

**Nova Scotia
Teachers' Pension Plan
Annual Report
2021**

The Nova Scotia Teachers' Pension Plan (Plan or TPP) Annual Report details the Plan's investment performance and financial health at December 31, 2021.

The Plan is a defined benefit registered pension plan that offers you a lifetime pension benefit when you retire. It is one of the largest public sector pension plans in the Province. Your pension benefit is funded by contributions made by you and your employer, as well as investment income generated by the Plan's investment assets.

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All information presented in this document is premised on the Plan rules and criteria which currently exist under the Teachers' Pension Act and the Regulations made thereunder. This document explains in plain language the financial status of the Nova Scotia Teachers' Pension Plan. Plan members, beneficiaries, and others who wish to determine their legal rights and obligations under the Plan should refer to the Plan text. In the event of a discrepancy between the information provided in this document and the Plan text, the latter takes precedence.

OUR PERFORMANCE *AT A GLANCE*

As at December 31, 2021

FUNDED STATUS

82.5%

The Plan's funded ratio increased to 82.5 per cent, on a going-concern basis, from 79.0 per cent in 2020. This is the highest funded status the Plan has achieved since the 2008 financial crisis. It is due to the Plan's 2021 robust investment performance that enabled this modest increase in the funded status. However, the Plan cannot rely on its investment performance alone to achieve a fully funded status. The Plan Sponsors must make meaningful changes to the Plan to improve its long-term financial sustainability.

Past funded ratios

2020 = 79.0%	▲	2013 = 75.0%	▲
2019 = 78.2%	▲	2012 = 71.6%	▲
2018 = 75.3%	▼	2011 = 70.9%	▼
2017 = 78.4%	▲	2010 = 78.7%	▲
2016 = 77.7%	▲	2009 = 75.9%	▲
2015 = 76.7%	▼	2008 = 70.8%	▼
2014 = 77.3%	▲	2007 = 91.0%	▼

CONTRIBUTIONS

Plan member and employer contributions, including purchases of past service, totalled \$230 million. In addition, the Province made a special contribution of \$10 million.

\$240 million

paid in contributions to the Plan.



BENEFITS PAID

Benefits paid out for retiree, survivor and disability benefits, and refunds totalled \$417 million.

\$417 million

paid out in benefits.



INVESTMENT RETURN

9.63%

THE PLAN

9.22%

BENCHMARK

5.70%

DISCOUNT RATE

The Plan achieved a positive return on investments of 9.63 per cent, net of investment management fees (9.84 per cent, gross of investment management fees). The Fund outperformed the policy benchmark of 9.22 per cent on a net basis and outperformed the actuarial assumed rate of return, or discount rate, of 5.70 per cent.

OUR PERFORMANCE *AT A GLANCE*

As at December 31, 2021

\$5.856 billion

Net Assets available for Benefits

\$5.519 ^b	\$5.358 ^b	\$4.938 ^b	\$5.111 ^b
2020	2019	2018	2017

\$7.096 billion

Liabilities*

\$6.986 ^b	\$6.855 ^b	\$6.556 ^b	\$6.517 ^b
2020	2019	2018	2017

-\$1.240 billion

Unfunded Liability

-\$1.467 ^b	-\$1.497 ^b	-\$1.618 ^b	-\$1.406 ^b
2020	2019	2018	2017

** For an explanation on the breakdown of Plan liabilities, in dollar amounts by each member group, see the Going Concern Actuarial Plan liabilities chart on page 12.*

PLAN MEMBERSHIP HIGHLIGHTS

As at December 31, 2021



The Plan had a total of 33,574 members. In 2021, the number of retirees grew by 200 from 13,853 to 14,053, while the number of active Plan members increased by 140 from 13,066 to 13,206.

Average member age



43.8 Active member
72.8 Retired member

Retirees and survivors over 100 years of age



32
Members

Average pensionable earnings



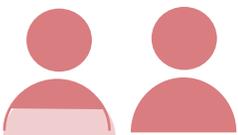
\$77,928
Active members

Average lifetime pension



\$28,206
Retirees

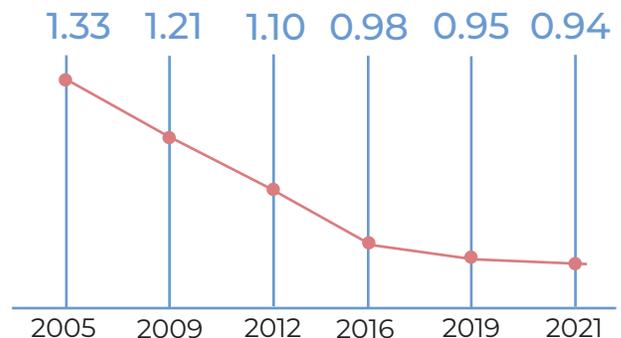
Plan Maturity



The Plan had **0.94** active member for 1 retiree.

Plan maturity continues to challenge the Plan, as its number of retirees continues to grow. A low ratio of active members-to-retired members creates a greater impact on working members and employers to cover any shortfalls or investment losses.

Membership ratio decline over the years:





MESSAGE FROM THE TRUSTEE CHAIR

John Rogers, QC, ICD.D

On behalf of Teachers' Pension Plan Trustee Inc. (TPPTI), it is my privilege to present the 2021 Teachers' Pension Plan Annual Report. This report provides you with details on the financial health of the Plan as at December 31, 2021 and a comprehensive review of its investment activities.

For nearly two years we have all continued to navigate through the personal and professional challenges presented by the COVID-19 pandemic. As we (hopefully) exit this period of great uncertainty, we are seeing other turbulence emerging in the economic and geopolitical spheres. The TPPTI Board acknowledges your concerns and assures you that it is doing all it can to keep the Plan on a steady course. It is important to remember that the Plan is a defined benefit pension plan and is designed for sustainability and long-term performance. TPPTI invests for the long term, maintaining a large and very diverse portfolio, and follows robust investment strategies. The Plan's asset mix is built to weather tough times effectively.

Asset Liability Study

An asset liability study was undertaken by the TPPTI Board in 2020 and a new policy asset mix was adopted. While the overall implementation will take until the end of 2023 to complete, substantial progress was made during 2021, including adjusting the hedge fund component of the TPP portfolio, building out changes to existing mandates, and working through new external investment manager searches.

While the implementation of the new asset mix will continue to be a focus of the TPPTI, as the implementation progresses there will be an opportunity to further review existing investment strategies and investment mandates in many asset classes to optimize the overall portfolio.

Plan Performance

The Teachers' Pension Fund delivered positive results in 2021. For the fiscal year ending on December 31, 2021, the Fund achieved a return of 9.63 per cent, net of investment management fees (9.84 per cent, gross of investment management fees). The Fund outperformed the policy benchmark of 9.22 per cent on a net basis, and outperformed the actuarial assumed rate of return, or discount rate, of 5.70 per cent.

On the strength of our investment results, we ended 2021 at 82.5 per cent funded, on a going-concern basis, which is the highest funded status the Plan has seen since the 2008 financial crisis.

The Plan's deficit was \$1.240 billion at December 31st, being the difference between the net assets available for payment of benefits of \$5.856 billion and the actuarially-calculated liabilities of \$7.096 billion.

The Plan had a ratio of 0.94 active members to each pensioner at December 31st. The continuing maturity of the Plan remains a very significant concern. It is a constant headwind that is difficult to overcome. Each year, approximately \$200 million more in pension benefits is paid out than is collected by way of contributions from active members and employers. This places an ongoing and unfair burden on active members paying high contribution rates.

Plan Review

In October 2020, the Plan Sponsors, the Province of Nova Scotia (Province) and the Nova Scotia Teachers Union (NSTU), agreed to jointly appoint an independent panel of pension experts (NSTPP Panel) to review the ongoing challenges facing the Plan. The NSTPP Panel's mandate is to review and analyze the Plan, educate and consult with stakeholders, and make non-binding recommendations to fully fund the Plan within a reasonable period of time. The NSTPP Panel's non-binding recommendations will be submitted to the Province and the NSTU by July 31, 2022.

As indicated above, the Plan's funded position and mature demographic profile remain very significant concerns for the TPPTI Board. While there is no immediate risk that the Plan will be unable to meet its ongoing pension obligations, the Board continues to urge the Plan Sponsors to act decisively and effect amendments that will improve the Plan's long-term financial sustainability. The TPPTI Board is hopeful that the NSTPP Panel's report and recommendations will catalyze meaningful steps by the Province and the NSTU.

Acknowledgments

On behalf of TPPTI, I would like to acknowledge outgoing Board directors: Karen Gatien, Bruce Osborne, Charles Allain, and Steve Mahoney. Their contributions to the Board over the years have helped strengthen the retirement security of all TPP members. I would also like to acknowledge Steve Mahoney as he begins his new role as NS Pension's Chief Investment Officer. The Board looks forward to working with him in that capacity.

I would also like to welcome Nancy-Beth Foran, Sara Halliday, David Potter and Shannon York to the Board.

Lastly, I would like to recognize the talented and dedicated staff of NS Pension for their support to the Board, and their high service levels and dedication to our Plan members throughout 2021.

John Rogers, QC, ICD.D
TPPTI Chair

Teachers' Pension Plan Trustee Inc. *BOARD OF DIRECTORS*

As at December 31, 2021

The Board of Teachers' Pension Plan Trustee Inc. is comprised of nine members. Four directors are appointed by the Nova Scotia Teachers Union (NSTU) and four directors are appointed by Nova Scotia's Minister of Finance and Treasury Board (Minister). The independent Chair of the TPPTI Board is mutually appointed by the NSTU and the Minister. The Board meets five to six times a year.



John Rogers, QC, ICD.D
Chair

The Chair is an ex-officio member on all committees.
Appointed: July 2020



Karen Gatien

Associate Deputy Minister
Department of Education and
Early Childhood Development
Committee: Governance, Chair
Appointed: 2015 | Resigned: Oct. 2021
Government Representative



Kyle Marryatt

Staff Officer, Member Services
Nova Scotia Teachers Union
Committee: - Audit and Actuarial
- Governance
Appointed: 2018
NSTU Representative



Bruce Osborne

Executive Director
Department of Fisheries and Aquaculture
Committee: Audit and Actuarial
Appointed: 2016
Government Representative



Steve Mahoney, CFA, FSA, CAIA, PRM

Vice President, Institutional Sales
Connor, Clark & Lunn Financial Group
Committee: Investment
Appointed: 2016
NSTU Representative



Dionne Reid

Teacher
Committee: Governance
Appointed: July 2020
NSTU Representative



Vicki Clark, CPA, CMA

Retired Director of Compliance and Reporting,
Department of Finance and Treasury Board
Committee: - Investment
- Audit and Actuarial, Chair
Appointed: 2016
Government Representative



Allan MacLean

Retired Teacher and
Nova Scotia Teachers Union, Staff Officer
Committee: Investment
Appointed: 2018
NSTU Representative



Charles Allain

Executive Director
Liability Management & Treasury Services,
Department of Finance and Treasury Board
Committee: Investment, Chair
Appointed: 2016
Government Representative

Teachers' Pension Plan Trustee Inc. continued...

TPPTI directors oversee all aspects of the Plan through three committees:



Audit and Actuarial Committee:

Oversight of the Plan's auditors and actuaries. Conducts a detailed review of the audited financial statements and actuarial valuation reports. Reviews quarterly compliance reports.



Governance, Communications, and Member Services Committee:

Ensures TPPTI's duties and responsibilities are clear and sets the goals for the Plan administrator.



Investment:

Reviews, monitors, and approves all investment management policies and investment decisions.

For more information on TPPTI and its policies, please visit our website at:
www.nstpp.ca/teachers-pension-plan



PLAN GOVERNANCE

TPPTI is the Trustee of the Plan. TPPTI was established in 2006 under a Joint Trust Agreement (which was amended in 2014) among the NSTU, the Province of Nova Scotia (Province) and TPPTI. TPPTI ensures that the Plan is operated with strong controls and risk management practices, transparent reporting, and prudent management of the Plan's investment assets.

The Plan Sponsors are the NSTU and the Province. The Sponsors are advised by the Teachers' Pension Board, which includes representation from the NSTU and the Province. The Sponsors are responsible for determining contribution rates, Plan regulations and benefits, and the Plan's funding targets. The Sponsors are also responsible for setting the Plan's actuarial assumptions.

The roles and responsibilities within the Plan's governance structure are highlighted below:

Teachers' Pension Board *

Recommends the actuarial assumptions used to value Plan liabilities and advises the Plan Sponsors on:

- Plan regulations and benefits
- Employer and member contribution rates
- The Plan's funding targets

* Includes representatives from the NSTU and the Province.

Teachers' Pension Plan Trustee Inc. (TPPTI) *

- Fiduciary responsibility for the Plan and its investment *assets*
- Responsible for the Plan's overall operations and investment decisions
- Sets policy framework and strategic direction for the investment *assets*

* Includes representatives from the NSTU and the Province.

The Board of Directors of Nova Scotia Pension Services Corporation

- Oversight of Nova Scotia Pension Services Corporation
- Sets strategic direction, approves operational budget, and makes key decisions

* Includes directors from TPPTI and Public Service Superannuation Plan Trustee Inc. (PSSPTI)

Nova Scotia Pension Services Corporation

- Manages the day-to-day operation of Plan investments and pension administration
- Provides Plan member, retiree, and employer services
- Jointly owned by TPPTI and PSSPTI

See page 11 for more information

To learn more about the TPP governance structure and the *Teachers' Pension Act*, please visit our website at: www.nstpp.ca/about/plan-governance



Nova Scotia Pension Services Corporation

Member Services

Our member and employer services teams are responsible for providing pension services to all Plan members (employees and retirees, and their eligible beneficiaries). When an employee retires, our service teams manage pension payments and provide assistance throughout the retirement process. We also assist employees with support in making informed retirement decisions.



2021 Service Results

87% ^

Percentage of calls were answered in less than 20 seconds. Increased from 86% in 2020.

21,322 ^

The number of Member calls that were answered. Increased from 16,329 in 2020.

12 ^

Pre-Retirement seminars were conducted. Increased from 11 in 2020.

My Retirement Plan (MRP) website usage

3,760 ^

The number of times the Annual Statement tool was used. Increased from 2,921 in 2020.

7,295 ^

The number of times the Pension Projection tool was used. Increased from 5,700 in 2020.

1,515 ^

The number of times the Pension Profile tool was used. Increased from 1,144 in 2020.

The My Retirement Plan (MRP) website, <https://nspensions.hroffice.com>, is a secure website that provides active members with access to personalized pension information. Active members can view their annual Member Statement, use the Pension Projection Tool, and access other retirement planning information. Once an active member retires, they will no longer have access to the MRP website. Retirees can contact us by phone or email for information relating to their pension.



We have a new logo:



We have a new address:

We relocated to: Purdy's Wharf, Tower 2, Suite 700,
1969 Upper Water St., Halifax, NS B3J 3R7

Our mailing address remains:
PO Box 371, Halifax NS B3J 2P8

Visit us online:

www.novascotiapension.ca
www.nstpp.ca

Follow us on Social Media:

 @yourNSTPP

 www.facebook.com/yourNSTPP

The Plan's Financial Position

As at December 31, 2021

Plan Assets

Plan assets were \$5.856 billion and the Plan's funded ratio was 82.5 per cent. The funded ratio is the ratio of Plan assets to Plan liabilities. The funded ratio increased by 3.5 per cent from 79.0 per cent in 2020.

The Plan is not at risk of being unable to meet its pension obligations over the short term; however, with a funding deficit of \$1.240 billion, the Plan remains significantly under-funded.

Plan Liabilities

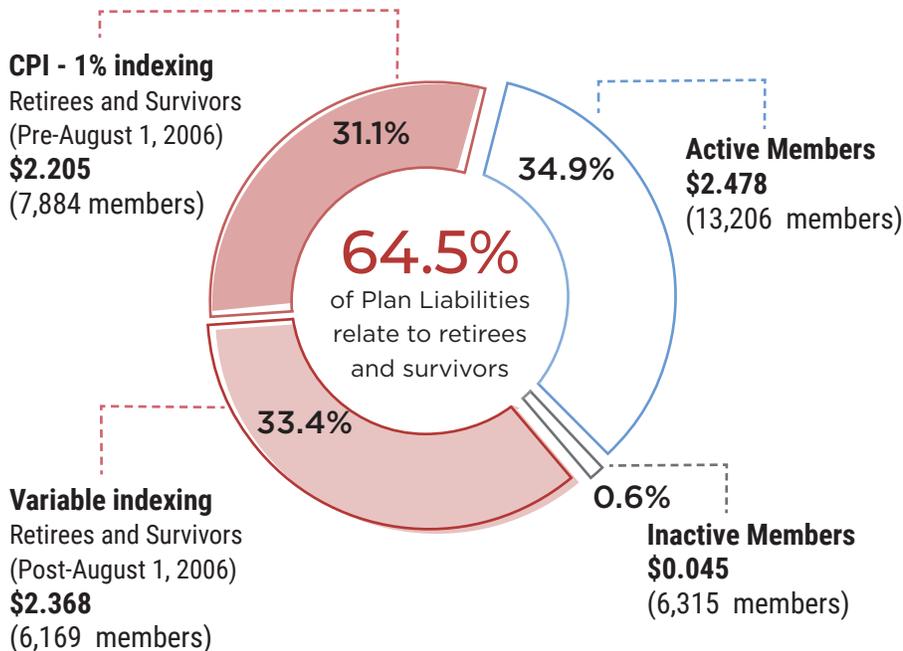
Plan liabilities were calculated to be \$7.096 billion. The calculation of Plan liabilities is derived by using several key assumptions. The most impactful assumption is the discount rate, which is based on a forecast of the long-term rate of return from investment assets.

For the 2021 valuation, the discount rate for the TPP was 5.70%.

Going Concern Actuarial Plan liabilities increased to \$7.096 billion

The chart below details the Plan liabilities, in dollar amounts*, by each member group.

(Rounded to the nearest billion)



2021

Net Assets: \$5.856
Liabilities: \$7.096
Unfunded Liability: -\$1.240

2020

Net Assets: \$5.519
Liabilities: \$6.986
Unfunded Liability: -\$1.467

2019

Net Assets: \$5.358
Liabilities: \$6.855
Unfunded Liability: -\$1.497

2018

Net Assets: \$4.938
Liabilities: \$6.556
Unfunded Liability: -\$1.618

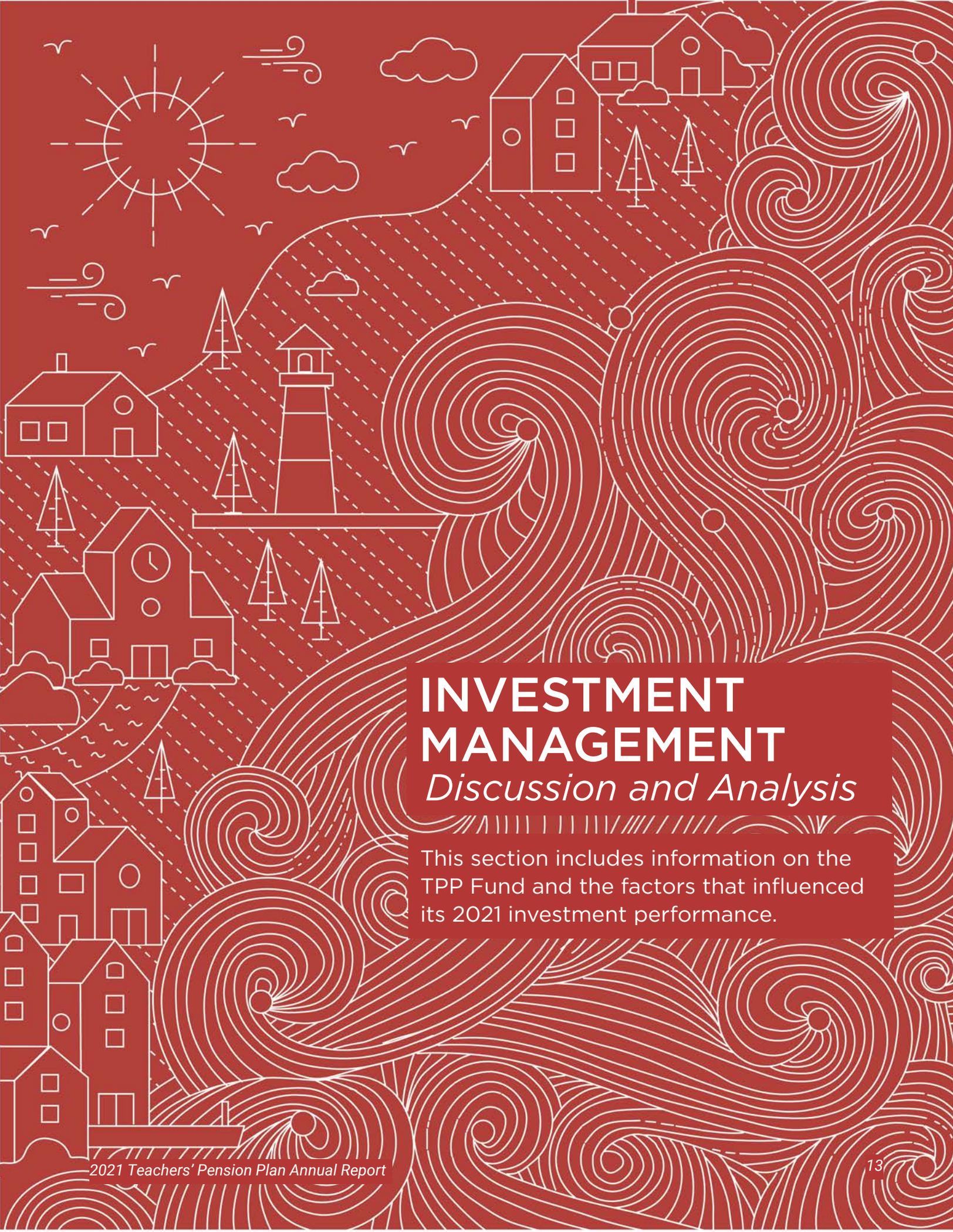
2017

Net Assets: \$5.111
Liabilities: \$6.517
Unfunded Liability: -\$1.406

Detailed information on the Plan's investment performance is in the Investment Management Discussion and Analysis section of this Annual Report on page 13.

You can learn more about the financial position of the Plan by referring to the audited financial statements for the year ended December 31, 2021 located on page 23 of this Annual Report.

You can also refer to the Actuarial Valuation Report as at December 31, 2021, which is available on our website: www.nstpp.ca



INVESTMENT MANAGEMENT

Discussion and Analysis

This section includes information on the TPP Fund and the factors that influenced its 2021 investment performance.

Investment Management - Discussion and Analysis

The Goal

The primary goal of the Teachers' Pension Fund (Fund) is to satisfy pension obligations.

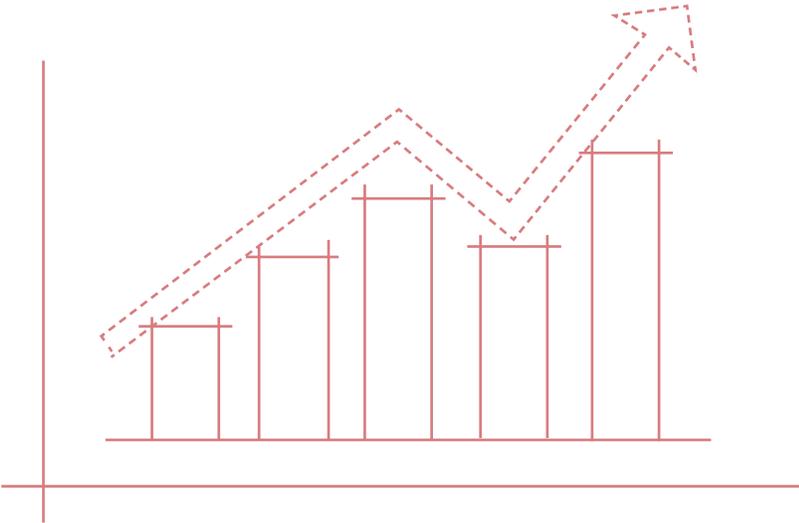
The SIP&G

The investment of Plan assets is guided by the Fund's Statement of Investment Policies & Goals (SIP&G) as written by Teachers' Pension Plan Trustee Inc. The SIP&G sets out the parameters within which investments may be made.

These parameters include permissible investments and the policy asset mix. The investment beliefs, also found within the SIP&G, state the general principles upon which the investments are made.

Objectives

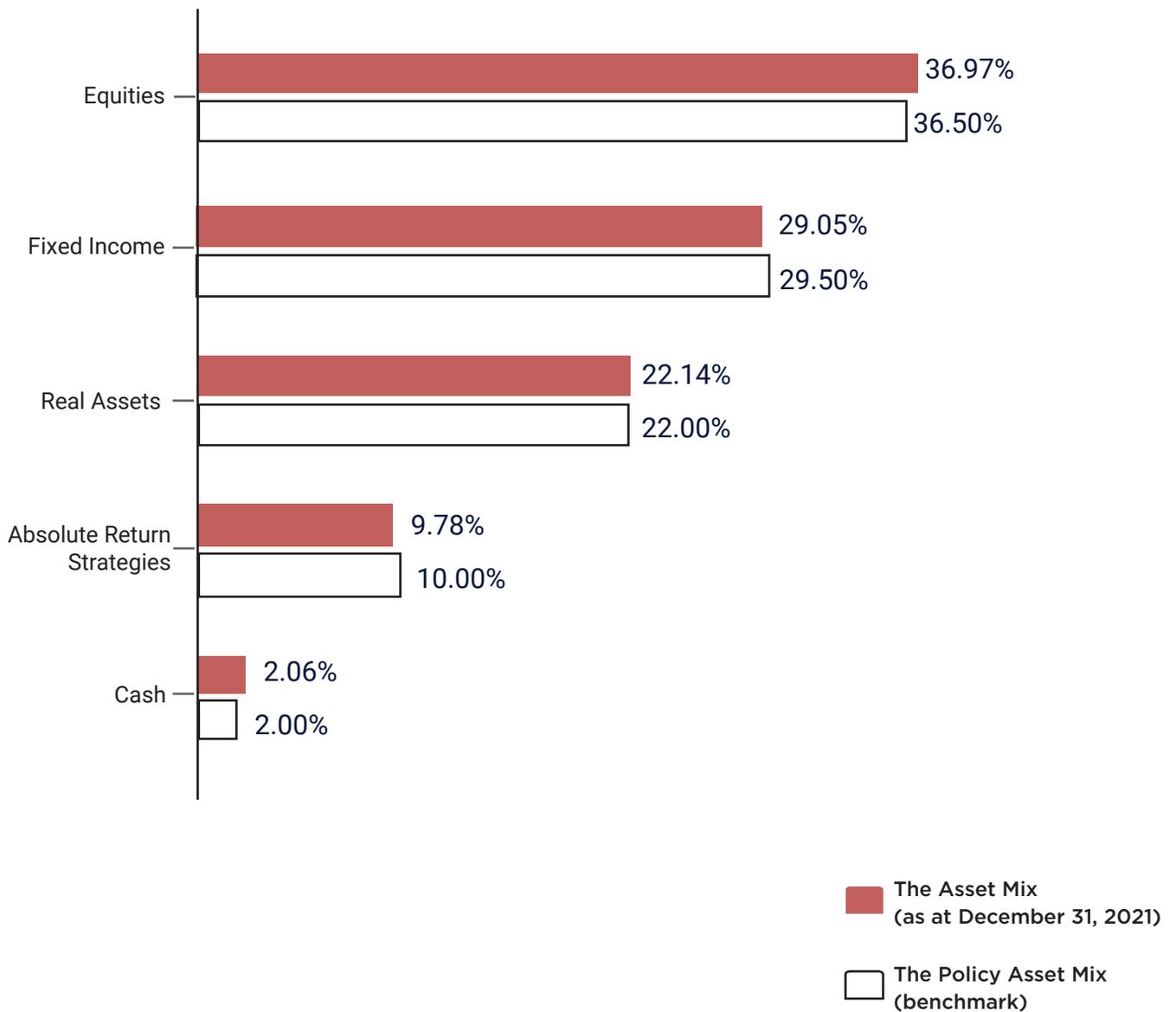
The Fund must operate in the long-term interest of beneficiaries to ensure that the assets, together with the expected contributions, are invested in a prudent manner so as to meet the liabilities of the Plan and reduce surplus risk.



Investment Management - Discussion and Analysis

The Asset Mix

Over the year, positioning of the Fund's asset classes was maintained relatively close to benchmark. The key driver for asset returns in 2021 centered around the economic recovery from the COVID-19 pandemic shutdowns.



2021 Investment Performance

In 2021, the Fund achieved a one-year return of 9.63 per cent, net of investment management fees (9.84 per cent, gross of investment management fees). The Fund outperformed the policy benchmark of 9.22 per cent on a net basis and outperformed the actuarial assumed rate of return of 5.70 per cent.

2021 Investment return



The US equity market, as measured by the S&P 500 Index, returned 28.71 per cent during the year. US equities surged to new record highs as the COVID-19 vaccine roll-out helped businesses and the economy in general rebound from lockdowns initiated in 2020. Strong corporate earnings and accommodative fiscal and monetary policies supported markets with relatively low volatility. Overall, the S&P 500 Index was led by energy, real estate, information technology and financials sectors. Utilities and consumer staples lagged.

Canadian equities, as measured by the S&P TSX Composite index, gained 25.09 per cent. The S&P/TSX was one of the best-performing markets in 2021, with all sectors contributing, but energy and financials were particularly strong as commodities trended higher.

International equities, as measured by the MSCI EAFE index, returned 18.70 per cent. European stocks rallied as widespread vaccine roll-outs and massive government stimulus measures helped lift the eurozone economy out of a pandemic-induced downturn. All sectors gained for the year, supported by pent-up consumer demand and a strong rebound in manufacturing activity. Japanese equities lagged other developed markets, weighed down by supply chain disruptions and the economic impact of COVID-19.

Emerging Market equities, as measured by the MSCI EM index, returned -0.19 per cent. Emerging market stocks posted their weakest return since 2018, undercut by China's economic slowdown and increased government intervention in the private sector. Inflationary pressures and a stronger U.S. dollar also dampened sentiment despite higher prices for commodities produced in many developing countries.

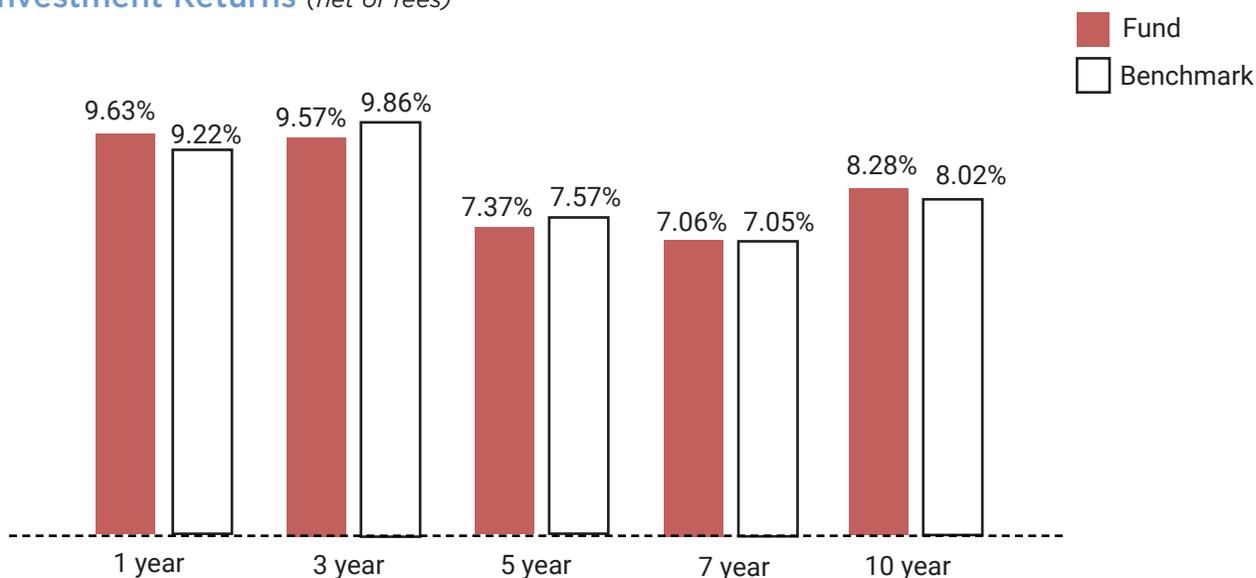
Investment Management - Discussion and Analysis

2021 Investment Performance continued...

US fixed income, as measured by the Bloomberg US Credit index, returned -1.08 per cent and Canadian fixed income, as measured by the FTSE Canada Universe Bond Index, returned -2.97 per cent. U.S. fixed income markets were mixed as investors digested higher inflation and prospects for tighter monetary policy. Within corporate credit, spreads on high-yield and investment-grade bonds tightened during the year. In the last quarter of the year, central banks began to take actions to combat rising inflation by trimming asset-buying programs and signalling rate hikes would likely start in 2022.

For the Fund, active performance was positive. The Fund's overall performance, on a net basis, led the benchmark by 41 basis points. Real estate was a significant contributor to the Funds' active return as gains on industrial property valuations led to strong returns in the portfolio. The underweight to Canadian government fixed income was also a contributor to active return, however, this was somewhat offset by some cash drag. Emerging market equities, Canadian equities, and global equities added value, while international equities detracted.

Investment Returns (net of fees)



2021 Economic Review

Global growth is expected to be 5.9 per cent in 2021.¹ Supply disruptions hindered global manufacturing, especially in Europe and the United States, for much of the year. A resurgence in COVID cases also held back a broader recovery. In China, disruptions from COVID outbreaks, interruptions to industrial production from power outages, declining real estate investment, and a faster-than-expected withdrawal of public investment all contributed to a second-half slowdown. There were signs of a global turnaround later in the year, with a pickup in international trade and upside surprises for services activity and industrial production data.

Inflation continued to rise throughout 2021, driven by several factors including rising oil and food prices, and ongoing supply chain disruptions. With increasing inflation pressure, global central banks began to signal their intent to tighten monetary policy by reducing their asset purchase programs and signalling that they will be raising rates in the coming year.

Canada's economy is expected to grow 4.7 per cent in 2021.² This is lower than the 6.3 per cent expected by the IMF in the July 2021 report³ as supply-chain disruptions have slowed Canada's economic recovery. Household consumption data revealed the significant disruptions to the manufacture and supply of durable goods, including motor vehicles. Housing market activity slowed, tempering growth in domestic expenditure. Residential construction remains at elevated levels but has declined from its peak in April. With these drags on growth, industry data suggest the recovery resumed in the third quarter, but at a modest pace. With the fourth COVID wave receding, the Canadian economy is projected to surpass pre-pandemic levels by the end of 2021. Inflationary pressure in the economy in the second half of the year led the Bank of Canada to end its asset purchase program in December and adopt a more hawkish tone on future rate hikes.

In the United States, the economy is expected to grow by 5.6 per cent in 2021.⁴ The recovery from the pandemic began to lose steam as the year progressed. As of the July IMF report, US growth for 2021 was estimated at 7.0 percent. The pace of economic growth in the first half of the year was supported by a temporary burst of economic activity as vaccination rates increased, lockdown measures eased, and many businesses hard-hit by the pandemic, such as hospitality and leisure, finally saw a material rebound in demand. Economic growth began to slow in the second half of the year as businesses struggled to keep up with the surges in demand due to global supply chain disruptions and tight labour market conditions. Rising inflation concerns and doubts over its transitory nature led the Federal Reserve to trim asset purchasing at a quicker than expected pace and signal the beginning of a rate hike cycle into 2022.

¹ World Economic Outlook International Monetary Fund *Rising Caseloads, A Disrupted Recovery, And Higher Inflation Update January 2022*

² World Economic Outlook International Monetary Fund *Rising Caseloads, A Disrupted Recovery, And Higher Inflation Update January 2022*

³ World Economic Outlook International Monetary Fund *Fault Lines Widen in the Global Recovery Update July 2021*

⁴ World Economic Outlook International Monetary Fund *Rising Caseloads, A Disrupted Recovery, And Higher Inflation Update January 2022*

2021 Economic Review continued...

Growth in the Euro area is expected to increase by 5.2 per cent in 2021.⁵

After a remarkable rebound in the second and third quarters of 2021, growth in the Euro area is estimated to have slowed in the fourth quarter owing in part to a sharp resurgence of COVID infections, a persistent drag on production from supply bottlenecks in economies heavily exposed to global supply chains, and sharply higher energy prices. Despite these headwinds, the estimate for growth in the Euro area was revised up from the July estimate of 4.6 per cent.⁶ Robust domestic demand and labour markets, along with lingering supply chain bottlenecks and increasing commodity prices, have continued to push inflation higher in European economies. This has led many of the region's central banks to withdraw monetary policy accommodations more rapidly.

Japanese growth is estimated to have increased by 1.6 per cent in 2021.⁷

Activity remained subdued through 2021, but it is likely to have picked up toward the end of the year as high vaccination rates allowed for the relaxation of pandemic-control measures. Supply-chain disruptions, especially amongst major trading partners, weighed on production and trade and pushed up producer prices. Cost pressures have not been passed on to consumers with negative implications for business profitability, which remains especially weak. Inflation has remained subdued in Japan and below the 2 per cent⁸ inflation target but upward price pressures increased at the end of the year. Monetary policy has remained accommodative with longer-term interest rates around zero. The Bank of Japan has also supported lending to businesses affected by the coronavirus by extending the duration of this support by six months until the end of March 2022.

Emerging market economic growth is estimated at 6.5 per cent in 2021.⁹

Growth in China has decelerated more markedly than previously envisioned. Recurring mobility restrictions related to the pandemic and regulatory curbs on the property and financial sectors have restrained consumer spending and residential investment. In contrast, and despite supply disruptions and electricity shortages, manufacturing activity has been generally solid and export growth has accelerated. Macroeconomic policy action has helped prevent a sharper economic slowdown and mitigated financial stress. The People's Bank of China has provided short-term liquidity injections and cut reserve requirements, and the government accelerated infrastructure investment and increased efforts to support homeowners and creditworthy developers. The economic recovery also lost momentum in most other emerging market countries. Industrial production decelerated and new export orders remain subdued, reflecting moderating external demand and lingering supply bottlenecks. Private consumption has also been constrained by an acceleration in inflation in many economies.

⁵ World Economic Outlook International Monetary Fund Rising Caseloads, A Disrupted Recovery, And Higher Inflation Update January 2022

⁶ World Economic Outlook International Monetary Fund Fault Lines Widen in the Global Recovery Update July 2021

⁷ World Economic Outlook International Monetary Fund Rising Caseloads, A Disrupted Recovery, And Higher Inflation Update January 2022

⁸ OECD Economic Outlook, Volume 2021 Issue 2: Preliminary Version OECD 2021

⁹ World Economic Outlook International Monetary Fund Rising Caseloads, A Disrupted Recovery, And Higher Inflation Update January 2022

Sustainable Investing

Sustainable investing and climate risk continues to be a focus for TPPTI. Sustainable investing is an investment approach that, in addition to achieving targeted investment returns, considers long-term investing and environmental, social and corporate governance factors. A Sustainable Investment Policy was first approved in 2015 and since then an annual Sustainable Investment Report became a reoccurring item on the TPPTI Board's agenda.

A sustainability report is also posted on the TPP website to provide members with more information on ongoing sustainable investment activities. Work continues on how to improve the resiliency of investment portfolios such as real estate to protect assets that could be negatively impacted by climate change. TPPTI continues to engage with its investment managers to progress their sustainable investment programs.

The investment landscape for sustainable investing continues to evolve. TPPTI is developing its sustainable strategies within the direct real estate portfolio and has continued the expansion of investments in renewable energy. As well, TPPTI is focused on working with like-minded partners to further develop the sustainable investment approach. As such, TPPTI welcomes the emergence of Canadian pension plan association groups taking a leading approach to sustainable investing. TPPTI will look to further integrate these industry best practices in the years to come.



Our focus during 2021

An asset liability study is undertaken by the TPPTI Board at least every five years, the last one being in 2020. The purpose of the study is to review the investment risks to which TPPTI is exposed and to identify potential changes to the policy asset mix. Working with an external consultant, an adjusted long-term asset mix was approved by the TPPTI Board.

With the completion of the recent asset liability study and the approval of the new policy asset mix, TPPTI focused on establishing and initiating an implementation plan in 2021. Planned changes impacted several asset classes; government bonds and equities declined, and commodities were eliminated outright. Funds from reduced asset classes will be re-allocated to areas such as real assets (real estate, infrastructure, and timber/agriculture) and absolute returns strategies. Furthermore, several changes were planned within the equity and fixed income asset classes helping optimize overall exposures.

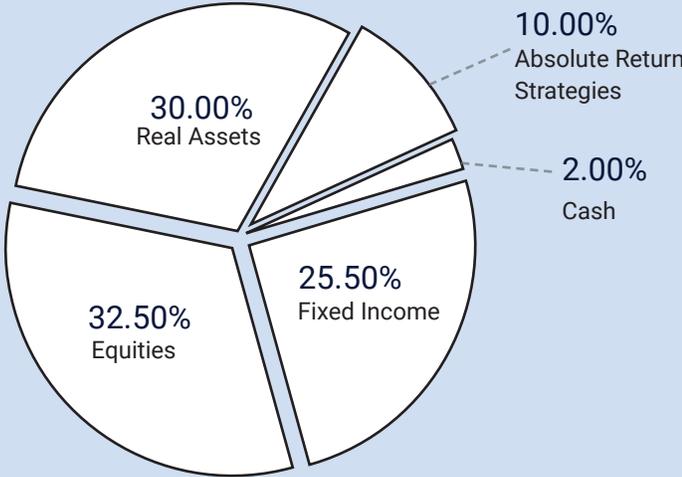
While the overall implementation plan will take until the end of 2023 to fully complete, substantial progress was made during the year including completing the absolute return strategy changes, building out changes to existing mandates and working through new external investment manager searches. Due to the substantial lead time necessary for investment into real assets, growth in this asset class will continue in 2022 and 2023.

Looking Ahead to 2022

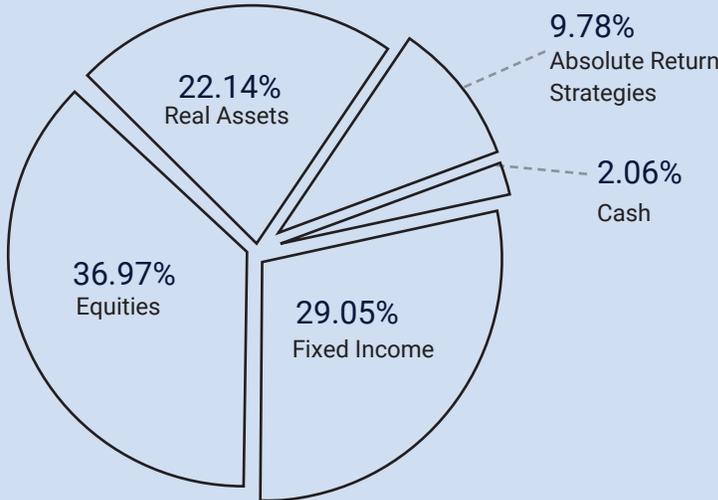
The start of the global pandemic in 2020 led to significant financial market dislocations. The subsequent economic recovery, combined with supply chain disruptions, has led to the largest increases in inflation rates in decades. With central banks starting to raise interest rates attempting to limit inflation, there will likely be further volatility and opportunities in many investment markets.

While the implementation of the new asset mix will continue to be a focus of the TPPTI, as the implementation progresses there will be an opportunity to further review existing investment strategies and investment mandates in many asset classes to optimize the overall portfolio. As illiquid assets become a larger allocation, TPPTI will continue to review and ensure the robustness of the Fund's overall liquidity profile.

Target Policy Asset Mix



Current Asset Mix



Financial Statements of TEACHERS' PENSION PLAN Year ended December 31, 2021



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INDEPENDENT AUDITORS' REPORT

To the Teachers' Pension Plan Trustee Inc.

Opinion

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

- the statement of financial position as at December 31, 2021;
- the statement of changes in net assets available for benefits for the year then ended;
- the statement of changes in pension obligation for the year then ended;
- the statement of changes in deficit for the year then ended;
- and notes to the financial statements, including a summary of significant accounting policies.

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

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Entity as at December 31, 2021, and its changes in net assets available for benefits and its changes in pension obligation for the year then ended in accordance with Canadian accounting standards for pension plans.

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the "***Auditors' Responsibilities for the Audit of the Financial Statements***" section of our auditors' report.

We are independent of the Entity 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.

Other information

Management is responsible for the other information. Other information comprises the information, other than the financial statements and the auditors' report thereon, included in a document entitled "Annual Report".

KPMG LLP, an Ontario limited liability partnership and member firm of the KPMG global organization of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee. KPMG Canada provides services to KPMG LLP.



Our opinion on the financial statements does not cover the other information and we do not and will not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information identified above and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit and remain alert for indications that the other information appears to be materially misstated.

We obtained the information, other than the financial statements and the auditors' report thereon, included in the Annual Report as at the date of this auditors' report.

If, based on the work we have performed on this other information, we conclude that there is a material misstatement of this other information, we are required to report that fact in the auditors' report.

We have nothing to report in this regard.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

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

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

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

Auditors' Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.



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

We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion.

The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Entity's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Entity's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Entity to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Chartered Professional Accountants

Halifax, Canada
April 19, 2022

Financial Statements of

TEACHERS' PENSION PLAN

Year ended December 31, 2021

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Financial Statements

Statement of Financial Position

December 31, 2021, with comparative information for 2020 2021 2020

(in thousands of dollars)

	2021	2020
Net assets available for benefits		
Assets		
Cash	\$ 149,261	\$ 147,410
Contributions receivable:		
Employers'	7,726	6,941
Employees'	2,789	2,919
Receivable from pending trades	5,759	5,845
Accounts receivable	1,455	1,511
Accrued investment income	10,853	11,506
Investments (note 5)	5,743,655	5,358,610
Total assets	5,921,498	5,534,742
Liabilities		
Due to administrator (note 12)	1,124	832
Payable for pending trades	58,594	11,216
Accounts payable and accrued liabilities	3,417	3,233
Investment-related liabilities (note 5)	2,840	716
Total liabilities	65,975	15,997
Net assets available for benefits	\$ 5,855,523	\$ 5,518,745
Accrued pension obligation and deficit		
Accrued pension obligation (note 7)	\$ 7,095,756	\$ 6,986,076
Deficit (note 7)	(1,240,233)	(1,467,331)
Commitments (note 8)		
Accrued pension obligation and deficit	\$ 5,855,523	\$ 5,518,745

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

On behalf of the Board:



John Rogers
Chair



Sara Halliday
Director



Kyle Marryatt
Director

Financial Statements

Statement of Changes in Net Assets Available for Benefits

December 31, 2021, with comparative information for 2020	2021	2020
(in thousands of dollars)		
Increase in assets		
Contributions (note 4)	\$ 240,356	\$ 229,500
Transfers from other pension plans	2,978	3,050
Investment income (note 5)	146,449	148,643
Change in market value of investments (note 5)	386,932	211,957
Total increase in assets	776,715	593,150
Decrease in assets		
Benefits paid (note 9)	417,426	410,711
Transfers to other pension plans	3,011	2,181
Administrative expenses (note 10)	19,500	19,229
Total decrease in assets	439,937	432,121
Increase in net assets available for benefits	336,778	161,029
Net assets available for benefits, beginning of year	5,518,745	5,357,716
Net assets available for benefits, end of year	\$ 5,855,523	\$ 5,518,745

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

Financial Statements

Statement of Changes in Pension Obligation

December 31, 2021, with comparative information for 2020	2021	2020
(in thousands of dollars)		
Accrued pension obligation, beginning of year	\$ 6,986,076	\$ 6,855,448
Increase in accrued pension benefits		
Interest on accrued pension obligation	390,859	383,196
Benefits accrued	156,024	140,740
Transfers from other pension plans	2,978	3,050
Changes in actuarial assumptions (note 7)	40,721	-
Net experience losses (note 7)	-	16,534
	590,582	543,520
Decrease in accrued pension benefits		
Benefits paid	417,426	410,711
Transfers to other pension plans	3,011	2,181
Net experience gains (note 7)	60,465	-
	480,902	412,892
Net increase in accrued pension benefits	109,680	130,628
Accrued pension obligation, end of year	\$ 7,095,756	\$ 6,986,076

Statement of Changes in Deficit

December 31, 2021, with comparative information for 2020	2021	2020
(in thousands of dollars)		
Deficit, beginning of year	\$ 1,467,331	\$ 1,497,732
Increase in net assets available for benefits	(336,778)	(161,029)
Net increase in accrued pension obligation	109,680	130,628
Deficit, end of year	\$ 1,240,233	\$ 1,467,331

See accompanying notes to financial statements.

Notes to Financial Statements

Year ended December 31, 2021
(in thousands of dollars)



Authority and description of Plan

The following description of the Teachers' Pension Plan (the "Plan") is a summary only. For more complete information, reference should be made to the Plan legislative documents and agreements.

General

The Plan is governed by the Teachers' Pension Act (the "Act") as part of the Acts of Nova Scotia. It is a contributory defined benefit pension plan covering public school and community college teachers and is co-sponsored by the Province of Nova Scotia (the "Province") and the Nova Scotia Teachers' Union (the "Union"). The Act established the Nova Scotia Teachers' Pension Fund (the "Fund") for the purpose of crediting employer and employee contributions, investment earnings and meeting the Plan's obligations.

The detailed provisions of the Plan, including pension eligibility criteria and benefit formulas, are contained in the Act and in the Regulations made under the Act.

As part of the June 22, 2005 Agreement between the Province and the Union, the Province and the Union agreed to joint and equal participation in the governance of the Plan including the sharing of any actuarial surpluses or deficits between the Province and the beneficiaries of the Plan upon the transfer of the Plan to a newly formed trustee entity. Teachers' Pension Plan Trustee Inc. (the "TPPTI") was incorporated to act as trustee of the Fund and on April 1, 2006, the TPPTI became the trustee of the Fund. The 2005 Agreement was rescinded and replaced in 2014 with a new agreement, last amended on November 17, 2015. However, there were no changes to the governance of the Plan or the sharing of actuarial surpluses or deficits.

The TPPTI is responsible for the administration of the Plan and the investment management of the Fund assets. The investment of the Fund assets is guided by the Fund's Statement of Investment Policies & Goals (the "SIP&G") as written by the TPPTI. The SIP&G sets out the parameters within which the investments are made. These parameters include permissible investments and the policy asset mix. The Investment Beliefs, also found within the SIP&G, state the general principles upon which the investments are made.

Funding

Plan benefits are funded by contributions and investment earnings. Contributions are made by active members of the Plan and are matched by either the Province or participating employers. The determination of the value of the benefits and required contributions is made based on periodic actuarial valuations (note 7).

In accordance with the Plan regulations, employers and employees are required to contribute 11.3% of salary up to the Year's Maximum Pensionable Earnings (the "YMPE") per the Canada Pension Plan (the "CPP") and 12.9% of salary above the YMPE.

Authority and description of Plan (continued)

Retirement benefits

The pension benefit consists of two components. The lifetime pension, for every year of pensionable service, is 1.3% times the 5-year highest average salary at retirement (the “HAS-5”) up to the average YMPE, plus 2.0% times the portion of the HAS-5 in excess of the average YMPE (if applicable). The bridge benefit, for every year of pensionable service, is 0.7% times the lesser of (i) the HAS-5, and (ii) the average YMPE. The lifetime pension is payable for life, while the bridge benefit is payable until age 65, at which point it ceases as a result of integration with the CPP.

Plan members are eligible for a pension upon reaching any of the following criteria:

- 35 years of service;
- age 50 with 30 years of service (reduced pension);
- age 55 with an age plus service factor of 85 “Rule of 85”;
- age 55 with two years of service (reduced pension);
- age 60 with 10 years of service;
- age 65 with two years of service.

Indexing

For pensions with an effective date before August 1, 2006, the rate is equal to the increase in the 12-month average Consumer Price Index (“CPI”) for Canada, less 1%, to a maximum of 6%.

Indexing in a given year for pensions with an effective date on or after August 1, 2006, as well as those of existing pensioners who opted for the new indexing arrangement, depends on the funding level of the Plan. If the funding level as at December 31 of the preceding fiscal year is less than 90%, no indexing will be provided. At a funding level of between 90% and 100%, indexing may be granted at 50% of the increase in the 12-month average CPI up to a maximum of 6%, at the discretion of the Board of Trustees.

If the funding level is greater than 100%, indexing will be provided at 100% of the increase in the 12-month average CPI up to a maximum of 6%, to the extent that it does not reduce the funding level to below 100%; however, pensions will be increased by at least 50% of the increase in the 12-month average CPI up to a maximum of 6%. For the purposes of the valuation, it was assumed that indexing would not be paid in years in which it is discretionary.

Disability benefits

Prior to August 1, 2014, active members who became mentally or physically disabled were entitled to apply for a disability pension from the Plan. Effective August 1, 2014, however, disability coverage was moved to the Union’s long-term disability insurance plan, and the ability to apply for a disability pension from the Plan was discontinued except in very limited circumstances.

Authority and description of Plan (continued)

Death benefits

Upon the death of a vested member, the surviving spouse is entitled to receive 60% of the vested member's pension benefit payable for life, or a higher percentage if the member elected an optional form of pension. Eligible children are entitled to receive 10% of the vested member's pension benefit, payable until age 18 (or 25 while still in school).

Termination benefits

Upon termination of employment, a vested member may choose to defer their pension until they satisfy one of the above eligibility criteria, or they may remove their funds from the Plan in the form of a commuted value (or refund of contributions, for service prior to January 1, 1988).

Refunds

The benefit payable upon termination or death of a non-vested member, or upon death prior to retirement of a vested member with no eligible survivors, is a lump sum refund of the member's contributions with interest.

2.

Basis of preparation

a. Basis of presentation

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

Consistent with Section 4600, investment assets and liabilities are presented on a non-consolidated basis even when the investment is in an entity over which the Plan has effective control. Earnings of such entities are recognized as income as earned and as dividends are declared. The Plan's total investment income includes valuation adjustments required to bring the investments to their fair value.

These financial statements are prepared on a going concern basis and present the aggregate financial position of the Plan as a separate reporting entity.

These financial statements were authorized for issue by the Board of Trustees of the Teachers' Pension Plan Trustee Inc. on April 19, 2022.

b. Basis of measurement

The financial statements have been prepared on the historical cost basis except for financial instruments which are measured at fair value through the statement of changes in net assets available for benefits and derivative financial instruments which are measured at fair value. Units of subsidiaries held are measured at the fair value of the underlying assets and liabilities.

c. Use of estimates and judgments

The preparation of the financial statements in conformity with Section 4600 and IFRS requires management to make judgments, estimates and assumptions that affect the application of accounting policies and the reported amounts of assets and liabilities at the date of the statement of financial position, the reported amounts of changes in net assets available for benefits and accrued pension benefits during the year. Actual results may differ from those estimates. Significant estimates included in the financial statements relate to the valuation of real estate, infrastructure, agriculture & timber and the determination of the accrued pension obligation.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimates are revised and in any future years affected.

3.

Significant accounting policies

a. Investment transactions, income recognition and transaction costs

i. Investment transactions:

Investment transactions are accounted for on a trade date basis.

ii. Income recognition:

Investment income is recorded on an accrual basis and includes interest, dividends, and distributions. Change in market value of investments includes gains and losses that have been realized on disposal of investments and the unrealized appreciation and depreciation in the fair value of investments.

iii. Transaction costs:

Brokers' commissions and other transaction costs are recorded in the statement of changes in net assets available for benefits when incurred.

b. Foreign currency translation

Transactions denominated in foreign currencies are translated into Canadian dollars at the rates of exchange prevailing on the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies at the reporting date are re-translated into Canadian dollars at the exchange rate at that date.

Foreign currency differences arising on re-translation are recognized in the statement of changes in net assets available for benefits as a change in market value of investments.

c. Financial assets and liabilities

i. Non-derivative financial assets:

Financial assets are recognized initially on the trade date, which is the date that the Plan becomes a party to the contractual provisions of the instrument.

The Plan classifies all its financial assets at fair value through the statement of changes in net assets available for benefits. Financial assets are designated at fair value through the statement of changes in net assets available for benefits if the Plan manages such investment and makes purchase and sale decisions based on their fair value in accordance with the Plan's documented risk management or investment strategy. Upon initial recognition, attributed transaction costs are recognized in the statement of changes in net assets available for benefits as incurred. Financial assets at fair value through the statement of changes in net assets available for benefits are measured at fair value and changes therein are recognized in the statement of changes in net assets available for benefits.

ii. Non-derivative financial liabilities:

All financial liabilities are recognized initially on the trade date at which the Plan becomes a party to the contractual provisions of the instrument.

Financial assets and liabilities are presented in the statement of financial position. The net amount is presented in the statement of financial position, when and only when, the Plan has a legal right to offset the amounts and it intends either to settle on a net basis or to realize the asset and settle the liability simultaneously.

The Plan considers its amounts payable to be a non-derivative financial liability.

Significant accounting policies (continued)

iii. Derivative financial instruments:

Derivative financial instruments are recognized initially at fair value and their related transaction costs are recognized in the statement of changes in net assets available for benefits as incurred. Subsequent to initial recognition, derivatives are measured at fair value, and all changes are recognized immediately in the statement of changes in net assets available for benefits.

Derivative-related assets and liabilities are presented in the statement of financial position. The net amount is presented in the statement of financial position, when and only when, the Plan has a legal right to offset the amounts and it intends either to settle on a net basis or to realize the asset and settle the liability simultaneously.

d. Fair value measurement

Fair value is the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm's length transaction on the measurement date.

As allowed under IFRS 13, if an asset or a liability measured at fair value has a bid and an ask price, the price within the bid-ask spread that is the most representative of fair value in the circumstances shall be used to measure fair value. The Plan uses closing market price as a practical expedient for fair value measurement.

When available, the Plan measures the fair value of an instrument using quoted prices in an active market for that instrument. A market is regarded as active if quoted prices are readily and regularly available and represent actual and regularly occurring market transactions on an arm's length basis.

If a market for a financial instrument is not active, then the Plan establishes fair value using a valuation technique. Valuation techniques include using recent arm's length transactions between knowledgeable, willing parties (if available), reference to the current fair value of other instruments that are substantially the same, discounted cash flow analyses and option pricing models.

The best evidence of the fair value of a financial instrument at initial recognition is the transaction price, i.e. the fair value of the consideration given or received, unless the fair value of that instrument is evidenced by comparison with other observable current market transactions in the same instrument or based on a valuation technique whose variables include only data from observable markets. When a transaction price provides the best evidence of fair value at initial recognition, the financial instrument is initially measured at the transaction price and any difference between this price and the value initially obtained from a valuation model is subsequently recognized in profit or loss on an appropriate basis over the life of the instrument but not later than when the valuation is supported wholly by observable market data or the transaction is closed out.

All changes in fair value, other than interest and dividend income and expense, are recognized in the statement of changes in net assets available for benefits as part of the change in market value of investments.

Significant accounting policies (continued)

Fair values of investments are determined as follows:

- i. Fixed income securities and equities are valued at year-end quoted closing prices, where available. Where quoted prices are not available, estimated fair values are calculated using comparable securities.
- ii. Short-term notes, treasury bills, term deposits, and agreements to repurchase or resell securities maturing within one year, and promissory notes payable on demand are stated at cost, which together with accrued interest income approximates fair value given the short-term nature of these investments.
- iii. Pooled fund investments include investments in fixed income, equities, real estate and commodities. Pooled funds are valued at the unit values supplied by the pooled fund administrator, which represent the Plan's proportionate share of underlying net assets at fair values determined using closing market prices. These net asset values are reviewed by management.
- iv. Directly held real estate is valued based on estimated fair values determined by appropriate techniques and best estimates by management, appraisers, or both. Where external appraisers are engaged to perform the valuation, management ensures the appraisers are independent and compares the assumptions used by the appraisers with management's expectations based on current market conditions and industry practice to ensure the valuation captures the business and economic conditions specific to the investment.
- v. Private fund investments include investments in real estate, infrastructure, and agriculture & timber assets. The fair value of a private fund investment where the Plan's ability to access information on underlying individual fund investments is restricted, such as under the terms of a limited partnership agreement, is equal to the value provided by the fund's general partner unless there is a specific and objectively verifiable reason to vary from the value provided by the general partner. These net asset values are reviewed by management.
- vi. Derivatives, including futures, options, interest rate swaps, credit default swaps, total return swaps, and currency forward contracts, are valued at year-end quoted market prices, interest, spot and forward rates, where available. Where quoted prices are not available, appropriate alternative valuation techniques are used to determine fair value. The gains or losses from derivative contracts are included in the realized and unrealized gains or losses on investments.
- vii. Absolute return strategy investments, comprised of hedge funds, are recorded at fair value based on net asset values obtained from each of the hedge funds' administrators. These net asset values are reviewed by management.

Significant accounting policies (continued)

e. Non-investment assets and liabilities

The fair value of non-investment assets and liabilities are equal to their amortized cost value and are adjusted for foreign exchange where applicable.

f. Receivable/payable for pending trades

For securities transactions, the fair value of receivable from pending trades and payable for pending trades approximate their carrying amounts due to their short-term nature.

g. Accrued pension obligation

The value of the accrued pension obligation of the Plan is based on a going concern method actuarial valuation prepared by an independent firm of actuaries using the projected unit credit method. The accrued pension obligation is measured in accordance with accepted actuarial methods using actuarial assumptions and methods adopted by TPPTI for the purpose of establishing the long-term funding requirements of the Plan. The actuarial valuation included in the financial statements is consistent with the valuation for funding purposes.

h. Contributions

Basic contributions from employers and members are recorded on an accrual basis. Service purchases that include but are not limited to leaves of absence and transfers from other pension plans are recorded and service is credited when the purchase amount is received.

In certain years, an additional contribution to the Plan may be required from the Minister of Finance and Treasury Board. In any indexing period in which there is an actuarial deficit and clause 27B(3)(a) of the Teachers' Pension Plan Regulations applies, the Minister must contribute to the Plan, no later than the beginning of the following indexing period, an amount equal to the actuarial value, as calculated by the Plan's actuary at the beginning of the indexing period, of the difference between:

- i. the indexing of all pensions to which subsection 27B(3) applies for that indexing period at a rate of one-half of the percentage increase in the 12-month average CPI for that indexing period over the 12-month average CPI for the preceding indexing period to a maximum of 6% and, for all future indexing periods, at a rate of one-half of the assumed percentage increase in the 12-month average CPI determined in accordance with the actuarial assumptions and methods; and
- ii. no indexing of all pensions to which subsection 27B(3) applies for that indexing period and, for all future indexing periods, indexing at a rate of one-half of the assumed percentage increase in the 12-month average CPI determined in accordance with the actuarial assumptions and methods.

Significant accounting policies (continued)

i. Benefits

Benefit payments to retired, surviving and disabled members, commuted value payments and refunds to former members, and transfers to other pension plans are recorded in the period in which they are paid. Accrued benefits are recorded as part of the accrued pension benefit obligation.

j. Administrative expenses

Administrative expenses, incurred for plan administration and direct investment management services, are recorded on an accrual basis. Plan administration expenses represent expenses incurred to provide direct services to the Plan members and employers. Investment management expenses represent expenses incurred to manage the Fund. Base external manager fees for portfolio management are expensed in investment management expenses as incurred.

k. Income taxes

The Fund is the funding vehicle for a registered pension plan, as defined by the *Income Tax Act* (Canada) and, accordingly is not subject to income taxes.

l. Future changes to accounting policies

No relevant new guidance has been issued by the International Accounting Standards Board.

4.

Contributions

	2021	2020
(in thousands of dollars)		
Employer		
Matched current service	\$ 115,091	\$ 104,214
Matched past service	6	43
	115,097	104,257
Employee		
Matched current service	115,091	104,214
Matched past service	6	43
Unmatched past service	497	242
	115,594	104,499
Special contribution from the Province of Nova Scotia	9,665	20,744
	\$ 240,356	\$ 229,500

5.

Investments and investment-related liabilities

- a. The fair value of the Plan's investments and investment-related liabilities along with the related income as at and for the year ended December 31 are summarized in the following tables:

	2021		2020	
(in thousands of dollars)		%		%
Investments				
Fixed income				
Money market	\$ 121,686	2.1	\$ 184,260	3.4
Canadian bonds & debentures	475,515	8.3	476,435	8.9
Non-Canadian bonds & debentures	879,419	15.3	874,005	16.3
Canadian real return bonds	213,620	3.7	174,919	3.3
Equities				
Canadian	380,419	6.6	395,239	7.4
US	879,110	15.3	839,338	15.7
Global	867,364	15.1	807,535	15.1
Commodities	-	-	140,951	2.6
Real assets				
Real estate	706,436	12.3	699,653	13.1
Infrastructure	504,967	8.8	337,594	6.3
Agriculture & timber	59,089	1.0	32,713	0.6
Absolute return strategies				
Hedge funds	571,662	10.0	362,923	6.7
Investment-related receivables				
Agreements to resell securities	56,715	1.0	-	-
Promissory note	22,183	0.4	6,981	0.5
Derivative-related, net	5,470	0.1	26,064	0.1
	\$ 5,743,655	100.0	\$ 5,358,610	100.0
Investment-related liabilities				
Agreements to repurchase securities	(465)	16.4	-	-
Derivative-related, net	(2,375)	83.6	(716)	100.0
	\$ (2,840)	100.0	\$ (716)	100.0
Net investments	\$ 5,740,815		\$ 5,357,894	

Investments and investment-related liabilities (continued)

2021

(in thousands of dollars)

Changes in market value of investments and derivatives

	Investment income	Changes in market value of investments and derivatives		
		Realized	Unrealized	Total
Fixed income	\$ 48,417	\$ 3,989	\$ (59,529)	\$ (55,540)
Equities	40,170	191,627	127,708	319,335
Commodities	-	(20,794)	43,461	22,667
Real assets	61,428	16,817	12,888	29,705
Absolute return strategies	-	13,258	5,183	18,441
Derivatives	(5,527)	74,575	(22,251)	52,324
Other	1,961	-	-	-
	\$ 146,449	\$ 279,472	\$ 107,460	\$ 386,932

2020

(in thousands of dollars)

Changes in market value of investments and derivatives

	Investment income	Changes in market value of investments and derivatives		
		Realized	Unrealized	Total
Fixed income	\$ 47,697	\$ 21,337	\$ 43,075	\$ 64,412
Equities	42,865	56,177	56,560	112,737
Commodities	-	-	(7,653)	(7,653)
Real assets	49,801	23,398	1,532	24,930
Absolute return strategies	-	22,794	6,204	28,998
Derivatives	6,129	(5,466)	(6,001)	(11,467)
Other	2,151	-	-	-
	\$ 148,643	\$ 118,240	\$ 93,717	\$ 211,957

b. Derivatives

Derivatives are financial contracts, the value of which is “derived” from the value of underlying assets or interest or exchange rates. The Plan utilizes such contracts to provide flexibility in implementing investment strategies and for managing exposure to interest rate and foreign currency volatility.

Notional amounts of derivative contracts are the contract amounts used to calculate the cash flows to be exchanged. They represent the contractual amount to which a rate or price is applied for computing the cash to be paid or received. Notional amounts are the basis upon which the returns from, and the fair value of, the contracts are determined. They do not necessarily indicate the amounts of future cash flows involved or the current fair value of the derivative contracts. They are a common measure of volume of outstanding transactions but do not represent credit or market risk exposure. The derivative contracts become favourable (assets) or unfavourable (liabilities) as a result of fluctuations in either market rates or prices relative to their terms. The aggregate notional amounts and fair values of derivative contracts can fluctuate significantly.

Investments and investment-related liabilities (continued)

Derivative contracts transacted either on a regulated exchange market or in the over-the-counter (“OTC”) market, directly between two counterparties include the following:

Futures

Futures are transacted in standardized amounts on regulated exchanges and are subject to daily cash margining. The futures contracts that the Plan enters into are as follows:

- Government futures - contractual obligations to either buy or sell at a fixed value (the contracted price) government fixed income financial instruments at a predetermined future date. They are used to adjust interest rate exposure and replicate government bond positions. Long future positions are backed with high grade, liquid debt securities.
- Money market futures - contractual obligations to either buy or sell money market financial instruments at a predetermined future date at a specified price. They are used to manage exposures at the front end of the yield curve. Futures are based on short-term interest rates and do not require delivery of an asset at expiration. Therefore they do not require cash backing.

Options

Options are contractual agreements under which the seller (writer) grants the purchaser the right, but not the obligation, either to buy (call option) or sell (put option), a security, exchange rate, interest rate, or other financial instrument or commodity at a predetermined price, at or by a specified future date. The seller (writer) of an option can also settle the contract by paying the cash settlement value of the purchaser’s right. The seller (writer) receives a premium from the purchaser for this right. Purchased options are used to manage interest rate volatility exposures. Written options generate income in expected interest rate scenarios and may generate capital losses if unexpected interest rate environments are realized. Both written and purchased options will become worthless at expiration if the underlying instrument does not reach the strike price of the option. In-the-money portion of written options are covered by high grade, liquid debt securities.

Swaptions are contractual agreements that convey to the purchaser the right but not the obligation to enter into or cancel a swap agreement at a fixed future date or at any time within a fixed future period. The seller receives a premium from the purchaser for this right.

Investments and investment-related liabilities (continued)

Credit default swaps

Credit default swaps (“CDS”) provide protection against the decline in value of the referenced asset as a result of specified events such as payment default or insolvency. The purchaser pays a premium to the seller of the CDS in return for payment related to the deterioration in the value of the referenced asset. The referenced asset for CDS is a debt instrument. They are used to manage credit exposure without buying or selling securities outright. Written CDS increase credit exposure (selling protection), obligating the Plan to buy bonds from counterparties in the event of a default. Purchased CDS decrease exposure (buying protection), providing the right to “put” bonds to the counterparty in the event of a default. Net long exposures are backed with high grade, liquid debt securities. Underlying credit exposures are continuously monitored.

Interest rate swaps

Interest rate swaps involve contractual agreements between two counterparties to exchange fixed and floating interest payments based on notional amounts. They are used to adjust interest rate yield curve exposures and substitute for physical securities. Long swap positions increase exposure to long-term interest rates and short positions decrease exposure. Long swap positions are backed with high grade, liquid debt securities.

Total return swaps

Total return swaps are contractual agreements under which the total return receiver assumes market and credit risk on a bond or loan, where the total return payer forfeits risk associated with market performance but takes on the credit exposure that the total return receiver may be subject to. The total return receiver receives income and capital gains generated by an underlying loan or bond. In return, the total return receiver must pay a set rate and any capital losses generated by the underlying loan or bond over the life of the swap.

Currency forwards

Currency forwards are contractual obligations to exchange one currency for another at a specified price or settlement at a predetermined future date. Forward contracts are used to manage the currency exposure of investments held in foreign currencies. The notional amount of a currency forward represents the contracted amount purchased or sold for settlement at a future date. The fair value is determined by the difference between the market value and the notional value upon settlement.

Investments and investment-related liabilities (continued)

The following tables set out the notional values of the Plan's derivatives and their related assets and liabilities as at December 31:

2021					
(in thousands of dollars)					
	Notional value	Fair value			
		Assets	Liabilities	Net	
Derivatives					
Futures	\$ 12,857	\$ 84	\$ (323)	\$ 239	
Options	34,300	-	(17)	(17)	
Credit default swaps	2,300	154	(41)	113	
Interest rate swaps	53,900	385	(635)	(250)	
Total return swaps	107,911	1,832	-	1,832	
Currency forwards	1,714,641	1,793	(1,357)	436	
	\$ 1,925,909	\$ 4,248	\$ (2,373)	\$ 1,875	
Cash collateral		1,222	(2)	1,220	
Notional and fair value	\$ 1,925,909	\$ 5,470	\$ (2,375)	\$ 3,095	
2020					
(in thousands of dollars)					
	Notional value	Fair value			
		Assets	Liabilities	Net	
Derivatives					
Futures	\$ 23,460	\$ 95	\$ (37)	\$ 58	
Options	-	-	-	-	
Credit default swaps	3,460	200	(42)	158	
Interest rate swaps	48,000	72	(97)	(25)	
Total return swaps	112,562	215	-	215	
Currency forwards	1,969,280	24,438	(401)	24,037	
	\$ 2,156,762	\$ 25,020	\$ (577)	\$ 24,443	
Cash collateral		1,044	(139)	905	
Notional and fair value	\$ 2,156,762	\$ 26,064	\$ (716)	\$ 25,348	

Investments and investment-related liabilities (continued)

The following tables set out the contractual maturities of the Plan's derivatives and their net related assets and liabilities as at December 31:

2021					
(in thousands of dollars)	Under 1 year	1 to 5 years	5 to 10 years	Over 10 years	Total
Derivatives, net					
Futures	\$ (239)	\$ -	\$ -	\$ -	\$ (239)
Options	(17)	-	-	-	(17)
Credit default swaps	-	114	-	-	114
Interest rate swaps	-	(250)	-	-	(250)
Total return swaps	8	1,823	-	-	1,831
Currency forwards	436	-	-	-	436
	\$ 188	\$ 1,687	\$ -	\$ -	\$ 1,875
Cash collateral, net					1,220
Fair value, net	\$ 188	\$ 1,687	\$ -	\$ -	\$ 3,095

2020					
(in thousands of dollars)	Under 1 year	1 to 5 years	5 to 10 years	Over 10 years	Total
Derivatives, net					
Futures	\$ 58	\$ -	\$ -	\$ -	\$ 58
Options	-	-	-	-	-
Credit default swaps	-	158	-	-	158
Interest rate swaps	-	(92)	67	-	(25)
Total return swaps	-	215	-	-	215
Currency forwards	24,037	-	-	-	24,037
	\$ 24,095	\$ 281	\$ 67	\$ -	\$ 24,443
Cash collateral, net					905
Fair value, net	\$ 24,095	\$ 281	\$ 67	\$ -	\$ 25,348

Cash is deposited or pledged with various financial institutions as collateral if the Plan was to default on payment obligations on its derivative contracts. On the statement of financial position, collateral is represented as part of the net balance of derivative-related receivables and liabilities.

6.

Financial Instruments

a. Fair Values

The fair values of investments and derivatives are as described in note 3(d). The fair values of other financial assets and liabilities, being cash, contributions receivable, receivable from pending trades, accrued investment income, and payable for pending trades, approximate their carrying values due to the short-term nature of these financial instruments.

Fair value measurements recognized in the statement of financial position are categorized using a fair value hierarchy that reflects the significance of inputs used in determining the fair values.

Level 1: Fair value is based on inputs that reflect unadjusted quoted prices in active markets for identical assets or liabilities that the Investment Manager has the ability to access at the measurement date. Level 1 primarily includes publicly listed investments.

Level 2: Fair value is based on valuation methods that make use of inputs other than quoted prices included in Level 1, that are observable for the asset or liability, either directly or indirectly, including inputs in markets that are not considered to be active. Level 2 primarily includes debt securities and derivative contracts not traded on a public exchange and public equities not traded in an active market.

Level 3: Fair value is based on valuation methods where inputs that are based on non-observable market data have a significant impact on the valuation. Level 3 primarily includes real return bonds, real estate, infrastructure, and agriculture & timber investments valued based on financial statements and or investor statements. Promissory notes are valued at cost.

Financial Instruments (continued)

2021

(in thousands of dollars)

	Level 1	Level 2	Level 3	Total
Investments				
Fixed income				
Money market	\$ 34,996	\$ 86,690	\$ -	\$ 121,686
Canadian bonds & debentures	130,065	345,450	-	475,515
Non-Canadian bonds & debentures	27,299	852,120	-	879,419
Canadian real return bonds	-	133,585	80,035	213,620
Equities				
Canadian	181,286	199,133	-	380,419
US	445,904	433,206	-	879,110
Global	664,832	202,532	-	867,364
Commodities	-	-	-	-
Real assets				
Real estate	-	64,316	642,120	706,436
Infrastructure	-	-	504,967	504,967
Agriculture & timber	-	-	59,089	59,089
Absolute return strategies				
Hedge funds	-	571,662	-	571,662
Investment-related receivables				
Agreements to resell securities	-	56,715	-	56,715
Promissory notes	-	-	22,183	22,183
Derivative-related, net	1,306	4,164	-	5,470
	\$ 1,485,688	\$ 2,949,573	\$ 1,308,394	\$ 5,743,655
Investment-related liabilities				
Agreements to repurchase securities	\$ -	\$ (465)	\$ -	\$ (465)
Derivative-related, net	(342)	(2,033)	-	(2,375)
	\$ (342)	\$ (2,498)	\$ -	\$ (2,840)
Net investments	\$ 1,485,346	\$ 2,947,075	\$ 1,308,394	\$ 5,740,815

Financial Instruments (continued)

2020					
(in thousands of dollars)					
	Level 1	Level 2	Level 3	Total	
Investments					
Fixed income					
Money market	\$ 3,498	\$ 180,762	\$ -	\$ 184,260	
Canadian bonds & debentures	124,097	352,338	-	476,435	
Non-Canadian bonds & debentures	50,950	823,055	-	874,005	
Canadian real return bonds	-	89,251	85,668	174,919	
Equities					
Canadian	379,142	16,097	-	395,239	
US	466,878	372,460	-	839,338	
Global	589,014	218,521	-	807,535	
Commodities	-	140,951	-	140,951	
Real assets					
Real estate	-	88,680	610,973	699,653	
Infrastructure	-	-	337,594	337,594	
Agriculture & timber	-	-	32,713	32,713	
Absolute return strategies					
Hedge funds	-	362,923	-	362,923	
Investment-related receivables					
Promissory notes	-	-	6,981	6,981	
Derivative-related, net	1,139	24,925	-	26,064	
	\$ 1,614,718	\$ 2,669,963	\$ 1,073,929	\$ 5,358,610	
Investment-related liabilities					
Agreements to repurchase securities	\$ -	\$ -	\$ -	\$ -	
Derivative-related, net	(176)	(540)	-	(716)	
	\$ (176)	\$ (540)	\$ -	\$ (716)	
Net investments	\$ 1,614,542	\$ 2,669,423	\$ 1,073,929	\$ 5,357,894	

There were no significant transfers between level 1, level 2, and level 3 financial instruments during the years ended December 31, 2021, and 2020.

Financial Instruments (continued)

The following tables present the changes in the fair value measurement in Level 3 of the fair value hierarchy:

2021

(in thousands of dollars)

	Fixed income	Real assets	Investment- related receivables	Total
Balance, beginning of year	\$ 85,668	\$ 981,280	\$ 6,981	\$ 1,073,929
Purchases, contributed capital	-	228,598	15,202	243,800
Sales, capital returned	(1,211)	(27,373)	-	(28,584)
Realized gains	276	4,170	-	4,446
Unrealized gains (losses)	(4,698)	19,501	-	14,803
Balance, end of year	\$ 80,035	\$ 1,206,176	\$ 22,183	\$ 1,308,394

2020

(in thousands of dollars)

	Fixed income	Real assets	Investment- related receivables	Total
Balance, beginning of year	\$ 79,852	\$ 961,233	\$ 6,981	\$ 1,048,066
Purchases, contributed capital	-	30,674	-	30,674
Sales, capital returned	(1,151)	(36,997)	-	(38,148)
Realized gains	262	6,352	-	6,614
Unrealized gains	6,705	20,018	-	26,723
Balance, end of year	\$ 85,668	\$ 981,280	\$ 6,981	\$ 1,073,929

The total realized and unrealized gains included in the change in market value of investments from level 3 financial instruments held as at December 31, 2021 and 2020, respectively, was \$19,249 and \$33,337.

Fair value assumptions and sensitivity

Level 3 financial instruments are valued using various methods. Listed real return bonds are valued by a third-party using broker prices and comparable securities. Certain unlisted real estate, infrastructure, and agriculture & timber funds are valued using various methods including overall capitalization method and discount rate method. Real estate subsidiaries are valued using the overall capitalization method and discount rate method and the valuations are significantly affected by non-observable inputs, the most significant of which are the capitalization rate and the discount rate.

Financial Instruments (continued)

Significant unobservable inputs used in measuring fair value:

The table below sets out information about significant unobservable inputs used at December 31, 2021 in measuring financial instruments categorized as level 3 in the fair value hierarchy.

(in thousands of dollars)				
Description	2021 Fair value	2020 Fair value	Valuation technique	Unobservable inputs
Unlisted real estate subsidiaries	\$ 595,663	\$ 538,506	Income approach technique: overall capitalization rate method and discounted cash flow method	Capitalization rates, discount rates
Unlisted funds: real estate, infrastructure, agriculture & timber	610,513	442,774	Net asset value - audited financial statements	Information not available
Listed real return bond	80,035	85,668	Vendor supplied price - proprietary price model	Information not available
Unlisted promissory notes	22,183	6,981	Issued by subsidiaries; valued at cost	N/A
	\$ 1,308,394	\$ 1,073,929		

The following analysis illustrates the sensitivity of the Level 3 valuations to reasonably possible capitalization rate and discount rate assumptions for real estate properties where reasonably possible alternative assumptions would change the fair value significantly.

Valuations determined by the direct capitalization method and discount cash flow method are most sensitive to changes in the capitalization rates and discount rates.

	2021	2020
(in thousands of dollars)		
Unlisted direct real estate subsidiaries		
Direct capitalization method		
Minimum capitalization rate	3.25%	3.50%
Maximum capitalization rate	6.75%	6.75%
Increase of 25 basis points in capitalization rate	\$ (38,574)	\$ (35,474)
Decrease of 25 basis points in capitalization rate	\$ 41,299	\$ 36,363
Discounted cash flow method		
Minimum discount rate	3.40%	3.50%
Maximum discount rate	8.05%	8.32%
Increase of 25 basis points in discount rate	\$ (16,992)	\$ (16,190)
Decrease of 25 basis points in discount rate	\$ 16,925	\$ 16,616

Note: 1 basis point is equal to 0.01%

Financial Instruments (continued)

The Plan does not have access to underlying information that comprises the fair market value of real return bonds, and certain real estate and infrastructure fund investments. The fair market value is provided by the general partner or other external managers. In the absence of information supporting the fair market value, no other reasonably possible alternative assumptions could be applied.

Significant investments

The Plan's investments, each having a fair value or cost exceeding one per cent of the fair market value or cost of net investment assets and liabilities are as follows:

As At December 31, 2021

(in thousands of dollars)

	Number of investments		Fair value		Cost
Public market investments	1	\$	80,035	\$	28,687
Private market investments	15		2,109,521		1,453,832
	16	\$	2,189,556	\$	1,482,519

As At December 31, 2020

(in thousands of dollars)

	Number of investments		Fair value		Cost
Public market investments	1	\$	85,668	\$	26,623
Private market investments	17		2,059,787		1,539,546
	18	\$	2,145,455	\$	1,566,169

The Plan's significant private market investments consist of fixed income and equity pooled funds, commodities, real estate, infrastructure, and agriculture & timber.

Financial Instruments (continued)

b. Investment risk management

Risk management relates to the understanding and active management of risks associated with all areas of the business and the associated operating environment. Investments are primarily exposed to interest rate volatility, market price fluctuations, credit risk, foreign currency risk and liquidity risk. The Plan has set formal goals, policies, and operating procedures that establish an asset mix among equity, fixed income, real assets, absolute return strategy investments and derivatives that requires diversification of investments within categories and set limits on the size of exposure to individual investments and counterparties. Risk and credit committees have been created to regularly monitor the risks and exposures of the Plan. Trustee oversight, procedures and compliance functions are incorporated into Plan processes to achieve consistent controls and to mitigate operational risk.

i. Interest rate risk

Interest rate risk refers to the fact that the Plan's financial position will change with market interest rate changes, as fixed income securities are sensitive to changes in nominal interest rates. Interest rate risk is inherent in the management of a pension plan due to prolonged timing differences between cash flows related to the Plan's assets and cash flows related to the Plan's liabilities. To properly manage the Plan's interest rate risk, appropriate guidelines on the weighting and duration for the bonds and other fixed income investments are set and monitored.

Financial Instruments (continued)

2021

(in thousands of dollars)

	Under 1 year	1 to 5 years	5 to 10 years	Over 10 years	Total	Average yield (%)(1)
Fixed income						
Money market	\$ 119,466	\$ -	\$ -	\$ -	\$ 119,466	-
Bonds & debentures	16,018	254,203	292,984	284,499	847,704	3.6
Real return bonds (2)	-	-	-	80,035	80,035	5.3
	\$ 135,484	\$ 254,203	\$ 292,984	\$ 364,534	\$ 1,047,205	3.3
Pooled funds					643,035	
Total fixed income					\$ 1,690,240	

2020

(in thousands of dollars)

	Under 1 year	1 to 5 years	5 to 10 years	Over 10 years	Total	Average yield (%)(1)
Fixed income						
Money market	\$ 182,503	\$ -	\$ -	\$ -	\$ 182,503	-
Bonds & debentures	15,238	265,149	259,572	311,070	851,029	3.9
Real return bonds (2)	-	-	-	85,668	85,668	5.3
	\$ 197,741	\$ 265,149	\$ 259,572	\$ 396,738	\$ 1,119,200	3.4
Pooled funds					590,419	
Total fixed income					\$ 1,709,619	

1. The average effective yield reflects the estimated annual income of a security as a percentage of its year-end fair value. The total average yield is the weighted average of the average yields shown..
2. Real return bond yields are based on real interest rates. The ultimate yield will be impacted by inflation as it occurs.

The fair value of the Plan's investments is affected by short-term changes in nominal interest rates. Pension liabilities are exposed to the long-term expectation of rate of return of the Fund as well as expectations of inflation and salary escalation.

Financial Instruments (continued)

Interest rate sensitivity

The Plan's investments in fixed income and fixed income related derivatives are sensitive to interest rate movements. The following table represents the assets held in the Plan as at December 31, subject to interest rate changes, average duration due to a one percent increase (decrease) in interest rate and the change in fair value of those assets:

	2021	2020
(in thousands of dollars)		
Interest rate sensitive assets	\$ 1,049,866	\$ 1,120,511
Average duration for 1% increase in interest rates	(6.3)	(6.4)
Sensitivity to 1% increase in interest rates	(66,586)	(72,028)
Fair value after 1% increase in rates	\$ 983,280	\$ 1,048,483
Average duration for 1% decrease in interest rates	6.3	6.4
Sensitivity to 1% decrease in interest rates	66,586	72,028
Fair value after 1% decrease in rates	\$ 1,116,452	\$ 1,192,539

ii. Market price risk

Market price risk is the risk of fluctuation in market values of investments from influences specific to a particular investment or from influences on the market as a whole. Market price risk does not include interest rate risk and foreign currency risk which are also discussed in this note. As all of the Plan's financial instruments are carried at fair value with fair value changes recognized in the statement of changes in financial position, all changes in market conditions will directly result in an increase (decrease) in net assets. Market price risk is managed by the Plan through the construction of a diversified portfolio of instruments traded on various markets and across various industries.

Financial Instruments (continued)

Market sensitivity

The Plan's investments in equities are sensitive to market fluctuations. The following table represents the change in fair value of the Plan's investment in public equities due to a ten percent increase (decrease) in fair market values as at December 31:

	2021	2020
(in thousands of dollars)		
Total equity	\$ 2,126,893	\$ 2,042,112
10% increase in market values	212,689	204,211
Fair value after 10% increase in market values	\$ 2,339,582	\$ 2,246,324
10% decrease in market values	(212,689)	(204,211)
Fair value after 10% decrease in market values	\$ 1,914,204	\$ 1,837,901

iii. Credit risk

Credit risk is the risk of loss in the event the counterparty to a transaction fails to discharge an obligation and causes the other party to incur a loss. Credit risk is generally higher when a non-exchange traded financial instrument is involved because the counterparty for the traded financial instrument is not backed by an exchange clearing house. Credit risk associated with the Plan is regularly monitored and analyzed through risk and credit committees.

Fixed income

The Plan's Fixed Income Program includes two main sectors: the Government Sector and the Corporate Sector. One benefit to managing these two pieces separately is to provide the opportunity to access physical government bonds when required. When markets are at their utmost distress these may be the only securities available for liquidation. Managing the Corporate Sector and the Government Sector separately allows for the adjustment of credit risk within the Fixed Income Program by changing the allocation between these two sectors - increasing the Government Sector through periods of market duress and increasing the Corporate Sector through periods of stability. This approach also allows the active management of the Corporate Sector and taking active decisions where returns can be maximized. In order to minimize the exposure to credit risk, a comprehensive investment policy has been developed. There were no significant concentrations of credit risk in the portfolio in 2021.

Financial Instruments (continued)

The fair values of the Plan's fixed income investments exposed to credit risk are categorized in the following table as at December 31:

	2021	2020
(in thousands of dollars)		
Fixed income		
Canadian		
Governments	\$ 399,650	\$ 356,818
Corporate	94,739	202,267
Non-Canadian		
Governments	27,299	50,950
Corporate	525,517	509,165
	\$ 1,047,205	\$ 1,119,200
Pooled funds	643,035	590,419
Total fixed income	\$ 1,690,240	\$ 1,709,619

Financial Instruments (continued)

Derivatives

The Plan is exposed to credit-related losses in the event counterparties fail to meet their payment obligations upon maturity of derivative contracts. The Plan limits derivative contract risk by dealing with counterparties that have a minimum “A” credit rating. In order to mitigate this risk, the Fund:

- i. Deals only with highly rated counterparties, with whom International Swap and Derivative Association agreements have been executed, normally major financial institutions with a minimum credit standard of “A” rating, as supported by a recognized credit rating agency; and
- ii. Credit risk represents the maximum amount that would be at risk as at the reporting date if the counterparties failed completely to perform under the contracts, and if the right of offset proved to be non-enforceable. Credit risk exposure on derivative contracts is represented by the receivable replacement cost of contracts with counterparties, less any prepayment collateral or margin received, as at the reporting date.

Securities lending

The Plan engages in securities lending to enhance portfolio returns (see note 11). Through a securities lending program at the Plan’s custodian, the Plan lends securities for a fee to approved borrowers. Credit risk associated with securities lending is mitigated by requiring the borrowers to provide high quality collateral. In the event that a borrower defaults completely or in part, the custodian will replace the security at its expense. Regular reporting of the securities lending program ensures that its various components are continuously being monitored.

iv. Foreign currency risk

Foreign currency risk is the risk that the value of future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. The Plan primarily invests in financial instruments and enters into transactions denominated in various foreign currencies, other than its measurement currency. Consequently, the Plan is exposed to risk that the exchange rates of the various currencies may change in a manner that has an adverse effect on the value of the portion of the Plan’s investment and non-investment assets or liabilities denominated in currencies other than the Canadian dollar. Foreign currency risk is hedged by using foreign exchange forward contracts. A policy of hedging up to 100% of the currency exposure helps to mitigate this risk.

The Plan’s currency policy allows for the management of risk of investment and non-investments assets and liabilities held in the Fund through hedging strategies that are implemented through the purchase of forward currency contracts. The forward currency contracts offset the Plan’s foreign currency exposure, hence reducing the Plan’s foreign currency risk.

Financial Instruments (continued)

The Plan's investment and non-investment assets and liabilities that are held in the Fund are represented as unhedged and hedged currency exposures as at December 31 in the following table:

December 31, 2021	Unhedged	Hedged
(in thousands of dollars)		
Summary FX exposure		
Canadian dollar	\$ 2,302,954	\$ 3,941,115
United States dollar	2,797,824	1,594,313
Euro	289,513	(20,491)
British pound sterling	128,376	59,777
Japanese yen	104,802	104,799
Other	223,853	168,245
	\$ 5,847,322	\$ 5,847,758

December 31, 2020	Unhedged	Hedged
(in thousands of dollars)		
Summary FX exposure		
Canadian dollar	\$ 2,313,998	\$ 4,227,564
United States dollar	2,536,806	1,207,873
Euro	229,868	(84,297)
British pound sterling	118,993	8,793
Japanese yen	107,214	76,914
Other	180,145	74,214
	\$ 5,487,024	\$ 5,511,061

After the effect of hedging, and without change in all other variables, a ten percent increase (decrease) in the Canadian dollar against all other currencies would (decrease) increase the fair value of the Plan's investment and non-investment assets and liabilities held in the Fund, respectively.

Financial Instruments (continued)

The following table below represents these changes in the Plan's investment and non-investment assets and liabilities held in the Fund as at December 31:

	2021	2020
(in thousands of dollars)		
Fund assets and liabilities	\$ 5,847,758	\$ 5,511,061
10% increase in Canadian Dollar	(173,331)	(116,682)
Fund assets and liabilities after increase	\$ 5,674,427	\$ 5,394,379
10% decrease in Canadian Dollar	211,849	142,611
Fund assets and liabilities after decrease	\$ 6,059,607	\$ 5,653,672

v. Liquidity risk:

Liquidity risk is the risk that the Plan's does not have sufficient cash to meet its current payment liabilities and acquire investments in a timely and cost-effective manner. Liquidity risk is inherent in the Plan's operations and can be impacted by a range of situation specific and market-wide events including, but not limited to, credit events and significant movements in the market. Cash obligations are fulfilled from contributions to the Plan, cash income of the Plan and planned dispositions of Plan assets as required. Cash requirements of the Plan are reviewed on an ongoing basis to provide for the orderly availability of resources to meet the financial obligations of the Plan. The Plan's cash management policy ensures that the quality and liquidity of the investment vehicles within the cash portfolios are consistent with the needs of the Plan.

Approximately 39% (2020 - 45%) of the Plan's investments are in liquid securities traded in public markets, consisting of fixed income and equities. Pooled funds consisting of exchange traded fixed income, equities, and real estate are approximately 26% (2020 - 27%) of the Plan's investments and are liquid within 30 days or less. Although market events could lead to some investments becoming illiquid, the diversity of the Plan's portfolios should ensure that liquidity is available for benefit payments. The Plan also maintains cash on hand for liquidly purposes and for payment of Plan liabilities. At December 31, 2021, the Plan had cash in the amount of \$149,261 (2020 - \$147,410).

vi. COVID-19

On March 11, 2020, the outbreak of the novel strain of coronavirus, specifically identified as "COVID-19", was classified as a global pandemic, which has resulted in governments enacting emergency measures to combat the spread of the virus. These measures, which include the implementation of travel bans, self-imposed quarantine periods and social distancing, have caused material disruption to business globally resulting in an economic slowdown. Global equity and capital markets have also experienced significant volatility and weakness. Governments have reacted with significant monetary and fiscal interventions designed to stabilize economic conditions. The duration and impact of the COVID-19 pandemic is unknown currently, as is the efficacy of the government's interventions. The Plan's administrator has implemented procedures in response to the COVID-19 pandemic, including employee education, monitoring of symptoms, increased sanitation practices, as well as employees working remotely when possible. The duration of the outbreak and economic impacts are uncertain and there may be impacts in the future on the Plan's operations.

7.

Accrued pension obligation

a. Actuarial assumptions

The actuarial present value of the accrued pension obligation is an estimate of the value of pension obligations of the Plan in respect of benefits accrued to date for all active and inactive members including pensioners and survivors. As the experience of the Plan unfolds, and as underlying conditions change over time, the actual value of accrued benefits payable in the future could be materially different than the actuarial present value.

Actuarial valuations of the Plan are required every year by the Act and provide an estimate of the accrued pension obligation (Plan liabilities) calculated using various economic and demographic assumptions, based on membership data as at the valuation date. The Plan's consulting actuaries, Eckler Limited, performed a valuation as at December 31, 2021 and issued their report in April 2022. The report indicated that the Plan had an unfunded liability of \$1,240,233 (2020 - \$1,467,331).

The actuarial valuation calculates liabilities for each member on the basis of service earned to date and the employee's projected five-year highest average salary at the expected date of retirement, or in the case of pensioners and survivors, on the basis of the amount of pension being paid to them. The projected unit credit method was adopted for the actuarial valuation to determine the current service cost and actuarial liability.

	2021	2020
Discount rate	5.70% per annum	5.70% per annum
Inflation	2.00% per annum	1.80% per annum
Salary	2.00% per annum plus promotional ranging from 0.00% to 7.50%	1.80% per annum plus promotional ranging from 0.00% to 3.25%
YMPE and maximum pension increase	2.75% per annum	2.30% per annum
Indexing	1.10% per annum for retirements prior to August 1, 2006 and no indexing for retirements on or after August 1, 2006	0.80% per annum for retirements prior to August 1, 2006 and no indexing for retirements on or after August 1, 2006
Retirement age	50% of active members who achieve eligibility for an unreduced pension under the rule of 85 prior to age 62 will retire when they first become eligible; the remainder of active and all inactive members will retire at the earliest of: <ul style="list-style-type: none"> • age 65 with 2 years of service, • 35 years of service; and • age 62 with 10 years of service 	50% of active members who achieve eligibility for an unreduced pension under the rule of 85 prior to age 62 will retire when they first become eligible; the remainder of active and all inactive members will retire at the earliest of: <ul style="list-style-type: none"> • age 65 with 2 years of service, • 35 years of service; and • age 62 with 10 years of service
Mortality	107% (male)/99% (female) of 2014 Public Sector Mortality Table projected generationally with CPM improvement Scale B	2014 Public Sector Mortality Table projected generationally with CPM improvement Scale B

Accrued pension obligation (continued)

The assumed real rates of increases in pensionable earnings (i.e. increase in excess of the assumed inflation rate) are dependent on the attained age of the members.

Demographic assumptions are used to estimate when future benefits are payable to members and beneficiaries, including assumptions about mortality rates, termination rates, and patterns of early retirement. Each of these assumptions is updated periodically, based on a detailed review of the experience of the Plan and on the expectations for future trends.

b. Experience losses/gains

Experience gains of \$60,465 arose during the year ending December 31, 2021, from differences between the actuarial assumptions and actual results, causing a decrease to the accrued pension obligation. For the year ending December 31, 2020, these differences resulted in experience losses of \$16,534 causing an increase in the accrued pension obligation.

8.

Commitments

The Plan has committed capital to investments in real estate, infrastructure, and agriculture & timber over a definitive period of time. The future commitments are generally payable on demand based on the capital needs of the related investment. The table below indicates the capital amount committed and outstanding as at December 31, 2021.

December 31, 2021	Committed	Outstanding
(in thousands of dollars)		
United States dollar		
Real estate	25,000	4,472
Infrastructure	481,037	209,409
Agriculture & timber	85,300	40,074
	USD 591,337	USD 253,955
Euro		
Infrastructure	75,000	57,177
	EUR 75,000	EUR 57,177
Canadian dollar		
Infrastructure	5,000	25
	CAD 5,000	CAD 25

9.

Benefits

	2021	2020
(in thousands of dollars)		
Pension benefits paid	\$ 368,060	\$ 367,644
Survivor benefits paid	26,594	22,124
Disability benefits paid	19,058	18,143
Refunds paid to terminated members	3,714	2,800
	\$ 417,426	\$ 410,711

10.

Administrative Expenses

The Plan is charged by its service providers, including Nova Scotia Pension Services Corporation, a related entity, for professional and administrative services. The following is a summary of these administrative expenses.

	2021	2020
(in thousands of dollars)		
Plan administration:		
Office and administration services	\$ 5,318	\$ 4,847
Actuarial & consulting services	105	90
Legal services	80	86
Audit services	44	47
Other professional services	32	31
	5,579	5,101
Investment expenses:		
Investment management services	10,590	10,674
Transaction costs	668	713
Custody services	474	471
Advisory & consulting services	286	394
Information services	216	214
	12,234	12,466
HST	1,687	1,662
	\$ 19,500	\$ 19,229

Investment management and performance fees included in the unrealized gains/ (losses) on investments consisting of pooled funds, limited partnerships and subsidiaries are estimated at \$22,258 (2020 - \$23,325) using financial statements and or investor statements where available, and when not available, estimates based on investment management contracts. These fees are not direct expenses of the Plan and therefore are not included in administrative expenses.

11.

Securities lending

The Plan participates in a securities lending program where it lends securities that it owns to third parties for a fee. For securities lent, the Plan receives a fee and the borrower provides readily marketable securities of higher value as collateral which mitigates the credit risk associated with the program. When the Plan lends securities, the risk of failure by the borrower to return the loaned securities is alleviated by such loans being continually collateralized. The securities lending agent also provides indemnification if there is a shortfall between collateral and the lent security that cannot be recovered. The securities lending contracts are collateralized by securities issued by, or guaranteed without any limitation or qualification by, the government of Canada or the governments of other countries.

The following table represents the estimated fair value of securities that were loaned out and the related collateral as at December 31:

	2021		2020	
(in thousands of dollars)				
Securities on loan	\$	264,844	\$	287,112
Collateral held	\$	286,766	\$	307,967

12.

Related party transactions

Investments held by the Plan include bonds & debentures of the Province of Nova Scotia. The total fair value of these investments is \$9,760 (0.2% of Fund assets and liabilities) as at December 31, 2021 (\$2,296 (0.1% of Fund assets and liabilities) at December 31, 2020).

The Plan's administrator, Nova Scotia Pension Services Corporation, an entity co-owned by Teachers' Pension Plan Trustee Inc. and Public Service Superannuation Plan Trustee Inc. for the purpose of providing pension plan administration and investment services, charges the Plan at cost, an amount equal to the expenses incurred to service the Plan. As Nova Scotia Pension Services Corporation operates on a cost recovery basis, the Plan loans cash to its administrator, as required to pay upcoming expenses or to purchase capital assets. The administration expense charged to the Plan for the year ending December 31, 2021 was \$9,255 (2020 - \$9,112). The amount due to the administrator as at December 31, 2021 was \$1,124 (2020 - \$832).

13.

Interest in subsidiaries

The Plan's subsidiaries were created for the purposes of providing investment earnings from real estate, infrastructure and other investment arrangements. The Plan's subsidiaries are presented on a non-consolidated basis. The following table shows the fair values of the Plan's subsidiaries as at December 31:

Subsidiary	Purpose	Ownership %	2021 Fair value	2020 Fair value
(in thousands of dollars)				
TPP Investments RE Inc.	Real estate	100	\$ 476,042	\$ 451,425
NT Combined Investments Inc.	Equities	46	433,206	372,460
TPP Investments II Inc.	Real estate	100	125,734	118,983
TPP Investments CS Inc.	Infrastructure	100	109,737	101,321
TPP Investments BR Inc.	Infrastructure	100	62,021	-
TPP Investments AX Inc.	Infrastructure	100	57,631	55,892
TPP Investments ES Inc.	Real estate	100	40,344	40,565
HV Combined Investments Inc.	Hedge funds	37	24,074	25,455
TPP Investments AC Inc.	Infrastructure	100	12,029	-
TPP Investments KA Inc.	Infrastructure	100	10,891	161
TPP Investments MU Inc.	Infrastructure	100	6,524	-
			\$ 1,358,233	\$ 1,166,262

The Plan either has 100% controlling interest or significant influence over its subsidiaries' cash flows. Funding is made via capital investment from the Plan. Certain subsidiaries have commitments that must be funded directly through capital investment by the Plan. These amounts are included in the Plan's commitments (note 8). Financing is provided as required via shareholder loans and is payable on demand to the Plan.

14.

Capital management

The main objective of the Fund is to sustain a certain level of net assets in order to meet the Plan's pension obligations. The TPPTI (see note 1) manages the contributions and plan benefits as required by the Act and its related Regulations. The TPPTI approves and incurs expenses to administer the commerce of the Fund as required by agreement between the Province and the Union.

Under the direction of the TPPTI, the Fund provides for the short-term financial needs of current benefit payments while investing members' contributions for the longer-term security of pensioner payments. The TPPTI exercises duly diligent practices and has established written investment policies and procedures, and approval processes. Operating budgets, audited financial statements, yearly actuarial valuations and reports, and as required, the retention of supplementary professional, technical and other advisors, are part of the Fund governance structure.

The Fund fulfils its primary objective by adhering to specific investment policies outlined in its SIP&G, which is reviewed annually by TPPTI. The Fund manages net assets by engaging knowledgeable investment managers who are charged with the responsibility of investing existing funds and new funds (current year's employee and employer contributions) in accordance with the SIP&G. Increases in net assets are a direct result of investment income generated by investments held by the Fund and contributions into the Fund by eligible employees and participating employers. The main use of net assets is for benefit payments to eligible Plan members.

Under the 2014 Agreement, minimum funding targets were established, with objectives of having assets of the Plan reach levels of 80-90% of the actuarial liabilities on or before December 31, 2025, at least 85-95% on or before December 31, 2030, and at least 90-100% on or before December 31, 2035. These funding targets are required to be regularly reviewed, including a comprehensive review in 2020 and further reviews every 5 years thereafter.

GLOSSARY

Actuarial assumed rate of return:

The long term *rate of return* assumed by the Plan's external actuary in determining the value of the Plan's *liabilities*. Also, referred to as the *discount rate*.

Asset(s):

Financial and real items owned by the Plan which have a monetary value, including cash, stocks, bonds, real estate, etc.

Asset Mix:

The allocation of funds to be used for investment purposes between different types of assets, including cash, stocks, bonds, real estate, etc.

Asset Liability Study:

An *asset liability study* analyzes a pension fund's risk and reward profile by examining not only the plan's *assets* but also the Plan's *liabilities*. The study is designed to evaluate the probable change in *liabilities* over time in order to develop asset allocation recommendations that best meet these *liabilities*.

Benchmark:

A standard against which the performance of the Plan's *return on investment* can be measured.

Discount Rate:

See *actuarial assumed rate of return*.

Equity(ies):

Common or preferred stock representing ownership in a company.

Funded Ratio:

A ratio of the Plan's *assets* to *liabilities*, expressed as a percentage. A ratio above 100 per cent indicates that the Plan has more assets than required to fund its future estimated *liabilities*.

Gross Domestic Product (GDP):

Is the total market value of all final goods and services produced in a country in a given year. GDP is one of the primary indicators used to gauge the health of a country's economy.

Gross of investment management fees:

Refers to the fact that the *return on investment* is reported before the deduction of management fees or expenses.

Indexing:

Refers to the linking of retirement payments made to some retirees with overall price increases in the economy, as measured by the Consumer Price Index.

International Monetary Fund (IMF):

An organization of 188 countries working to foster global monetary cooperation, secure financial stability, facilitate international trade, promote high employment and sustainable economic growth, and reduce poverty around the world.

Liabilities:

An estimate of the current value of future obligations of the Plan as a result of retirement commitments made to past, current, and future employees.

MSCI Europe, Australasia and Far East (EAFE) Index:

Is a stock market index that is designed to measure the equity market performance of developed markets outside of the U.S. and Canada.

MSCI Emerging Markets (EM) Index:

Is a stock market index that captures large and mid-capitalization representation across 23 emerging market countries.

Net of investment management fees:

Refers to the fact that the *return on investment* is reported after the deduction of management fees or expenses.

Overweight/Underweight:

Refers to the difference relative to the *benchmark* portfolio. *Underweight* indicates less than the *benchmark*, while *overweight* indicates more than the *benchmark*.

Return on investment(s):

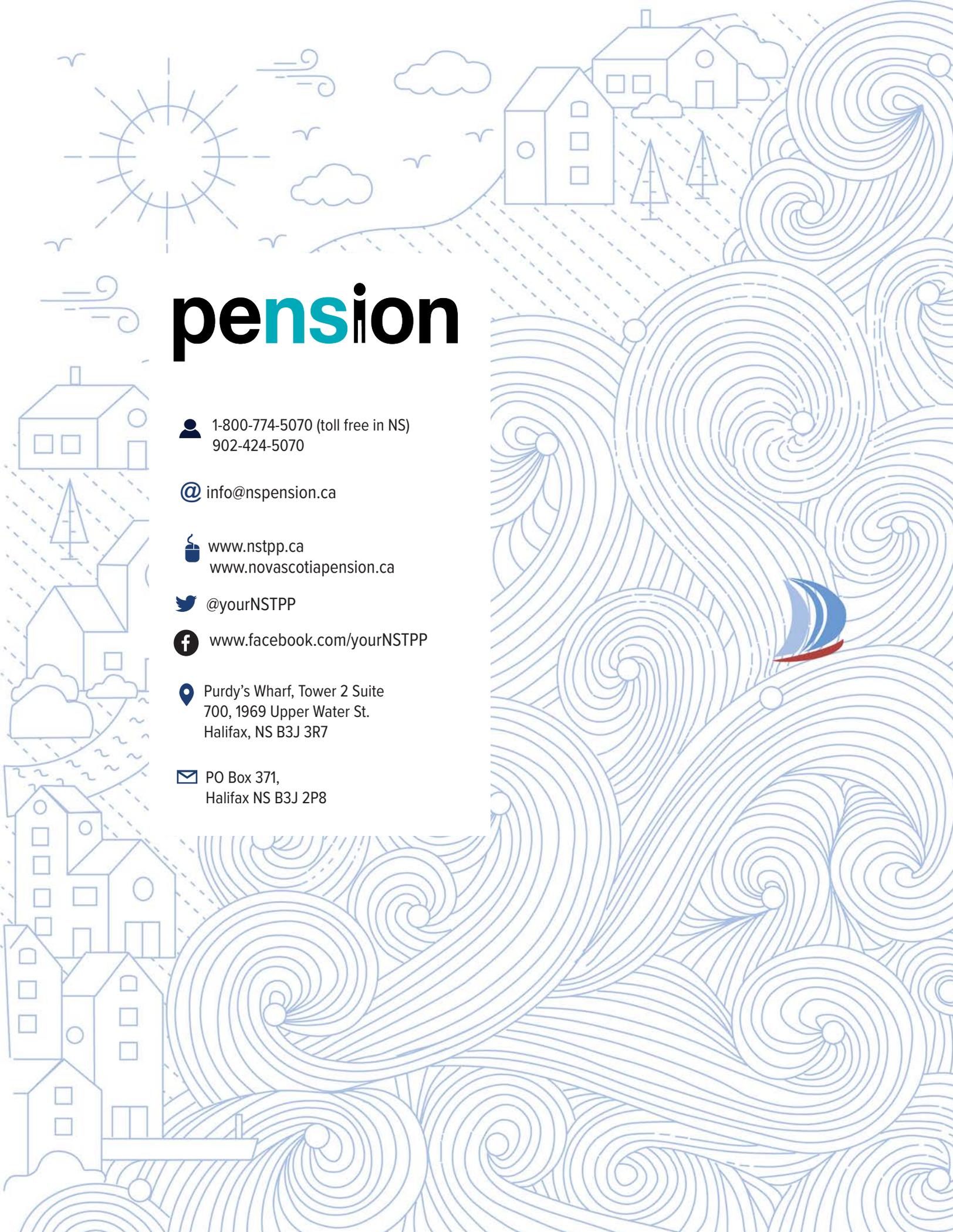
A performance measure used to evaluate the efficiency of the Plan's investments, expressed as a percentage gain or loss on the initial investment at the beginning of the period.

Unfunded Liability:

An *unfunded liability* is present when the Plan's *funded ratio* is below 100 per cent. The *unfunded liability* is a measure, in dollars, of the amount by which the Plan's *liabilities* exceed its assets.

Volatility:

A measure of the variation in the price of a security or the returns of the Plan. High *volatility* indicates increased risk.



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