inflation. Private equity offers attractive risk-adjusted returns and allows improved diversification by asset type, industry and geography.

As of December 31, 2020, private markets investments accounted for 30% of OPB's net assets, compared to 31% at year-end 2019. The net market value of these investments at the end of 2020 was $9.2 billion, compared to the $9.2 billion at year-end 2019.

REAL ESTATE

The Fund invests in real estate in order to obtain strong cash-flow generation, relatively stable returns and a partial hedge against inflation. These characteristics are a good match for the Plan's long-term pension liabilities.

OPB's Real Estate portfolio is made up of:

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

Results are presented net of financing. OPB has previously issued private bonds to finance the addition of high-quality real estate assets.

Prior to 2020, the 10-year rate of return in our real estate portfolio was 9.3%. However, in 2020, the Real Estate portfolio returned -19.2%, which was also much lower than the 3.1% return in 2019 (all returns are on a currency hedged basis).

Our Real Estate investments as of December 31, 2020 stood at 13.2% of OPB's total investment portfolio (compared to its allocation in the SAA of 21%), compared to 17.2% in 2019. At year-end, OPB also had commitments to acquire an additional $1.6 billion in real estate funds and co-investments, compared to approximately $1.3 billion 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 2020 was $4.1 billion, compared to $5.1 billion a year earlier.

The Real Estate portfolio was hurt by valuation write-downs in 2020, mainly related to the portfolio of direct investments in Canada. Although virtually all assets declined in value, the write-downs were primarily driven by retail assets which were the hardest hit by COVID-19, offset slightly by development gains from the Toronto office projects. While the fund investments in Canada held steady, the U.S. and European funds also produced negative returns due to the high concentration of assets that were written down primarily due to COVID-19.

INFRASTRUCTURE

OPB's Infrastructure portfolio consists of investments in assets that provide an essential service to the regions in which they operate, such as telecommunications, transportation and utility assets. Infrastructure assets are attractive because they provide predictable and ongoing cash flow, stable returns during periods of equity market volatility and some degree of inflation protection. Over the long term, these characteristics provide a good hedge against the Plan's pension liabilities.

The portfolio is diversified with respect to revenue source, geography and industry sector. On our behalf, IMCO invests in infrastructure directly, alongside infrastructure funds or strategic partners, and through external managers.

With infrastructure investments at 8.3% of OPB's total investment portfolio as at December 31, 2020, the Infrastructure portfolio is below its target allocation of 11.5%.

On a currency hedged basis, the Infrastructure portfolio generated a 2020 return of 6.4%, compared to 10.0% in 2019. The portfolio generated $197 million in income during the year, with a year-end market value of $2.6 billion, a $50 million increase over the market value at the end of 2019.

The major contributor to the Infrastructure portfolio performance in 2020 was the realization of an investment in a Spanish-based electric distribution company. Other contributors included fund investments in the telecommunication and utility sectors that demonstrated strong operational and financial performance and faced little disruption due to COVID-19. The major detractors over the year were investments in the energy and transportation sectors, which experienced operational and financial issues related to COVID-19.

PRIVATE EQUITY

Private equity consists of investments in private companies or entities that are not publicly traded on a stock exchange. Private equity returns are generated principally from capital appreciation over the mid to long term. Private equity is not as liquid as public equities, and returns are expected to be higher to compensate for the added liquidity risk. With OPB's long-term investing horizon, private equity is an important source of diversification.

Our Private Equity portfolio returned 36.0% in 2020, compared to 12.9% in 2019, on a currency hedged basis. The portfolio had a year-end value of $2.5 billion, compared to $1.8 billion at the end of 2019.

The 8.2% allocation to Private Equity is slightly below our 2020 target allocation of 8.5%. Unfunded commitments were approximately $1.3 billion as at December 31, 2020, compared to $896 million at the end of 2019.

The Private Equity portfolio proved resilient through COVID-19 with fund investments, in aggregate, contributing a positive return, while the portfolio of direct investments drove outperformance. Specifically, across the direct investments, the initial public offering (IPO) in Q3 2020 of a manufacturing company of high-performance PC components was a significant contributor to outperformance.

Since inception in 2012, the Private Equity portfolio has generated a compounded annual return of 20.8%.

INVESTMENT RISK MANAGEMENT

A carefully negotiated legislative, regulatory and contractual framework clearly lays out IMCO's duties, responsibilities and obligations to OPB, as well as 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 as well as best practices for Canadian public sector managers.

Investment risk management is integrated into the investment activities and decision-making process at IMCO, and is overseen by its Chief Investment Officer and Chief Risk Officer (CRO). The CRO is expected to provide strong, independent risk management leadership within IMCO, and oversees IMCO's investment risk and enterprise risk management functions, including all risk modelling and management systems, as well as risk-related research. IMCO named a new CRO in 2020, promoting Ben De Prisco to the role. He had previously been Senior Vice-President, Investment Risk.

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 risks.

Climate Risk

OPB believes that climate change poses a material and increasing risk to, as well as significant opportunities for, a range of assets. As stated in our updated Investment Beliefs, we support the consideration of investments that would help reduce greenhouse gas emissions and slow the rise in global temperatures.

IMCO incorporates climate risk assessment in the investment due diligence process for every asset class. In 2020, IMCO also initiated climate scenario analysis and stress testing to manage climate-related risks and opportunities in line with the Task Force on Climate-Related Financial Disclosures (TCFD) recommendations.

Working together with IMCO, we expect to materially advance work on understanding, measuring and managing climate risk in 2021 and beyond.

INVESTMENT OUTLOOK

Over the long term, OPB's investment portfolio posted a strong 10-year annual compounded return of 7.3%. Given current asset valuations, which continue to be elevated as in recent years past, the next decade is unlikely to deliver the same level of return that public equities, fixed income securities and private markets investments (real estate, infrastructure and private equity) have generated over the past 10 years.

Relatively high valuations and low yields in key asset classes are the major factors underlying a subdued outlook. Historically, high asset prices relative to fundamentals have reliably predicted lower future returns.

With the COVID-19 pandemic and emergency fiscal and monetary response from governments around the world, policy-makers abandoned fiscal discipline and incurred massive deficits to support their people and economies. It is unclear whether this will create new market dynamics, leading to higher rates of inflation as just one example. It is possible that cyclical assets, such as commodities, could rise and commodity currencies like the Canadian dollar could outperform other global currencies, including the U.S. dollar. Our investment manager, IMCO, monitors and plans for a wide range of potential economic and market scenarios.

Service Excellence

In a year defined by significant challenges, OPB focused on the safety of our employees and clients, while managing to deliver outstanding and uninterrupted service. 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 91,200 members need to make sound pension decisions in the context of their unique financial circumstances and retirement goals.

In the face of the coronavirus pandemic, it was critical in 2020 to maintain pension services to Plan members without disruption. We determined in March that the safest and best way to serve our clients, and keep both member and employee populations safe, was to close our office and have our employees provide services from home.

We shifted OPB's client care operations from our downtown headquarters to home offices, kitchens and basements. We were able to do this seamlessly thanks to the modernization of our information technology over the last five years and the adaptability and dedication of our employees and business partners.

Pension payments were made on time throughout the year. We worked closely with clients who were still receiving physical pension cheques to shift them to direct deposit where possible. To facilitate remote service delivery, we fast-tracked electronic service delivery enhancements, including secure electronic document uploading and e-signature functionality for staff approvals and applicable client transactions. These and other online capabilities facilitated the delivery of remote services during the pandemic and will have lasting benefits.

Naturally, we adapted our usual service methods due to COVID-19. Instead of meeting clients in person to advise them on important pension and retirement decisions, we provided direct service by phone, mail or email, and now offer advisory services through secure video conferencing.

Despite the initial challenges in adapting to working from home, our client satisfaction scores increased in 2020. Our overall client service score, as measured by an independent external survey firm, rose to 8.8 out of 10, compared to 8.7 in 2019. This is a tremendous result in a highly unusual year, and we salute our employees for never losing sight of our clients' needs.

What We Did	**Why It Matters**
Earned a total service score of 90 out of 100 from CEM Benchmarking, ranking OPB second among Canadian peer pension plans (up from third in 2019) and fourth globally (up from eighth) among its universe of leading global pension plan administrators.	We are consistently recognized as a world-class service leader, while operating efficiently and managing a more complex plan than many peers.
Implemented a remote Client Care Centre in March without service interruption and maintained hours of operation as employees shifted to working from home.	Despite the pandemic, we continued to offer our members the information, support and services they need to make sound pension decisions.
Delivered six COVID-related communication updates, including two cybersecurity advisories to members.	We worked to keep our members safe during the pandemic and up to date on developments affecting them.
Met virtually with 3,407 members in advisory sessions to help them navigate key pension decisions in their lives.	We adapted our service because of the pandemic, continuing to provide expert, unbiased advice to members on how pension benefits fit into their larger financial picture.

What We Did	Why It Matters
Client satisfaction with our advisory services increased to 8.8 out of 10.	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 27% increase in retirement transactions and a 19% increase in services to pensioners.	We are committed to maintaining world-class service to members, no matter where we work, even as Plan membership grows.
Received a satisfaction survey score of 8.7 out of 10 in 2020 from participating employers, our highest rating to date, up from 8.5 in 2019.	Improvement in recent years indicates the strength of our partnerships with employers. They help ensure that we have the information and data we need to provide excellent member service.

CLIENT SERVICE

At OPB, we take pride in delivering exceptional service to our clients, at a reasonable cost. Services are tailored to each member's unique financial and retirement circumstances.

We measure our service by two key metrics: our CEM Benchmarking Service Score and Ranking, and our Client Satisfaction Survey Score. Both metrics indicate that our performance was outstanding in 2020, particularly in light of the challenges of COVID-19.

- Our CEM Service Score was 90/100, up from 88/100 for the prior year. CEM ranked us second among our Canadian peers and fourth among its universe of leading global pension plan administrators.
- Our overall client satisfaction score, as measured by an independent external survey firm, increased to 8.8 for 2020. Our employer satisfaction score improved to 8.7 from 8.5 in 2019.

We saw changes in the demand for various types of transactions in 2020. For example, we managed a 27% increase in retirement transactions and a 19% increase in services to pensioners, such as statement inquiries, beneficiary updates and administering insured benefits. There was a 34% drop in members applying to purchase service and a 42% decline in members leaving the Plan before retirement.

Our total call volume declined 4% from 2019, and was the lowest call volume seen in the past five years (likely due to increased self-service by members using online tools and services). We continued to respond quickly to client calls, with 99% of calls answered within 30 seconds.

Advisory Services

At OPB, we feel strongly about the importance of retirement and financial planning education. OPB has provided advisory services for our members since 2015. These services help our clients make well-informed pension decisions and are very popular with members seeking to understand how their pension supports their financial goals and life plans. This unique service offering is attractive to prospective and current provincial employees and supports employer talent acquisition.

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 financial planning, we believe our staff should have industry-recognized credentials. During 2020, our in-house team of CFPs helped more than 3,400 members to understand how their pension decisions fit into their broader financial and life circumstances. Demand for advisory services declined slightly in 2020 from 2019, when we had more than 3,700 advisory meetings.

Feedback from members who have used our advisory services and tools continues to be very positive: almost three-quarters of our members (71%) continued to rate their satisfaction with their OPB Advisor a 9 or 10 out of 10. In addition:

- 91% are likely (and 81% “very likely”) to recommend OPB’s financial advisory service to another member of the PSPP;
- 86% found the information and guidance provided helpful; and
- 85% of clients said the advisor “provided valuable insights that they hadn’t considered”.

Education and Financial Literacy

OPB exists to provide value and retirement security for our members, primarily by paying pension benefits. Our client education sessions originally focused on informing members about the Plan and its benefits. In recent years, these efforts have evolved to help members improve their retirement knowledge and financial literacy.

We provide 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.

In spring 2020, to maintain employee and client safety, we made the pivot to webinars instead of in-person advisory workshops. As our employers turned their focus to navigating the pandemic, we had a substantial decrease in requests for pension sessions.

- We delivered 54 member presentations (12 in person pre-pandemic and 42 online) that reached 3,145 members (compared to 107 presentations in 2019)
- Two additional staff were certified as Registered Retirement Consultants® (RRC®) in 2020, a program offered by the Canadian Institute of Financial Planning. The Client Care Centre is the first point of contact for clients; all staff in this role are required to obtain the RRC® certification.

We continued to offer advisory articles in our newsletters and on our 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 aspects of personal finance.

Digital and Online Services

Before 2020, members were increasingly expecting to be able to exchange information, complete transactions and receive their communications online. With the COVID-19 pandemic keeping many people at home, we saw a spike in digital and online service demand.

More than 65% of our active members and 51% of retired members are registered for e-services. Both figures increased in 2020 compared to 2019.

Our e-services traffic jumped 11% in 2020 to its highest level, with more than 87,000 logins, compared to 78,700 in 2019. Approximately 20% of e-services logins were from a mobile device, down from 25% in 2019, likely a result of members working primarily from home during the pandemic. Popular member services included obtaining pension estimates, using retirement planning tools, and viewing annual pension statements or retired member statements.

For the first time, we offered the ability for members to securely upload documents. The introduction of this new feature was fast-tracked due to COVID-19. More than 2,000 document upload transactions took place.

We continued to run educational articles on cybersecurity in 2020 to help members better understand and implement best practices in their daily activities.

EMPLOYEE ENGAGEMENT

Closely aligned with OPB's Vision 2025 and Strategic Plan is our commitment to fostering a workplace culture of diversity and inclusion, where employees feel connected and supported. We believe in continuous, incremental improvement, and support innovation through collaboration and professional development.

In 2020, our focus was on ensuring employees had the technical and management supports they needed to work effectively from home during the pandemic, including access to mental health and well-being resources. During our shift to remote work, we bolstered employee communications through new virtual collaboration tools, town halls, newsletters, curated intranet content, webinars and expanded e-learning offerings. Employee engagement and the broader employee experience is measured through pulse surveys, new hire check-ins and other feedback mechanisms. Our survey scores consistently demonstrated positive results – in the upper-80 and lower-90 percentiles.

OPB shifted to a virtual recruiting process in March (i.e., a virtual interview and selection process for new employees) and developed a new virtual onboarding and orientation process to welcome new hires and set them up with equipment. In-person employee training and coaching also shifted to online formats.

Diversity, Equity and Inclusion

We believe that diversity, equity and inclusion make us a stronger, more agile and more successful organization.

In 2020, we took additional steps to deepen our understanding of racism, discrimination and unconscious bias to identify any biases and inclusivity barriers within our organization and begin developing a meaningful action plan to address them. We joined the Canadian Centre for Diversity and Inclusion, and all our leaders and staff completed mandatory training sessions on diversity and inclusion and unconscious bias.

OPB also introduced anonymized resumé screening to help reduce bias in our hiring process. As we continue to develop our action plan, we will be looking to engage with our clients and other stakeholders to understand where we might improve. Diversity and inclusion training will continue to be a mainstay of employee development.

Our President & CEO signed The BlackNorth Initiative CEO pledge against anti-Black systemic racism, and we engaged our investment manager, IMCO, in discussions around diversity and inclusion within our investment portfolio. IMCO included diversity and inclusion in its core ESG Beliefs and has signed on to the Responsible Investing Association's pledge to address systemic racism within the investment industry.

PENSION MODERNIZATION

Planning for 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 must also 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 IT risk mitigation program that will enhance our data security and our clients' experience. It will allow us to provide the services clients want and need, and to improve our operational effectiveness by updating and re-engineering our business processes, systems and tools.

We developed a multi-year modernization roadmap in 2019 that identified and prioritized the parts of our pension business processes and systems that must be modernized.

Accelerating some aspects of the modernization program made a vital contribution to meeting the COVID-19 challenge in 2020. For example, we completed the shift of core software and services to the cloud, except for production services, which will transition in the next year. The move to the cloud, an essential step in pension modernization, was one of the factors that made our transition to a work-from-home model so seamless: when staff set up their home offices, the software, functionality and data needed to do their jobs was available via our secure network.

We also expanded digital functionality through electronic signatures and secure document upload capability. While these were already part of our modernization plan, we launched them earlier than originally planned so we could support our clients, staff and employers safely during the pandemic.

The first project in our modernization program is the upgrading of the member and employer portals. These will no longer be supported by the software vendor at the end of 2021. As the digital "front door" of OPB, they must be updated to reduce the risk of security breaches and the possibility of platform instability or failure. Updating these portals will also enhance accessibility and improve the mobile experience for clients, as well as position us to enhance our digital services in the years to come.

We issued a request for proposals in 2020 to design and build the replacement portal solution or solutions. We selected the vendors for the first phase of the program this year and began the development and implementation phase.

Despite the challenges created by the global pandemic, we made significant progress on advancing our member and employer portals.

With new and improved technology, OPB's online services will be more user-friendly and accessible, more efficient, and more secure. Improved technology will not only reduce risk – it will advance our digital strategy.

In recent years, as we have adapted our systems to support plan mergers, these consolidations have provided valuable insight into the flexibility and adaptiveness we will need to build in as we modernize our systems.

OUTSTANDING STAKEHOLDER RELATIONS

OPB works closely with the Plan Sponsor to ensure it has the information needed to make decisions on issues that impact the Plan. We also conduct regular and ongoing discussions with bargaining agent groups to keep them informed about the health of the Plan and emerging trends and issues, and to ensure they understand the value of the Plan.

We 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, the Ontario Bar Association and the Canadian Institute of Actuaries.

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 2020, we:

- delivered 54 member presentations (12 in person and 42 online) to 3,145 participants;
- continued to provide members with information about the value of their pension, Plan provisions and key decision points, through our website, newsletters and interactions;
- held our annual Agency Forum online (roundtable meeting), where we discussed pension-related topics with more than 50 employer representatives; and
- facilitated 18 employer training sessions.

Members’ use of our e-services portal increased to an all-time high (11% increase), though overall web traffic to our public website was down (196,700 visits in 2020 versus 198,300 in 2019). Mobile traffic in 2020 declined as a proportion of overall traffic, with 28% of website visitors accessing opb.ca via smartphone or tablet versus 32% in 2019. We expect this was because more members were working from home during the pandemic and accessing our sites from their computers.

Overall transactions through the employer portal dropped 16% in 2020 compared to 2019, a year when transaction volumes spiked due to the Ontario Public Service voluntary exit program. In 2020, roughly 10,000 transactions were submitted through the employer portal.

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 2020 was 0.50% (or 50 cents per $100 of average net assets available for benefits). This compares to 0.51% in 2019.

Our objective is to keep our expense ratio below 65 bps.

In 2020, pandemic-related expenses increased OPB’s actual operating costs compared to budgeted costs. If the COVID-19 virus had not emerged, our operating expenses would have been under budget by approximately 1%; instead, costs incurred solely due to COVID-19 drove our operating expenses over budget by approximately 1%.

In recent years, with members both joining and leaving the Plan, the outsourcing of our asset management to IMCO, and new regulatory requirements, OPB has managed costs and expenses while dealing with a tremendous amount of change.

MANAGING COSTS

At OPB, we are committed to disciplined cost management and we strive to stay within budgeted expenses each year.

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.

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 2020, these two costs were 0.36% (or 36 cents per $100) of average net assets available for benefits, compared to 0.37% (or 37 cents per $100) in 2019. These fees are paid from total investment income. The "investment management and related fees" disclosed in Note 6 to the financial statements include "transaction costs". These costs are already reflected in our gross returns and, accordingly, are not deducted for purposes of calculating the basis point ratios of investment fees.

Operating Expenses – OPB has direct operating expenses, which are the internal costs associated with managing the pension plan, the pension administration and the investment monitoring/oversight activities. These costs represent 0.14% of the average net assets available for benefits in 2020, compared to 0.14% in 2019.

Excluding our pandemic-related expenses of $852,000 in 2020, the cost of our operations would have been below budget by approximately $400,000 or 1%.

The above sets of costs add up to a 0.50% expense ratio in 2020, compared to 0.51% in 2019. 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 2020 return net of all expenses was 7.0%. 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?"

Over the long term, we need to earn net investment returns that meet the discount rate to maintain Plan sustainability.

Contributions

Contribution rates for the PSPP are set by the *Public Service Pension Act*, *1990*.

As of April 1, 2020, members contributed 7.4% of their salary below the Year's Maximum Pensionable Earnings (YMPE) and 10.5% of their salary above the YMPE ($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 8.545% of salary up to the YMPE and 11.645% of salary above the YMPE. These higher contribution rates are matched by the employer.

During 2020, contributions for all OPB members and employers totalled $1,105 million, compared to $889 million in 2019.

Pensions Paid

OPB made pension payments totaling $1.37 billion in 2020, up from $1.28 billion in 2019.

The increase is attributable to a 2.0% inflation protection adjustment (Escalation Factor) that was applied to pensions on January 1, 2020. The remainder is attributable to increases in the number of pensioners and in the average pensions 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 304/16: Executive Compensation Framework, introduced in September 2016. The regulation sets out how all employers designated under the *Broader Public Sector Executive Compensation Act, 2014*, including OPB, must establish and post compensation programs for executives. The program must include the compensation philosophy, salary and performance-related pay caps, comparative analysis details, and a description of other elements of compensation.

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

Base salaries and incentive pay for executives in designated positions are within OPB's approved Executive Compensation Program. A new regulation, 406/18: Compensation Framework, 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	2020	$ 526,165	$ 279,000[4]	$ 638	$ 805,803
	2019	$ 526,165	$ 271,310[5]	$ 662	$ 798,137
Valerie Adamo, Chief Technology Officer	2020	$ 323,093	$ 121,576	$ 440	$ 445,109
	2019	$ 323,093	$ 121,490	$ 459	$ 445,042
Armand De Kemp, Vice-President, Finance	2020	$ 205,912	$ 66,118	$ 326	$ 272,356
	2019	$ 205,912	$ 60,235	$ 342	$ 266,489
Christian Kautzky,[6] Chief Investment Officer	2020	$ 338,836	$ 129,625	$ 455	$ 468,916
	2019	$ 226,760	$ 91,573	$ 983	$ 319,316
Peter Shena, Executive Vice-President & Chief Pension Officer	2020	$ 342,479	$ 136,388	$ 459	$ 479,326
	2019	$ 342,479	$ 128,779	$ 479	$ 471,737

1 Base salary is based upon amounts paid during the year. In 2019 and 2020, there were 26 bi-weekly pays.

2 Short-term incentive earned is paid in March of the following year and is within the established Executive Compensation Envelope as per Regulation 406/18: Compensation Framework.

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

4 In recognition of the current financial environment, Mr. Fuller elected to reduce his 2020 incentive payment to ensure his total compensation was no more than 1% higher than his 2018 and 2019 total compensation.

5 Mr. Fuller returned a portion of his 2019 short-term incentive payment to ensure his total compensation did not increase from the previous year in recognition of the current financial environment in Ontario.

6 Mr. Kautzky was appointed to CIO on April 29, 2019. Amounts shown in 2019 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 take actions that mitigate or 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 focus on Safety, Service and Sustainability.

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 material risks, unforeseen and unprecedented events will occur – the COVID-19 pandemic is a prime example. We maintain a robust ERM framework to ensure significant current and emerging risks and opportunities are identified and managed; appropriate risk mitigations are developed and implemented; regular monitoring is conducted to evaluate the mitigation measures; and risk activities are reported on a regular basis.

OPB adopts an enterprise-wide approach that involves all areas of our organization and all levels of staff. Our goal is to ensure key risks are identified in a timely manner and managed within acceptable levels.

CATEGORIES OF ENTERPRISE RISK

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.

RISK MANAGEMENT IN THE PANDEMIC

Business continuity and key operational challenges across the organization were a key focus in 2020, as was the health, safety and well-being of employees and clients. Staff from across OPB were agile, vigilant and responsive to changes in the COVID-19 environment while adhering to the advice from public health authorities.

Our ERM focus areas include plan sustainability, investment strategy, climate change, pension modernization, data governance and succession planning.

We focused extra attention on risks related to the pandemic, including workforce health, safety and well-being; maintaining a strong corporate culture; elevated risk of frauds, scams, cybersecurity attacks, threats to privacy and confidentiality; and stakeholder relations due to remote work.

In 2020, some key risk management initiatives included the following.

- Conducted a high-level assessment of OPB's ERM program maturity and identified multi-year priority areas of focus for our risk management function.
- Prepared a COVID-19 focused risk registry to monitor and manage any new risks and impacts to existing risk profiles.
- Integrated risk management within business planning process.

Due to a heightened risk of fraud in the COVID-19 crisis environment, our Finance and Risk teams completed a fraud risk assessment and shared results with Board members. No new risks were identified and all mitigations in place were satisfactory and appropriate.

In the remote-work environment, we remained vigilant to privacy and security of our data and networks. We actively monitor network activity and third-party risks to assess threats and address risks in the remote work environment and the broader security landscape. We enhanced reporting through a new cyber dashboard. After a remote work assessment, we enhanced OPB's Data Loss Prevention program to include Office 365 products and services; expedited several key patches to address identified vulnerabilities; and conducted regular privacy and security awareness activities and training to promote good practices while employees work from home.

Deloitte LLP completed an advisory review engagement for any gaps in our internal controls in the work-from-home environment. The results indicated that OPB has effectively identified and adequately managed or mitigated emerging operational risks, and we are implementing recommendations to further strengthen internal controls.

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.
2. **Investment performance.** We rely on 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 monitoring program to oversee our relationship with IMCO. We receive regular reporting on requirements under the Investment Management Agreement (IMA), 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.

As described earlier (see Risk Management in the Pandemic), OPB's potential exposure to cyber-threats and fraud increased due to the remote-work environment in 2020. We engaged Deloitte LLP to perform a fraud risk assessment and created a new cybersecurity dashboard, among other mitigations.

OPB's information technology and security infrastructure remained strong and digital enhancements are ongoing. Security education and awareness measures continued in 2020 with organization-wide phishing exercises and online information security training on a regular basis.

We implemented a new web-based system that meets a range of human resource (HR) administration needs. It processes and maintains records of HR transactions such as payroll, employee benefits, time and attendance, in one place.

Legal Risk

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

Internal Audit

We routinely conduct internal audits of key business functions and operational processes. The internal audit function reports to the Board of Directors through the Audit Committee. The internal audit plan is approved by the Audit Committee. In 2020, we concentrated on performing a review on any gaps in our internal controls as a result of the work-from-home environment.

Privacy, Information Security and Compliance

Like other public institutions and financial services organizations, OPB carefully manages risks related to privacy, information/cybersecurity and compliance.

We continue to invest in and monitor privacy and security controls. OPB's transition to a remote-work environment during the COVID-19 pandemic had the potential to introduce new risks, and a remote-work assessment was completed to identify and address areas requiring attention. These were effectively managed with the support of our employees and business partners. We remained vigilant to internal and external threats to the privacy and security of our data and networks. We enhanced reporting through a new cyber dashboard; supplemented our existing Data Loss Prevention program to include Office 365 products and services; expedited several key patches to address identified vulnerabilities; and conducted regular privacy and security awareness activities and training to promote good practices while employees work from home.

We maintain an enterprise-wide compliance program using a combination of policy maintenance to capture changes to legislative and regulatory requirements and government directives, policy awareness and training (including annual acceptance of our Code of Conduct & Ethics), and ongoing review of reputational reporting and attestations.

Project Delivery

A large program or individual projects can introduce both business and financial risks. We monitor projects using governance processes and regular reporting. This helps provide assurance that internal controls and project procedures are being followed. We also conduct project-specific risk assessments throughout a project's life cycle to identify and mitigate potential uncertainties, threats and vulnerabilities.

In 2020, management adopted a balanced approach when prioritizing initiatives and allocating resources. We expanded our program and project management governance approaches and implemented a Portfolio Management tool to support our oversight of project planning, resource management and spending. We also augmented project roles with experienced staff including project managers, a program manager and a project director.

A review, assessment and prioritization of business plan initiatives was performed to ensure we were well positioned for the scope and work ahead. To enhance our project management capabilities, we implemented Planview PPM Pro to assist with project portfolio management including scheduling, resource allocation and time management. This cloud-based software supports project management processes across the project life cycle. It will be used to capture project schedules and resource requirements for business plan initiatives.

What We Did	Why It Matters
Conducted a high-level assessment of OPB's ERM program maturity, seeking opportunities to advance the maturity of our program and processes.	Enterprise risk management is constantly changing and continuous improvement is important. The assessment identified multi-year priority areas that will improve our risk management function.
Engaged Deloitte LLP to review our internal controls in the work-from-home environment.	Third-party review provided comfort that management had effectively identified and adequately managed operational risks and pointed out areas for stronger controls.
Performed business impact analysis to gauge exposure and identify vulnerabilities and created a COVID-19 related risk register.	Enabled OPB to monitor and manage any new risks, or changes in impact to existing risks, as a result of the pandemic.
Enhanced our regular cybersecurity education and awareness measures with increased frequency of organization-wide attack simulations and mandatory training.	Systems and cybersecurity risks rose amid the COVID-19 pandemic. Ongoing employee awareness and training helps mitigate these risks. We also educate Plan members on these risks.
Continued in-depth planning, with a balanced approach to prioritizing initiatives and allocating resources to our multi-year pension modernization program. We reviewed and prioritized business plan initiatives.	We need to be well positioned to manage the scope of pension modernization initiatives. When complete, they will help to improve client and stakeholder experiences, while supporting our digital strategy and improving data security.

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 oversight of 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.

A series of documents define our organizational structure, roles and responsibilities, and governance practices. Collectively referred to as the governance documents, these documents include a General By-law, which incorporates Governance Principles and Statements of Mandate and Authority, and a Code of Conduct & Ethics.

Our governance documents 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. The Board has delegated to management the responsibility for the day-to-day operations required to administer the Plan and monitor the Fund's investment manager.

The Board has appointed 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 delegated specific responsibilities to five committees of the Board: the Governance, Investment, Audit, Pensions and Human Resources committees.

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

- approves OPB's strategic plan, business plan and budget, including monitoring their implementation and ensuring they are aligned with the Plan Sponsor's priorities and directives;
- ensures that management has identified and is managing risks;
- conducts performance and compensation reviews for the President & CEO;
- identifies and makes recommendations and/or decisions, as appropriate, regarding the necessary talent, skills and experience required for the Board and/or executive succession;
- 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, including government directives and policies.

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.

In 2020, OPB signed The BlackNorth Initiative, a commitment made by industry leaders across Canada to end anti-Black racism by removing systemic barriers and reshaping corporate structures to create better representation for Black Canadians. As part of the BlackNorth pledge, OPB committed to create and share strategic inclusion and diversity plans with the Board. The CEO is accountable to our Board for the development and evaluation of concrete, strategic action plans to prioritize and drive accountability around diversity and inclusion.

We made diversity and inclusion education and unconscious bias training a priority for the Board, and we will receive quarterly updates from management on OPB's diversity and inclusion action plan. The Board and leadership team are committed to creating an inclusive and safe environment for our employees, clients and stakeholders.

During the COVID-19 pandemic, the OPB Board of Directors, and its constituent committees, met a total of 34 times.

Board of Directors

Effective governance and oversight demands a committed board with the right mix of skills and expertise to govern effectively.

OPB Board members are appointed by the Ontario Lieutenant Governor in Council.

The OPB Board is at full complement with the appointment of three new individuals to the OPB Board in 2020: Earl Dumitru, Suzann Pennington and Rob Ritchie. Biographies of all Board members are below.

Board Members

Geri Markvoort (Chair)

Geri Markvoort is Chair of the Ontario Pension Board and a member of the Human Resources, Investment 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.

Patti Croft (Vice-Chair)

Patti Croft is Vice-Chair of the Ontario Pension Board, as well as Chair of the Investment Committee and a member of the Human Resources and Governance Committees. She is also a member of the Ontario Teachers' Pension Plan Board, where she is Chair of the Governance Committee, as well as a member of the Investment and Human Resources and Compensation Committees. She is the former Chief Economist of RBC Global Asset Management. Her community involvement has included the Oakville Humane Society and the Oakville Fairshare Food Bank. She is currently providing pet therapy visits in Toronto through the St. John Ambulance program. 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.

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 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. Since 2015, he has been the President and Chief Executive Officer of AMAPCEO – Ontario's Professional Employees (15,000 members). 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 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. Dave has attained his ICD.D designation from the Institute of Corporate Directors, and he has completed SHARE's Pension Investment and Governance certification and Trustee Master Class certification.

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 Easter Seals Ontario. Lynne is a Fellow Chartered Professional Accountant of Ontario and received her ICD.D designation from the Institute of Corporate Directors. She also holds a Master's in Business Administration from the Schulich School of Business and a Bachelor of Science from the University of Toronto.

Earl Dumitru
Earl Dumitru is a member of the Pensions and Governance Committees. He has been a legal and policy advisor with the Government of Ontario for more than 20 years. He brings breadth and depth in legal practice attained in increasingly complex and senior portfolios under five governments with diverse missions. Some notable files include liability reform, amendments to the *Class Proceedings Act*, developing a new *Legal Aid Services Act*, agency and industry governance, and oversight of capital projects. Earl has also served on the Board of the Association of Law Officers of the Crown (ALOC) for over 10 years and was President of ALOC from 2014–2018. As President, his responsibilities included collective bargaining, managing staff, budgets and audits, day-to-day operations, and developing a sustainable organization capable of meeting its fiduciary responsibilities to its members.

Elana Hagi
Elana Hagi is Chair of OPB's Pensions Committee and a member of the Audit and Pensions Committees. She is a Principal and a senior pension consultant in Mercer's Wealth business. Elana has 25 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.

Suzann Pennington
Suzann Pennington is a member of the Investment and Audit Committees. She is a retired senior finance executive with over 30 years' experience in strategic planning, complex investments, M&A, risk management and ESG in public and private companies. As Managing Director and Chief Investment Officer of CIBC Global Asset Management, Suzann was responsible for over $110 billion in financial assets. She has held a number of senior finance positions, including Vice-President of Mackenzie Financial, and was a founding partner of a mutual fund company. Suzann holds a Bachelor of Mathematics degree from the University of Waterloo, a Chartered Financial Analyst designation and the ICD.D designation from the Institute of Corporate Directors.

Rob Ritchie

Rob Ritchie is a member of the Investment and Audit Committees. He is the Chief Executive Officer of a defined benefit plan, with over 35 years of experience in the insurance, pension and financial services industries. He spent 27 years with a major Canadian life insurance group with both domestic and international assignments and has extensive experience in investment management and delivering total return and liability-oriented investment solutions. He also has a strong track record of building and operating successful business units and recruiting and developing high-performing teams. Rob holds a Bachelor of Business Administration from Wilfrid Laurier University and an MBA from the University of Toronto.

BOARD TERMS AND REMUNERATION

Appointee Name	Appointment Start Date	Appointment End Date	Position	2020 Total Remuneration
Geri (Geraldine) Markvoort	1/5/2015	2/1/2023	Chair of the Board	$77,034
Patti Croft	5/1/2013	5/29/2022	Vice-Chair	$52,179
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	$36,108
Earl Dumitru	7/9/2020	7/8/2023	Member	Nil[1]
Elana Hagi	1/17/2019	1/16/2022	Member	$36,108
Suzann Pennington	6/25/2020	6/24/2023	Member	$17,228
Rob Ritchie	7/16/2020	7/15/2023	Member	$16,520

1 Representing a bargaining agent.

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)	**2020**	2019	2018	2017	2016
Opening net assets	**$ 29,338**	$ 26,561	$ 26,482	$ 24,381	$ 23,075
Investment income (loss)	**2,052**	2,724	361	2,531	1,751
Contributions	**1,106**	889	887	804	765
Transfers from other plans	**90**	644	234	137	85
	3,248	4,257	1,482	3,472	2,601
Pension payments	**1,368**	1,275	1,211	1,175	1,099
Terminations	**177**	166	156	148	146
Operating expenses	**41**	39	36	48	50
	1,586	1,480	1,403	1,371	1,295
Closing net assets	**$ 31,000**	$ 29,338	$ 26,561	$ 26,482	$ 24,381

Annual net rate of return	**7.0%**	10.2%	1.3%	10.3%	7.6%

Looking Ahead

OPB will continue to be guided by our Vision 2025 statement: to be a premier pension delivery organization and a trusted advisor to all our stakeholders.

When we developed Vision 2025, OPB determined our dual strategic focus would be on **Sustainability** and **Service Excellence**. The COVID-19 pandemic created another critical focus: the **Safety** of our employees and clients.

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

SUSTAINABILITY

For institutional investors and, particularly, for retirement plans, the impact of the COVID-19 pandemic will linger. We expect it could depress economic growth, investment returns and long-bond yields for some time. This could exacerbate long-term trends the Plan was facing prior to 2020.

We will continue to execute several initiatives to support the sustainability of the Plan. We are reviewing our investment strategy in partnership with our investment manager, IMCO, with a view to generating incremental returns while staying within our risk appetite.

We made progress in 2020 on a funding risk study to identify the primary risks to the funding of the Plan and steps that could be taken to mitigate those risks. We will finalize the study in 2021.

Based on the results of our asset/liability study, we will also consider whether to adjust our strategic asset mix in order to navigate through what we expect will be a challenging, low-return investment environment.

Many aspects of our operating environment are placing significant and unavoidable pressure on OPB's expenses and resources. Despite this, OPB remains committed to the government's expectation of expense management.

CONSOLIDATION

We 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 supports the long-term sustainability of the PSPP by improving the Plan's demographics. By joining the PSPP, smaller plans gain access to professional investment management through IMCO.

The administration of several other plans/services on behalf of the Government of Ontario are all on a fee-for-service agreement and are structured on a cost-recovery basis, not as a profit-generating activity.

We expect to experience elevated service demands as we merge plans and bring on new employers.

SERVICE EXCELLENCE

As our pension modernization initiative continues over the next few years, our upgraded member and employer portals will offer additional digital services, tools and resources.

When completed in 2021, the member portal will be a secure, mobile-responsive platform that supports enhanced self-service functionality, as well as information on retirement. We will continue to deliver enhancements and new features to support life events, making the portal a vital tool for long-term financial planning. The employer portal will also contain the same level of security and mobile responsiveness, in anticipation of future stakeholder-focused enhancements.

Pension modernization also involves updating additional elements of our pension administration technology systems. This work is necessary to manage our systems risks 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) to measure progress as we execute our strategies. 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 2020 as indicated in the 2020 Business Plan submitted to the Plan Sponsor in the fall of 2019.

Business Objective	Defined Output	Performance Metric	2020 Outcome	Discussion of Outcome
Investment execution	OPB's investment return versus the Strategic Asset Allocation benchmark	Outperform the benchmark	Investment return exceeded the benchmark return	Total Plan performance was driven primarily by strong results in the public and private equity 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 2020
Member and pensioner service	Overall satisfaction with client services	8.7 or higher	8.8	Exceeded performance benchmark target
Employer service	Employer satisfaction scores	7.8 or higher	8.7	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 2020 Business Plan initiatives, including many emergent initiatives	Some planned initiatives had been deferred in order to advance 13 new initiatives requested by the Province or required to ensure we could operate effectively while working remotely
Managing to budget	Actual versus budgeted expenses	Within budget	2020 actual operating expenses were 1% over budget due to COVID-19 expenses, but were 1% under budget without the impact of COVID-19	Achieved performance target

Business Objective	Defined Output	Performance Metric	2020 Outcome	Discussion of Outcome
Cost efficiency	Expense management ratios (cost per net assets available for benefits): 1. OPB operating expenses 2. IMCO costs 3. Consolidated	1. 15 basis points or lower 2. 50 basis points or lower 3. 65 basis points or lower	1. 14 basis points for operating expenses 2. 36 basis points for IMCO costs 3. 50 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 99% funded at December 31, 2020 before PfAD and with the $3.1 billion PfAD, the Plan is 90% funded	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, 2019, 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, 2019 was then rolled forward to December 31, 2020 to determine the pension obligations as at December 31, 2020 for financial statement purposes.

The actuarial valuation of the PSPP prepared on a funding basis as at December 31, 2019 was based on membership data provided by OPB as at December 31, 2019.

We have prepared a valuation of the liabilities as of December 31, 2019 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, 2020. The valuation and extrapolation were based on assumptions that reflect OPB’s best estimates of future events as of December 31, 2020 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, 2019 is sufficient and reliable;
- The actuarial assumptions used are appropriate for the purposes of each valuation; emerging experience differing from the assumptions will result in gains or losses which will be revealed in future valuations; and
- The methods used are appropriate for purposes of each valuation and are consistent with the applicable regulatory requirements.

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

AON

Allan H. Shapira

Allan H. Shapira
Fellow of the Canadian Institute of Actuaries

March 5, 2021

Andrew Hamilton
Fellow of the Canadian Institute of Actuaries

Management's Responsibility for Financial Reporting

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

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

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

Mark J. Fuller
President & CEO

Armand de Kemp
Vice-President, Finance

March 5, 2021

Independent Auditor's Report

To the Directors of the Ontario Pension Board

Opinion

We have audited the financial statements of Ontario Pension Board ("OPB"), which comprise the statement of financial position as at December 31, 2020, 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 the changes in its net assets available for benefits and the 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 5, 2021

Statement of Financial Position

As at December 31 (in thousands of dollars)	2020	2019
Assets		
Cash	**$ 27,620**	$ 7,154
Investments (Note 4)	**31,038,691**	29,275,011
Investment-related assets (Note 4)	**81,342**	73,921
Contributions receivable		
Members	**32,693**	27,989
Employers	**45,462**	43,034
Accounts receivable and prepaids	**10,502**	4,723
Capital assets, net (Note 10)	**212**	172
Total assets	**31,236,522**	29,432,004
Liabilities		
Investment-related liabilities (Note 4)	**195,146**	34,034
Accounts payable and accrued charges	**38,969**	58,404
Contributions payable	**2,328**	1,370
Total liabilities	**236,443**	93,808
Net assets available for benefits	**31,000,079**	29,338,196
Pension obligations, excluding PfAD	**31,333,498**	29,115,360
Provision for Adverse Deviation (PfAD)	**3,131,487**	2,699,496
Pension obligations (Note 11)	**34,464,985**	31,814,856
Deficit	**$ (3,464,906)**	$ (2,476,660)

See accompanying notes

On behalf of the Board:

Geri Markvoort
Chair, Board of Directors

Lynne Clark
Chair, Audit Committee

Statement of Changes in Net Assets Available for Benefits

For the year ended December 31 (in thousands of dollars)	**2020**	2019
Increase in net assets		
Net investment income (Note 6)	**$ 2,051,754**	$ 2,724,440
Contributions (Note 12)		
Members	**422,862**	407,339
Employers and sponsor	**682,566**	481,741
Transfer of service from other plans (Note 15)	**90,240**	644,255
Increase in net assets	**3,247,422**	4,257,775
Decrease in net assets		
Retirement pension benefits	**1,367,866**	1,275,383
Termination and other benefits (Note 14)	**177,018**	166,314
Operating expenses (Note 13)	**40,655**	38,692
Decrease in net assets	**1,585,539**	1,480,389
Increase in net assets for the year	**1,661,883**	2,777,386
Net assets, at beginning of year	**29,338,196**	26,560,810
Net assets, at end of year	**$ 31,000,079**	$ 29,338,196

See accompanying notes

Statement of Changes in Pension Obligations

For the year ended December 31 (in thousands of dollars)	**2020**	2019
Pension obligations, at beginning of year	**$ 31,814,856**	$ 28,449,124
Increase in pension obligations		
Interest on pension obligations	**1,858,960**	1,748,297
Past service cost	**43,548**	29,631
Benefits accrued		
Service accrual	**793,732**	709,333
Transfer of service from other plans (Note 15)	**90,240**	644,255
Past service buybacks	**46,819**	45,062
Net experience losses	**207,695**	51,204
Net assumption losses (Note 11)	**951,026**	943,658
Net change in Provision for Adverse Deviation	**202,993**	635,989
Total increase	**4,195,013**	4,807,429
Decrease in pension obligations		
Benefits paid	**1,544,884**	1,441,697
Total decrease	**1,544,884**	1,441,697
Net increase in pension obligations	**2,650,129**	3,365,732
Pension obligations, at end of year	**$ 34,464,985**	$ 31,814,856

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 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 *Pension Benefits Act* ("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 8.545% (7.775% prior to January 1, 2020) of the salary on which contributions are made up to the YMPE, and 11.645% (10.875% prior to January 1, 2020) of the salary above the YMPE. These additional contributions are used to fund a Factor 85 unreduced early retirement benefit, as described in Pensions below.

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. OPP officers are eligible for a 50/30 unreduced early retirement benefit if they reach 50 years of age with at least 30 years of pension credit. OPPC are eligible for a pension payable based on the average annual salary during the best 48-month period. Effective January 1, 2020, OPPC are eligible for a Factor 85 unreduced early retirement benefit if they attain an age-plus-pension credit totalling 85 years or more and retire as an OPP civilian.

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.

TRANSFERS

OPB participates in transfer agreements with several public and private sector pension plans. Transfer agreements allow eligible members to move their pension credit from one participating plan to another. To be eligible for a transfer, there must be a transfer agreement or provision with the former pension plan, the transfer must be applied for within the time limit and the pension credit must still be in the former plan. OPB participates in the Major Ontario Pension Plans ("MOPPs") Pension Portability Agreement, the National Public Service Pension Transfer Agreement, the Ontario Public Service Employees Union Pension Plan ("OPSEU") transfer provision, and various bilateral Reciprocal Transfer Agreements ("RTAs").

INFLATION PROTECTION

Pension amounts are protected against inflation to help pensioners maintain their purchasing power throughout retirement through a cost of living adjustment. 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 financial statements 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 the entities that OPB has an ownership interest in, regardless of whether OPB can control or exercise significant influence, are 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 2020 financial statements, which separately discloses accounts receivables and prepaids on the statement of financial position and the net change in Provision for Adverse Deviation on the statement of changes in pension obligation.

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 or the most recently available financial information.

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 (in thousands of dollars)	**2020** **Fair Value**	2019 Fair Value
Cash held in trust and short-term investments (Note 4d)		
Canada	**$ 1,456,418**	$ 1,966,174
Global	**911,276**	198,441
	2,367,694	2,164,615
Fixed income		
Canada	**6,889,732**	6,867,221
Global	**1,461,360**	841,227
	8,351,092	7,708,448
Public equities		
Canada (Note 4h)	**115,654**	2,110,765
Global	**8,324,595**	8,075,540
	8,440,249	10,186,305
Pooled funds (Note 4h)	**2,686,711**	–
Real estate (net of financing, Note 4e)	**4,094,759**	5,055,844
Infrastructure	**2,551,855**	2,314,452
Private equity	**2,546,331**	1,845,347
Total investments	**31,038,691**	29,275,011
Investment-related assets		
Pending trades	**263**	826
Derivatives receivable (Note 5)	**81,079**	73,095
Total investment-related assets	**81,342**	73,921
Investment-related liabilities		
Pending trades	**136,356**	14,586
Derivatives payable (Note 5)	**58,790**	19,448
Total investment-related liabilities	**195,146**	34,034
Total net investments	**$ 30,924,887**	$ 29,314,898

a) INVESTMENT ASSET MIX

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

	2020		2019		
	Asset Allocation %		Asset Allocation %		
	Total Plan	**Target**	Total Plan	Target	SIP&P Range
Asset categories[1]					
Cash	**0.1%**	**3.0%**	3.1%	3.0%	0.0%–10.0%
Fixed income[2]	**27.1%**	**22.0%**	26.2%	23.5%	17.0%–27.0%
Public equities[3]	**43.1%**	**34.0%**	38.8%	36.0%	29.0%–39.0%
Real estate	**13.2%**	**21.0%**	17.7%	21.0%	16.0%–26.0%
Infrastructure	**8.3%**	**11.5%**	7.9%	9.5%	6.5%–16.5%
Private equity	**8.2%**	**8.5%**	6.3%	7.0%	3.5%–13.5%
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 government nominal and inflation-linked bonds, publicly traded corporate bonds, and privately held debt.

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

OPB's Statement of Investment Policies and Procedures ("SIP&P") was amended and approved on December 2, 2020. The SIP&P was updated for changes in the asset mix ranges, performance benchmarks, and clarifications to Responsible Investing. For purposes of assessing the investment asset mix of the Plan, the investment asset categories reflect the impact of derivative contracts, pooled funds, and investment-related receivables and liabilities. The SAA does not allocate any assets to pooled funds as an asset class, although pooled funds are used to achieve allocations to the investment categories indicated. As at December 31, 2020, the allocation to some of the asset classes was outside the ranges as specified in the SIP&P effective as at the financial statement year-end date, although this is permitted in certain circumstances. The deviation from the target ranges was mainly driven by challenging conditions for investing in private assets and was offset by allocations to public equities and fixed income assets. As at December 31, 2019, the asset mix of the Plan's investments was within the target 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, 2020 (in thousands of dollars)	Level 1	Level 2	Level 3	Total Fair Value
Financial assets				
Cash in trust and short-term investments				
Canada	$ 338,065	$ 1,118,353	$ –	$ 1,456,418
Global	178,870	732,406	–	911,276
Fixed income				
Canada	496,630	6,160,001	233,101	6,889,732
Global	–	946,492	514,868	1,461,360
Public equities				
Canada	109,119	–	6,535	115,654
Global	8,324,595	–	–	8,324,595
Pooled funds	–	2,686,711	–	2,686,711
Real estate	–	–	4,094,759	4,094,759
Infrastructure	–	–	2,551,855	2,551,855
Private equity	–	595,958	1,950,373	2,546,331
Forwards	–	44,760	–	44,760
Futures	27,323	–	–	27,323
Credit default swaps	–	8,996	–	8,996
	$ 9,474,602	$ 12,293,677	$ 9,351,491	$ 31,119,770
Financial liabilities				
Forwards	$ –	$ 11,990	$ –	$ 11,990
Credit default swaps	–	38,875	–	38,875
Futures	7,925	–	–	7,925
	$ 7,925	$ 50,865	$ –	$ 58,790

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
Global	124,944	73,497	–	198,441
Fixed income				
Canada	–	6,602,629	264,592	6,867,221
Global	–	456,777	384,450	841,227
Public equities				
Canada	2,110,765	–	–	2,110,765
Global	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

There were no transfers between Levels 1 and 2 during the years ended December 31, 2020 and 2019. 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.

(in thousands of dollars)	Fair Value as at January 1, 2020	Net Transfers In/(Out)[1,2]	Acquisitions	Dispositions	Fair Value Changes	Fair Value as at December 31, 2020
Financial assets						
Fixed income						
Canada	**$ 264,592**	**$ 14,373**	**$ 3,556**	**$ (58,156)**	**$ 8,736**	**$ 233,101**
Global	**384,450**	**–**	**147,698**	**(33,868)**	**16,588**	**514,868**
Public equities	**–**	**9,336**	**–**	**–**	**(2,801)**	**6,535**
Real estate	**5,055,844**	**–**	**430,875**	**(219,419)**	**(1,172,541)**	**4,094,759**
Infrastructure	**2,314,452**	**–**	**424,077**	**(116,397)**	**(70,277)**	**2,551,855**
Private equity	**1,845,347**	**(180,045)**	**299,174**	**(165,379)**	**151,276**	**1,950,373**
	$9,864,685	**$ (156,336)**	**$1,305,380**	**$ (593,219)**	**$(1,069,019)**	**$ 9,351,491**

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

2 Gross transfers out of Level 3 amounted to $180,045 thousand and gross transfers in amounted to $23,709 thousand.

(in thousands of dollars)	Fair Value as at January 1, 2019	Net Transfers In/(Out)[3,4]	Acquisitions	Dispositions	Fair Value Changes	Fair Value as at December 31, 2019
Financial assets						
Fixed income						
Canada	$ 288,501	$ (8,972)	$ 10,130	$ (25,475)	$ 408	$ 264,592
Global	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

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

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

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 (in thousands of dollars)	2020	2019
Canada		
Cash in trust	**$ 340,931**	$ 394,686
Short-term notes and treasury funds	**1,100,209**	1,555,053
Term deposits	**14,995**	13,851
Accrued interest	**283**	2,584
	$ 1,456,418	$ 1,966,174
Global		
Cash in trust	**$ 156,638**	$ 124,944
Short-term notes and treasury funds	**754,596**	73,337
Accrued interest	**42**	160
	$ 911,276	$ 198,441

e) REAL ESTATE

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

As at December 31 (in thousands of dollars)	2020	2019
Assets		
Wholly owned real estate[1]	**$ 1,438,300**	$ 1,839,000
Partially owned investments[2]	**5,083,234**	5,553,747
Participating mortgages[3]	**122,292**	107,441
Other assets, net[4]	**5,025**	–
Total assets	**$ 6,648,851**	$ 7,500,188
Liabilities		
Debentures[5]	**$ 2,554,092**	$ 2,424,801
Other liabilities, net[4]	**–**	19,543
Total liabilities	**2,554,092**	2,444,344
Net investment in real estate	**$ 4,094,759**	$ 5,055,844

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 Working capital held in wholly owned real estate investments.

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

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. 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.

								2020
						Related Amounts Not Offset		
As at December 31 (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	**$**	**81,079**	**$**	**(6,385)**	**$**	**–**	**$**	**74,694**
Securities lending[2]		**788,380**		**–**		**(788,380)**		**–**
Total financial assets	**$**	**869,459**	**$**	**(6,385)**	**$**	**(788,380)**	**$**	**74,694**
Financial liabilities								
Derivatives		**(58,790)**		**6,385**		**52,405**		**–**
Total financial liabilities	**$**	**(58,790)**	**$**	**6,385**	**$**	**52,405**	**$**	**–**

								2019
						Related Amounts Not Offset		
As at December 31 (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	$	–

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

2 Included within fixed income and public 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, 2020, 1% of the Plan was approximately $310 million and as at December 31, 2019 it was $293 million.

As at December 31 (in thousands of dollars)	**2020 Fair Value**	2019 Fair Value
Short-Term Investments		
United States Treasury Bill	**$ 560,482**	$ –
Fixed Income		
2187427 Ontario Inc.	**497,799**	–
Public Equities		
iShares Core MSCI Europe	**347,064**	462,570
iShares Core S&P 500	**1,065,487**	179,227
Pooled Funds		
IMCO Canadian Public Equity LP	**2,686,711**	–
Real Estate, gross of financing[1]	**3,708,747**	5,231,104
Private Equity		
OPB Private Equity 3 Limited (holding company, 100% owned)	**584,470**	466,615
OPB Private Equity 5 Limited (holding company, 100% owned)	**915,908**	420,994
OPB Private Equity 6 Limited (holding company, 100% owned)	**337,245**	232,252
Infrastructure		
OPB Infrastructure 2 Limited (holding company, 100% owned)	**718,709**	773,566
OPB Infrastructure 4 Limited (holding company, 100% owned)	**655,014**	472,777

1 Includes the following holding companies in 2020, which are 100% owned: OPB Realty Inc., OPB (TDC) Inc., OPB (Van Centre) Inc., OPB (155 Wellington) Inc., and OPB Real Estate Investments Inc. The last valuation of each real estate investment was as at December 31, 2020. In 2019, OPB Real Estate Investments 2 Limited, OPB (EMTC) Inc., and OPB (Southgate) Inc. were included as significant investments.

h) IMCO POOLED FUNDS

A pooled fund unit gives its holder a proportionate share in the value of the net assets of the pooled fund. Each pooled fund has a specific mandate; however, the fund may hold cash, short-term investments, accrued interest income and pending trades of investments.

On November 2, 2020, IMCO launched its first pooled fund, the IMCO Canadian Public Equity LP. On the launch of the pooled fund, there was an in-kind transfer of public equity investments, at fair value, by OPB into the pooled fund. The fair value of assets transferred into the pooled fund amounted to $2,219 million and 22,193,007 units were issued to OPB in return.

Fund	Investment Objective	2020 Ownership
Canadian Public Equity LP	The investment objective of the Fund is to provide long-term growth through capital appreciation and dividend income by investing directly or indirectly in entities that are publicly traded in Canada.	74.98%

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 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 fixed income 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. Fixed income forward contracts are used to modify OPB's exposure to interest rate risk, such as hedging a potential new debenture issue.

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.

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.

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 directly held derivative positions.

	2020			2019		
		Fair Value			Fair Value	
As at December 31 (in thousands of dollars)	**Notional Value**	**Assets**	**Liabilities**	Notional Value	Assets	Liabilities
Currency forwards	**$ 7,209,285**	**$ 44,716**	**$ (11,213)**	$ 7,226,813	$ 70,858	$ (16,718)
Equity futures	**1,852,502**	**26,847**	**(6,104)**	1,302,537	2,162	(2,727)
Fixed income futures	**1,174,322**	**476**	**(1,821)**	377,359	75	–
Fixed income forwards	**258,000**	**44**	**(777)**	–	–	–
Credit default swaps	**1,143,160**	**8,996**	**(38,875)**	130	–	(3)
Total	**$ 11,637,269**	**$ 81,079**	**$ (58,790)**	$ 8,906,839	$ 73,095	$ (19,448)

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:

	2020				2019			
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 forwards	**$ 7,209,285**	**$ -**	**$ -**	**$ 7,209,285**	$ 7,226,813	$ –	$ –	$ 7,226,813
Equity futures	**1,852,502**	**-**	**-**	**1,852,502**	1,302,537	–	–	1,302,537
Fixed income futures	**1,174,322**	**-**	**-**	**1,174,322**	377,359	–	–	377,359
Fixed income forwards	**258,000**	**-**	**-**	**258,000**	–	–	–	–
Credit default swaps	**-**	**-**	**1,143,160**	**1,143,160**	–	–	130	130
Total	**$10,494,109**	**$ -**	**$ 1,143,160**	**$11,637,269**	$ 8,906,709	$ –	$ 130	$ 8,906,839

Note 6: Net investment income

The Plan's net investment income is as follows:

For the year ended December 31 (in thousands of dollars)	**2020** Investment Income[1,2]	**2020** Fair Value Changes[3]	**2020** Total	2019 Investment Income[1,2]	2019 Fair Value Changes[3]	2019 Total
Cash in trust and short-term investments						
Canada (Note 6a)	**$ 14,048**	**$ (5,715)**	**$ 8,333**	$ 15,068	$ 2,743	$ 17,811
Global[4] (Note 6a)	**642**	**(3,204)**	**(2,562)**	7,777	262,262	270,039
	14,690	**(8,919)**	**5,771**	22,845	265,005	287,850
Fixed income						
Canada	**194,825**	**535,661**	**730,486**	212,297	365,832	578,129
Global	**33,078**	**82,509**	**115,587**	39,984	(4,548)	35,436
	227,903	**618,170**	**846,073**	252,281	361,284	613,565
Public equities						
Canada	**49,129**	**(147,843)**	**(98,714)**	74,523	350,352	424,875
Global	**147,988**	**1,048,565**	**1,196,553**	188,459	1,107,484	1,295,943
	197,117	**900,722**	**1,097,839**	262,982	1,457,836	1,720,818
Pooled funds	**–**	**295,099**	**295,099**	–	–	–
Real estate	**205,185**	**(1,211,624)**	**(1,006,439)**	237,022	(267,873)	(30,851)
Infrastructure	**266,922**	**(69,577)**	**197,345**	101,338	9,902	111,240
Private equity	**158,712**	**573,281**	**731,993**	325,178	(189,667)	135,511
Total investment income	**$1,070,529**	**$1,097,152**	**$2,167,681**	$ 1,201,646	$1,636,487	$2,838,133
Investment management and related fees (Note 6b)			**(115,927)**			(113,693)
Net investment income			**$2,051,754**			$2,724,440

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 $1,161 million and unrealized losses of $64 million in 2020 and realized gains of $1,076 million and unrealized gains of $560 million in 2019.

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 within short-term notes and treasury funds. Interest income from cash and short-term investments is as follows:

For the year ended December 31 (in thousands of dollars)		**2020**		2019
Canada				
Cash in trust	**$**	**2,655**	$	1,425
Short-term notes and treasury funds		**11,393**		13,643
	$	**14,048**	$	15,068
Global				
Cash in trust	**$**	**136**	$	6,248
Short-term notes and treasury funds		**506**		1,529
	$	**642**	$	7,777

b) INVESTMENT MANAGEMENT AND RELATED FEES

For the year ended December 31 (in thousands of dollars)		**2020**		2019
External investment management fees	**$**	**37,181**	$	52,149
IMCO management fees		**63,709**		46,170
Transaction costs		**11,468**		8,375
Custodial fees		**3,445**		5,686
Private market expenses		**124**		1,313
	$	**115,927**	$	113,693

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, 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:

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.

Management

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.

Measurement

Given the modified duration of the fixed income securities and interest rate derivatives of 12 years at December 31, 2020 (2019 – 12 years), a parallel shift in the yield curve of +/-1% would result in an approximate impact of +/-$1,173 million (2019 – +/-$1,000 million) on net investments with all other variables held constant. In practice, actual results may differ materially from this sensitivity analysis.

Currency risk

Currency exposure arises from the Plan holding foreign currency denominated investments and entering 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.

Management

In addition to passively hedging a portion of its foreign currency exposure, the Plan also has an active currency hedging strategy in place using foreign exchange forward contracts, which are accounted for at fair value.

Measurement

The impact to the Plan of a 5% absolute change in foreign exchange rates relative to the Canadian dollar are as follows:

As at December 31, 2020 (in thousands of dollars)	**Gross Exposure**	**Foreign Exchange Contracts Receivable**	**Foreign Exchange Contracts Payable**	**Net Exposure**	**Impact of +/- 5% change**
U.S. dollar	**$ 7,499,081**	**$ 778,058**	**$ (4,000,830)**	**$ 4,276,309**	**+/- $ 213,815**
Hong Kong dollar	**911,693**	**31,042**	**-**	**942,735**	**+/- 47,137**
Chinese renminbi	**647,461**	**-**	**-**	**647,461**	**+/- 32,373**
Euro currency unit	**429,166**	**62,589**	**(1,115,356)**	**(623,601)**	**+/- 31,180**
New Taiwan dollar	**460,635**	**129**	**-**	**460,764**	**+/- 23,038**
Japanese yen	**158,779**	**254,202**	**(18,106)**	**394,875**	**+/- 19,744**
South Korean won	**390,404**	**1,177**	**-**	**391,581**	**+/- 19,579**
Other	**1,154,941**	**304,970**	**(619,311)**	**840,600**	**+/- 42,030**
Total foreign	**11,652,160**	**1,432,167**	**(5,753,603)**	**7,330,724**	**+/- $ 366,536**
Canadian dollar	**19,239,224**	**5,779,988**	**(1,425,049)**	**23,594,163**	
	$ 30,891,384	**$ 7,212,155**	**$ (7,178,652)**	**$ 30,924,887**	

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	

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.

Management

IMCO manages other price risk through diversification and regular monitoring of the performance of the Plan against approved benchmarks.

Measurement

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 public equities or pooled funds holding 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 thousands of dollars) — Change in Net Assets as at

Pooled Funds and Public Equities	Stock Market Benchmark	Change in Price Index	**December 31, 2020**	December 31, 2019
Canadian	S&P/TSX Composite Index	+/- 10%	**+/- $ 335,467**	+/- $ 279,694
Global	MSCI World (C$)	+/- 10%	**+/- 512,044**	+/- 445,587
Emerging	MSCI Emerging Equity Index (C$)	+/- 10%	**+/- 440,760**	+/- 416,003
			+/- $ 1,288,271	+/- $ 1,141,284

The sensitivity analysis is performed using the total Plan actual investment asset mix weights summarized in Note 4a as at December 31, 2020 and 2019.

COVID-19 IMPACT

Since the outbreak of COVID-19, emergency measures taken in response to the spread of COVID-19 have resulted in significant disruption to business operations globally, resulting in an economic slowdown. Global equity and capital markets have also experienced significant volatility. The governments have reacted with significant monetary and fiscal interventions designed to stabilize economic conditions. These developments are constantly evolving, the duration and impact of the COVID-19 pandemic is highly uncertain, and the effects on the Plan and the Plan Sponsor are not known at this time. The potential impacts could include decreased values in the investment portfolios, changes in the Plan's pension obligations and related funding, and declines in investment performance.

CREDIT AND COUNTERPARTY RISK

Credit risk is the risk of loss resulting from a borrower's failure to repay or meet contractual obligations. The Plan is exposed to credit risk through investments in fixed income instruments as there is a risk of default. Counterparty risk is 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. The Plan is exposed to counterparty risk through investments in OTC derivatives and securities financing transactions.

Management

IMCO manages credit risk by creating a diversified portfolio of investments and employing a multi-sector strategy. In creating a diversified portfolio, IMCO will invest according to a risk strategy outlining specified target allocation ranges by risk strategy (i.e., investment grade), geographical focus and investment vehicle.

In mitigating counterparty risk, IMCO will initiate counterparty transactions with parties on its approved counterparty list, which meet a minimum credit rating requirement. IMCO is responsible for monitoring the credit ratings of counterparties and reviewing those who suffer a downgrade.

Counterparty risk from OTC derivatives is managed by requiring that an International Swaps and Derivatives Association ("ISDA") master agreement and a Credit Support Annex ("CSA") must be implemented for all OTC derivative counterparties where the agreement is longer than one year. Under these agreements, collateral is exchanged with counterparties daily 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.

On behalf of the Plan, IMCO may lend any of its investments if the loans are secured by readily marketable securities having a market value greater than the outstanding market value of the loaned investments.

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, 2020, the Plan's greatest credit exposure to a single securities issuer is with the Government of Canada in the form of interest-bearing securities for $1.9 billion (2019 – with the Government of Canada for $2.8 billion).

The credit risk exposure, without considering any collateral held, is as follows:

As at December 31 (in thousands of dollars)	2020 Total Risk Exposure	2019 Total Risk Exposure
Credit Risk		
Fixed income		
AAA	**$ 2,848,774**	$ 2,942,581
AA	**3,341,646**	2,813,158
A	**121,692**	357,951
BBB	**395,491**	443,290
BB	**149,004**	56,847
B	**59,899**	50,073
CCC	**24,972**	–
Not rated	**1,409,614**	1,044,207
Total fixed income	**$ 8,351,092**	$ 7,708,107
Short-term investments		
AAA	**321,126**	63,842
AA	**846,342**	941,444
A	**702,657**	–
Not rated	**–**	626,588
Total short-term investments	**$ 1,870,125**	$ 1,631,874
Counterparty risk		
Derivative assets		
AA	**21,364**	33,050
A	**59,715**	40,045
Total derivative assets	**$ 81,079**	$ 73,095
Securities lending		
AA	**444,428**	1,204
A	**237,560**	30,642
BBB	**94,028**	2
Not rated	**12,364**	–
Total securities lending	**$ 788,380**	$ 31,848

Note 4f illustrates the maximum net exposure to credit risk in OTC derivatives and securities trading by summarizing the amount of collateral held or pledged as security and their financial effect to mitigate credit risk exposure.

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 physical cash reserve and performing regular cash flow projections to ensure the Plan can meet obligations. Most cash requirements are typically met through member, employer, and Plan Sponsor contributions. Additional cash requirements can be met through cash sources such as investment income and proceeds from the sales of investments. 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 to fulfil further cashflow needs as required.

IMCO manages liquidity risk by regularly measuring and monitoring liquidity against predetermined limits and performing stress tests and cash flow projections. An IMCO liquidity committee is also responsible for overseeing a crisis environment plan and approving any breach remediation plans.

Measurement

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

					2020
(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	**19,916**	**38,874**	**–**	**–**	**58,790**
Total	**$ 19,916**	**$ 788,874**	**$ 1,000,000**	**$ 500,000**	**$ 2,308,790**

					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

Note 8: Collateral

COLLATERAL PLEDGED AND RECEIVED

Derivative transactions are supported by a CSA that regulates the collateral required when entering 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, 2020, OPB pledged $147.31 million (2019 – $62.5 million) and received $nil (2019 – $0.8 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, $788.38 million (2019 – $31.8 million) of OPB's securities were on loan to third parties. At year-end, $829.71 million (2019 – $33.9 million) of securities were held as collateral, providing a 5.24% (2019 – 6.6%) 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, 2020, OPB had unfunded commitments for certain investments of $4,538 million (2019 – $2,878 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 several 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, 2020:

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, $5.2 million in letters of credit is guaranteed by OPB as at December 31, 2020 ($5.0 million as at December 31, 2019).

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

(in thousands of dollars)		Minimum Lease Payments
2021	$	3,428
2022		3,566
2023		3,566
2024		3,566
Total	$	14,126

During 2020 and 2019, IMCO subleased office space from OPB (Note 16).

Note 10: Capital assets

Capital assets as at December 31 consist of the following:

	2020			2019		
(in thousands of dollars)	**Cost**	**Accumulated Depreciation**	**Net Book Value**	Cost	Accumulated Depreciation	Net Book Value
Computer equipment	**$ 4,762**	**$ (4,759)**	**$ 3**	$ 4,762	$ (4,734)	$ 28
Furniture and fixtures	**2,117**	**(1,955)**	**162**	2,025	(1,939)	86
Leasehold improvements	**1,848**	**(1,801)**	**47**	1,827	(1,769)	58
Total capital assets	**$ 8,727**	**$ (8,515)**	**$ 212**	$ 8,614	$ (8,442)	$ 172

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, 2019 on the basis of the accounting methodology required by the CPA Canada Handbook – Accounting, Section 4600 and extrapolated those liabilities to December 31, 2020. The obligations as of December 31, 2019 have been extrapolated to December 31, 2020, based on the estimated service cost, benefit payments, asset transfers and past service buybacks. The pension obligation, excluding PfAD, as at December 31, 2020 is $31.3 billion (2019 – $29.1 billion). The pension obligation, including PfAD, as at December 31, 2020 is $34.5 billion (2019 – $31.8 billion). During 2019 and 2020, 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:

	2020	2019
Nominal discount rate before the application of the PfAD	**5.40%**	5.90%
Inflation	**1.75%**	2.00%
Real rate of return before the application of the PfAD	**3.65%**	3.90%
PfAD, a percentage of non-indexed liabilities and service cost	**12.07%**	11.43%
Effective real discount rate[1]	**2.98%**	3.25%
Salary increases		
2020	**2.0% + promotional scale**	2.0% + promotional scale
2021	**1.5% + promotional scale**	2.0% + promotional scale
2022	**1.5% + promotional scale**	2.75% + promotional scale
2023	**1.5% + promotional scale**	2.75% + promotional scale
2024	**1.5% + promotional scale**	2.75% + promotional scale
2025 and thereafter	**2.5% + promotional scale**	2.75% + promotional scale

1 The effective real 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, 2019, which disclosed pension obligations of $29,338 million (2018 – $26,662 million), a Provision for Adverse Deviation of $1,988 million (2018 – $1,881 million), and a funding shortfall of $2,101 million (2018 – $1,453 million shortfall) on a going-concern basis. A smoothed actuarial value of assets methodology was adopted to smooth investment gains and losses over a three-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, 2022.

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 $283 million in 2020 (2019 – $115 million) in special payments towards the funding shortfall identified in the filed funding valuation as at December 31, 2018.

For 2020 and 2019, 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 $243 thousand in required contributions past due as at December 31, 2020 ($166 thousand as at December 31, 2019).

For the year ended December 31 (in thousands of dollars)	**2020**	2019
Members		
Current service required	**$ 379,112**	$ 366,096
Prior service	**43,002**	40,536
Long-term Income Protection benefits	**748**	707
	422,862	407,339
Employers		
Current service		
Regular contributions	**376,040**	365,997
PSSBA transfer	**(19,928)**	(18,145)
For members receiving Long-term Income Protection benefits	**16,076**	14,363
Prior service	**3,817**	4,526
	376,005	366,741
Sponsor		
Special payments	**283,261**	115,000
Additional current service	**23,300**	–
	306,561	115,000
Total contributions	**$ 1,105,428**	$ 889,080

Note 13: Operating expenses

For the year ended December 31 (in thousands of dollars)		2020[1]		2019[1]
Staffing	**$**	**22,138**	$	20,422
IT and project management		**10,286**		9,726
Office premises and operations		**4,988**		4,803
Professional services		**1,635**		2,166
Depreciation		**72**		299
Staff development and support		**286**		312
Communications		**485**		275
Audit		**528**		495
Board remuneration		**237**		194
	$	**40,655**	$	38,692

1 Included in the above operating expenses are actuarial services provided to OPB amounting to $744 thousand (2019 – $554 thousand) and external audit services provided to OPB amounting to $478 thousand (2019 – $240 thousand).

Note: Recorded by subsidiary operations are external audit services provided to and recorded by subsidiaries amounting to $266 thousand (2019 – $266 thousand).

Note 14: Termination and other benefit payments

For the year ended December 31 (in thousands of dollars)		2020		2019
Transfers to other plans	**$**	**23,755**	$	23,244
Commuted value transfers and death benefits[2]		**153,263**		143,070
Total benefit payments	**$**	**177,018**	$	166,314

2 Disability payments amounted to $nil in 2020 and 2019.

Note 15: Transfers of service from other plans

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 (in thousands of dollars)		**2020**		2019
Transfers from ONTC merger	**$**	**–**	$	570,667
Transfers from OPSEU Pension Plan		**71,517**		50,987
Transfers from MOPPs		**13,890**		19,059
Transfers from other plans		**4,833**		3,542
Total transfers of service from other plans	**$**	**90,240**	$	644,255

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 IMCO, the Government of Ontario and related entities at normal commercial terms. Refer to Note 4h for details on IMCO pooled funds.

OPB provides additional employee benefit administrative services for the Province under Service Level Agreements. These services are all provided on a cost-recovery basis and have no net impact on OPB's operating expenses budget.

During 2020, IMCO subleased office space from OPB for $1.4 million (2019 – $1.4 million). In 2018, IMCO entered into an arrangement to lease office space in a building partially owned by OPB and the lease commences in 2021. The lease agreement was negotiated on an arm's length basis. During the year, OPB paid $64 million (2019 – $46 million) toward IMCO operating expenses and $8 million towards IMCO leasehold improvements.

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 and capital expenditures 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) 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.

Asset pooling: Asset pooling is where funds in a portfolio from many individual investors or asset owners (such as OPB) are aggregated for the purposes of investment.

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.

Bond yield: The expected returns an investor would realize from holding a bond until maturity (most commonly quoted as yield to maturity).

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.

Provision for Adverse Deviations (PfAD): Introduced in 2018 by the regulator to provide additional funding over the existing funding rules, the Provision for Adverse Deviations (PfAD) is a reserve which pension plans must fund. The purpose of the PfAD is to provide a margin against future adverse experience, thereby enhancing retirement income security. The amount of the PfAD will depend on the level of risk in the plan according to criteria specified by the regulator.

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 the 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 the 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.