Board of Governors
PENSION & BENEFITS COMMITTEE
Friday 18 February 2022
9:30 a.m. to 12:00 noon
From 11:00 a.m. on will be a confidential briefing with the Pension Investment Committee

This meeting will be held via Microsoft Teams

Non-members may arrange to join the open session of the electronic meeting by contacting Diana Goncalves, d3goncalves@uwaterloo.ca

		OPEN SESSION	ACTION
9:30	1.	Approval of the 14 January 2022 Minutes (Open Session)* and Business Arising	Decision
9:35	2.	Execution Against the Work Plan* [Wickens]	Information
9:40	3.	Update on Government Pension Plan Initiatives [Aon]	Information
9:45	4.	Pension Risk Management Dashboard Q4* [Aon]	Information
10:00	5.	Annual Adjustments [McGrath]	
		a. COLA for Pensions in Pay*	Information
		b. COLA for Deferred Pensions*	Decision
		c. Pensionable Earnings for Members on LTD*	Decision
10:15	6.	Investment Status of the Payroll Pension Plan* [Hadley]	Information
10:30	7.	Annual Report to the Community* [Wickens]	Discussion
		CONFIDENTIAL SESSION	
10:40	8.	Approval of the 14 January 2022 Minutes (Confidential Session)+ and Business Arising	Decision

Next Meeting: Friday 11 March 2022, 9:30 a.m. – 12:00 noon

*attached
** to be distributed
+ distributed separately

10 February 2022

Rebecca Wickens
Associate University Secretary

Please convey regrets to Diana Goncalves at d3goncalves@uwaterloo.ca

Future Agenda Items

a. Pension Contribution for Members on LTD
b. Level of LTD coverage vs. practical requirements
c. EFAB Report Data Requirements
d. Presentation re: the UPP
e. Communication Plan re: Handling of Member Questions/Feedback

University of Waterloo
Board of Governors
PENSION & BENEFITS COMMITTEE
Minutes of the 14 January2022 Meeting
[in agenda order]

Present: Peter Barr, Sara Cressman, Tony Giovinazzo, Dennis Huber, Ranjini Jha, David Saunders, David Taylor, Marilyn Thompson, Ken Vetzal, Rebecca Wickens (secretary)

Regrets: Terrence Birmingham, Michael Herz, James Rush

Guests/Resources: Anata Alphonso, Linda Byron, Diana Goncalves, Sarah Hadley, Lee Hornberger, Allan Shapira, Michelle St-Amour

Organization of Meeting: Peter Barr took the chair, and Rebecca Wickens acted as secretary. The secretary advised that a quorum was present. The agenda was accepted as distributed.

OPEN SESSION

1. APPROVAL OF THE 10 DECEMBER 2021 MINUTES (OPEN SESSION) AND BUSINESS ARISING

There was a motion to approve the minutes as distributed. Jha and Taylor. Carried. There was no business arising.

2. EXECUTION AGAINST THE WORK PLAN

This item was received for information.

3. UPDATE ON GOVERNMENT PENSION PLAN INITIATIVES

Members heard: the Trent University Faculty Association joined the University Pension Plan (UPP), as did the UPP staff; more information will be coming on the requirement for pension plan administrators to calculate and report on their Pension Benefits Guarantee Fund claim exposure.

4. APPROVAL OF THE ACTUARIAL VALUATION ASSUMPTIONS

Byron took members through the valuation assumptions, noting: the assumptions will be used to prepare the valuation and an analysis on the increase in the hard dollar cap in the registered pension plan; the expectation that this valuation will be filed with the regulator given anticipated results; how assumptions for going concern, solvency and wind-up valuations are set and what estimates they provide; how inflation expectations are determined and how they impact the assumptions; how the discount rate is calculated and the impact of changing the discount rate on plan funding; the calculation and impact of the provision for adverse deviation.

Discussion included: rationale, pros and cons of filing more often than required by law; mechanisms employed by the committee to monitor the assets and liabilities of the pension fund between filings; how University contributions have been determined; retirement experience – numbers show that people are retiring later, how this information is tracked and used; the interest rate for crediting on required member contributions – how set and why required.

There was a motion to approve the actuarial valuation assumptions as presented. Huber and Giovinazzo. Carried.

With no further business in open session, the committee moved into confidential session.

NEXT MEETING

The next regular meeting is scheduled for Friday 18 February 2022, 9:30 a.m. – 12:00 noon.

27 January 2022

Rebecca M. Wickens
Associate University Secretary

Execution against Work Plan

Pension & Benefits Committee, Board of Governors, University of Waterloo

The below represents the annual responsibilities of the P&B Committee and has been prepared as an aid to planning only. The committee's activities are much broader, however, and include: legislative changes, plan changes and improvements; selection of managers and service providers; and requests from the UW community regarding pension and benefits plans.

Task	**Frequency (Target month)**	**11 Feb 2021**	**12 Mar 2021**	**14 May 2021**	**18 June 2021**	**10 Sept 2021**	**22 Oct 2021**	**19 Nov 2021**	**10 Dec 2021**	**14 Jan 2022**	**18 Feb 2022**
Approval of Actuarial Valuation Assumptions	Annual (Jan)									✓	
Investment Status of PPP	Annual (Feb)	✓									✓
Cost-of-living Increase for Pensioners	Annual (Feb)	✓									✓
Pensions for Deferred Members	Annual (Feb)	✓									✓
Salaries for Pension Purposes for Individuals on Long-term Disability	Annual (Feb)	✓									✓
Actuarial Valuations (RPP and PPP), with posting to website once approved	Annual (Mar)		✓								
Review of Contribution and Protocol Caps (RPP and PPP)	Annual (Mar)		✓								
Benefits Plan Premium Renewals	Annual (Mar)		✓								
Indexing of Long-term Disability Plan Benefits and Maxima	Annual (Mar)		✓								
Annual Committee Self-Assessment	Annual (Mar)		✓								
Budget Overview	Annual (May)			✓							
Previous Years' Fees and Expenses	Annual (May)			✓							
Annual Audit of the Pension Plan Fund Financial Statements	Annual (May)			✓							

D = deferred

Task	Frequency	11 Feb 2021	12 Mar 2021	14 May 2021	18 June 2021	10 Sept 2021	22 Oct 2021	19 Nov 2021	10 Dec 2021	14 Jan 2022	18 Feb 2022
Benefits Utilization Report	Annual (June)				✓						
Annual review re: benefits added/removed from insured plans in the market	Annual (June)				✓						
Review of Committee Terms of Reference	Annual (June)				✓						
Indexing of Plan Maxima – Health, Dental, Retiree Life Insurance	Annual (Nov)							✓			
Employee and Family Assistance Program – report on utilization	Annual (Nov)							✓			
Maximum pension limits and caps adjustments, based on average industrial wage increase (AIW)	Annual (Dec)								✓		
Total Fund Overview	Quarterly		✓		✓	✓			✓		
Investment Manager Review	Semi-annually								✓		
Approval of the Statement of Investment Policies and Procedures (SIPP)	Annual								✓		
Annual Report to the Community	Annual	✓									✓
Actuarial Filing - Minimum every three years Most recent filings: 2017, 2018, 2020, 2021											

Pension Risk Management Dashboard

University of Waterloo
As of December 31, 2021

About This Material

This dashboard was prepared for the University of Waterloo to track changes in funded status of the Pension Plan over successive reporting periods, as well as quantify the amount of risk to which the Pension Plan is exposed. The report presents the funded status and performs the analysis on three bases:

Risk-Free Benchmark Basis – This liability is calculated using best estimate assumptions for retirement, termination and other demographic experience, and a discount rate and inflation assumption determined with reference to the risk-free environment. For this report, the liability has been determined at the real return bond yield plus a 40 basis point credit spread to reflect additional yield that can be achieved with relatively little additional risk. This liability differs from the solvency calculation in that the demographic assumptions are best estimate and statutory “grow-in” provisions are not included.

Going Concern Basis – This liability is calculated using the going concern assumptions at the most recent valuation. The analysis is performed using the market value of assets with Provision of Adverse Deviation as prescribed by the *Pension Benefits Act* (Ontario).

Solvency/Hypothetical Wind Up Basis – This liability is calculated using assumptions determined in accordance with the Canadian Institute of Actuaries Annuity Purchase guidance and Commuted Value standards in effect at each measurement date shown in this report. A summary of these assumptions is included on page 16.

This dashboard also contains a reconciliation that compares the going concern liability with the liability calculated using the risk-free benchmark. The difference between the two liabilities represents the amount of return expected to be provided by taking on risk in the investment portfolio. Over successive quarters the tool helps quantify how that risk changes as the underlying interest rates change.

On both bases the following information is shown:

- Current Funded Status and Historical Asset Liability Performance
  - How well funded is the plan?
  - What has been the return on plan assets and liabilities?
- Detailed Asset and Liability Performance Attribution
  - What factors drove the performance of assets and liabilities over the prior period?
  - What is the relative impact of these factors on the assets and liabilities in isolation and in combination?

For the Risk-Free Benchmark Basis, the following information is also shown:

- Scenario Testing
  - What risk exposures does the plan face?
  - What would be the impact of a downside event for each risk factor?

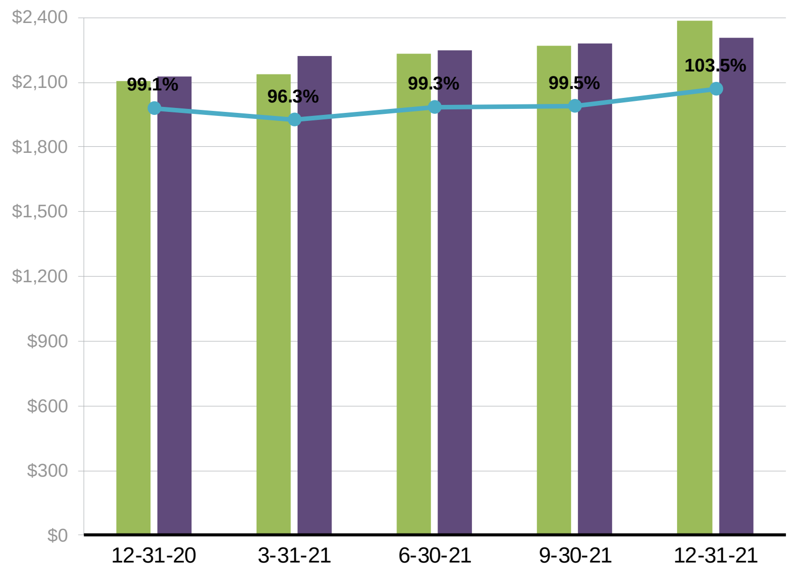
Highlights

- The going concern funded position improved from $11.3 million deficit to $81.4 million surplus over the quarter due to asset performance higher than expected and contributions exceeding new benefit accruals.
- The risk-free deficit increased from $1,070.0 million to $1,255.1 million over the quarter due to a decrease in risk-free rates used to determine the liabilities.
- The solvency position improved from $19.7 million deficit to $4.9 million surplus over the quarter primarily due to asset performance higher than expected.
- The total fund had a rate of return after all fees of 5.2% for last quarter, exceeding expectations.
- The estimated December 31,2021 liabilities are projected based on the most recent actuarial valuation, with membership data as at January 1, 2021.
- The annuity purchase guidance educational note for valuations as of December 31, 2021 and January 1, 2022 (published as of January 18, 2022) has been reflected in the interest rates used to calculate the December 31, 2021 Solvency and Hypothetical Wind Up liabilities.
- The transfer ratio as at December 31, 2021 is 73.9%. Compared to the transfer ratio of 64.8% in the last filed valuation on January 1, 2021, this represents an increase of 14%. Since the transfer ratio did not decrease 10% over that period, no Regulation 19 filing is required. See slide 11 for more details.
- The most recent actuarial valuation was performed as at January 1, 2021.
- All figures are in $1,000,000 (CAD).

Executive Summary – Going Concern

Funded Status

Values in $1,000,000 (CAD)



Highlights for the Quarter-Ending 12/31/21

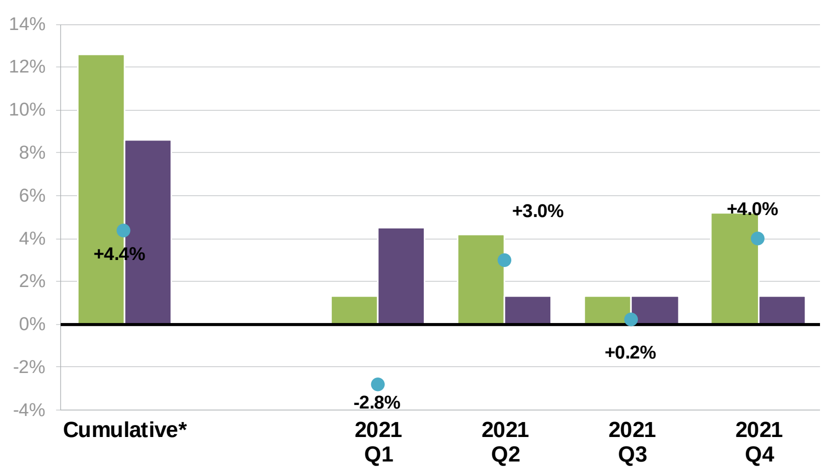
The plans' funded ratio increased to 103.5% at 12/31/21. This result was primarily due to the combined effects of:

- Asset performance higher than expected, and
- Contributions of $26.6 million which exceeded new benefit accruals.

	12/31/20	3/31/21	6/30/21	9/30/21	12/31/21
Market Value of Assets	$ 2,108.2	$ 2,140.1	$ 2,233.1	$ 2,267.7	$ 2,387.7
Going Concern Liability	2,127.7[1]	2,222.3[1]	2,249.7[1]	2,279.0[1]	2,306.3[1]
Surplus/(Deficit)	$ (19.5)	$ (82.2)	$ (16.6)	$ (11.3)	$ 81.4
Periodic Contributions	$ 25.6	$ 25.6	$ 26.4	$ 27.1	$ 26.8
Effective Interest Rate	5.60%	5.30%	5.30%	5.30%	5.30%
Funded Ratio:	99.1%	96.3%	99.3%	99.5%	103.5%
Asset Duration:	2.1	1.9	1.8	1.8	1.8
Going Concern Liability Duration:	14.5	14.4	14.4	14.4	14.4

[1]After application of the PfAD at 9.00%

Asset-Liability Return



Asset Liability Return for Quarter-Ending 12/31/21

Assets returned 5.2% during the quarter while liabilities returned 1.3%, resulting in a funded status increase of 4.0%.

Periodic Return/Change	Cumulative	3/31/21	6/30/21	9/30/21	12/31/21
Market Value of Assets Return	12.6%	1.3%	4.2%	1.3%	5.2%
Going Concern Return	8.6%	4.5%	1.3%	1.3%	1.3%
Funded Ratio Change	4.4%	-2.8%	3.0%	0.2%	4.0%

Executive Summary – Going Concern (PfAD Impact)

Funded Status

Values in $1,000,000 (CAD)

	3/31/21	6/30/21	9/30/21	12/31/21
Going Concern Liability with 9.00% PfAD	2,222.3	$ 2,249.7	$ 2,279.0	$ 2,306.3
New PfAD Impact	0.00[1]	0.00[2]	0.00[3]	0.00[4]
Market Value of Assets	2,140.1	$ 2,233.1	$ 2,267.7	$ 2,387.7
Going Concern Liability with New PfAD	2,222.3	2,249.7	2,279.0	2,306.3
Surplus/(Deficit)	(82.2)	$ (16.6)	$ (11.3)	$ 81.4
PfAD	9.00%	9.00%	9.00%	9.00%

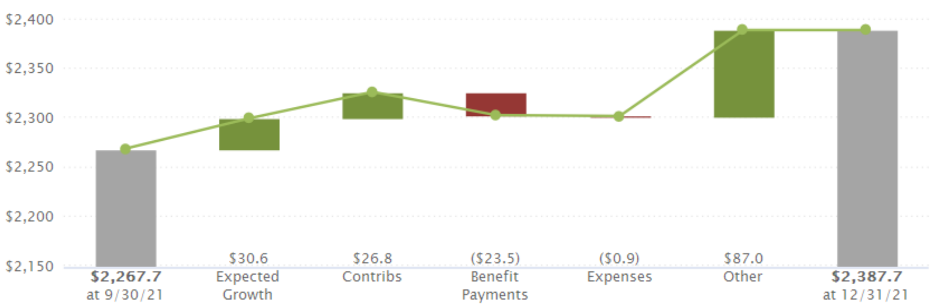
[1]Impact of change in PfAD from 9.00% to 9.00%
[2]Impact of change in PfAD from 9.00% to 9.00%
[3]Impact of change in PfAD from 9.00% to 9.00%
[4]Impact of change in PfAD from 9.00% to 9.00%

The going concern funded position improved from $11.3 million deficit to $81.4 million surplus over the quarter due to asset performance higher than expected and contributions exceeding new benefit accruals.

Asset-Liability Performance Attribution – Going Concern

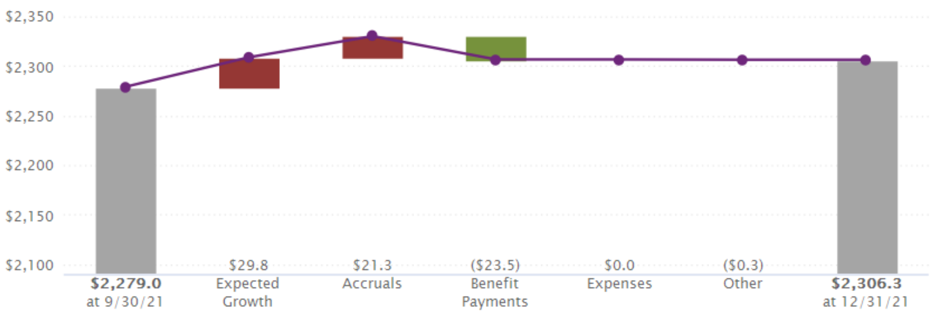
Values in $1,000,000 (CAD)

Assets



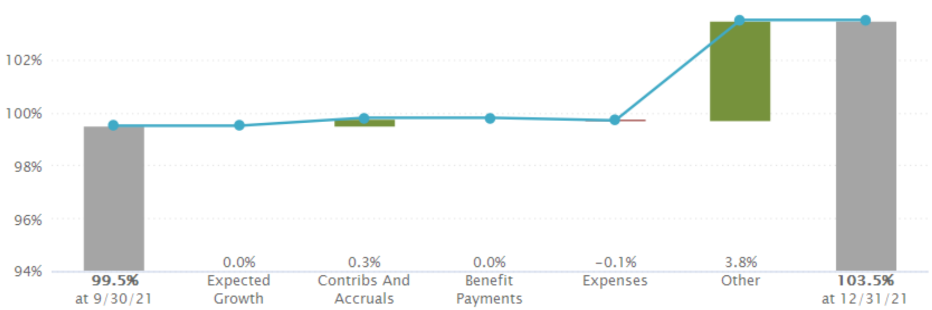
- Overall, assets returned 5.2% during this quarter, higher than the expected growth assumption of about 1.3% per quarter.
- The fixed income assets lost value due to an increase in the underlying risk-free rates.
- The University and members made $26.8 million in contributions during the quarter and the trust paid $23.5 million in benefits to the participants.
- "Other" includes the impact of active management, and differences between benchmark and actual investment allocations.

Liabilities



- Liabilities as of 12/31/21 are based on 5.30%.
- Liabilities were expected to grow by $29.8 million due to interest cost during the quarter.
- New benefit accruals increased the liability by $21.3 million during the quarter.
- Plan liabilities decreased by $23.5 million during the quarter as benefits were paid.

Funded Ratio

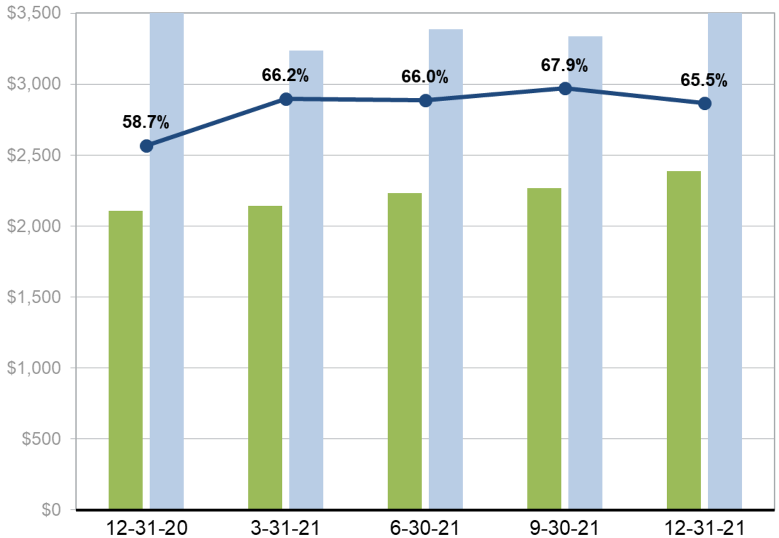


- Assets returned 5.2% during the quarter while liabilities returned 1.3%, resulting in a funded status increase of 4.0%.

Executive Summary – Risk Free

Funded Status

Values in $1,000,000 (CAD)



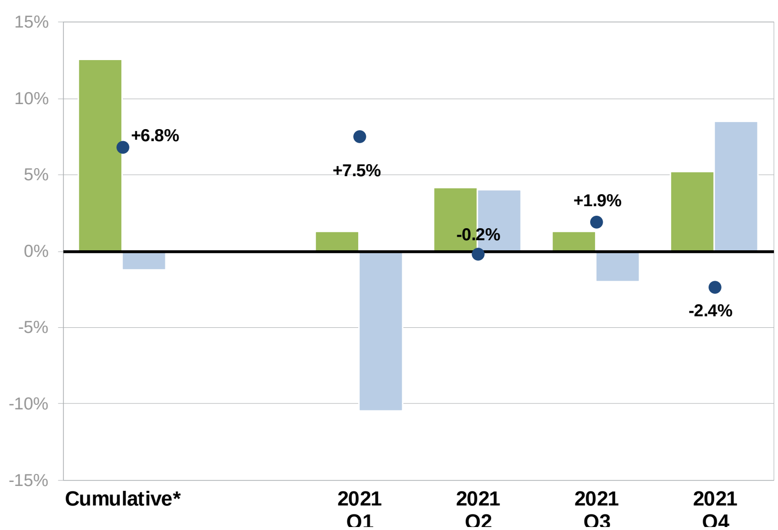
Highlights for the Quarter-Ending 12/31/21

The plans' funded ratio decreased to 65.5% at 12/31/21. This result was primarily due to the combined effects of:

- Asset performance higher than expected, offset by
- New benefit accruals which exceeded contributions, and
- An increase in liabilities due to a decrease in risk-free rates used to determine the liabilities.

	12/31/20	3/31/21	6/30/21	9/30/21	12/31/21
Market Value of Assets	$ 2,108.2	$ 2,140.1	$ 2,233.1	$ 2,267.7	$ 2,387.7
Risk-Free Liability	3,591.0	3,235.0	3,383.6	3,337.7	3,642.8
Surplus/(Deficit)	$ (1,482.8)	$ (1,094.9)	$ (1,150.5)	$ (1,070.0)	$ (1,255.1)
Periodic Contributions	$ 25.6	$ 25.6	$ 26.4	$ 27.1	$ 26.8
Discount Rate	0.12%	0.65%	0.48%	0.62%	0.23%
Funded Ratio:					
Assets/Risk-Free Liability	58.7%	66.2%	66.0%	67.9%	65.5%
Asset Duration:	2.1	1.9	1.8	1.8	1.8
Risk-Free Liability Duration:	20.0	18.8	19.1	18.8	19.5

Asset-Liability Return



Asset Liability Return for Quarter-Ending 12/31/21

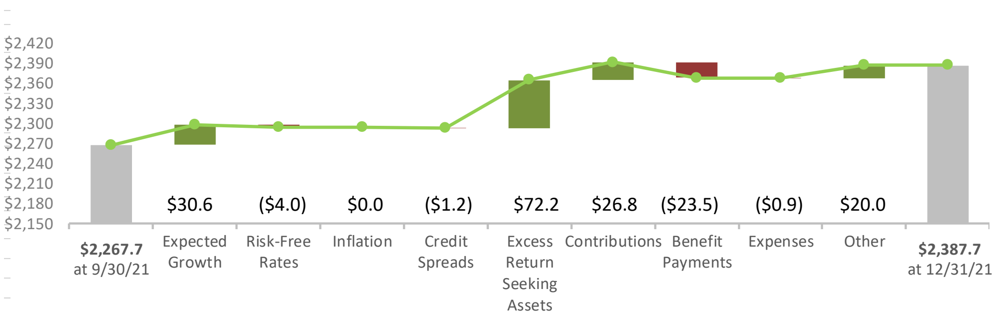
Assets returned 5.2% during the quarter while liabilities returned 8.5%, resulting in a funded status decrease of 2.4%.

Periodic Return/Change	Cumulative	3/31/21	6/30/21	9/30/21	12/31/21
Market Value of Assets Return	12.6%	1.3%	4.2%	1.3%	5.2%
Risk Free Return	-1.2%	-10.5%	4.0%	-2.0%	8.5%
Funded Ratio Change	6.8%	7.5%	-0.2%	1.9%	-2.4%

Asset-Liability Performance Attribution – Risk Free

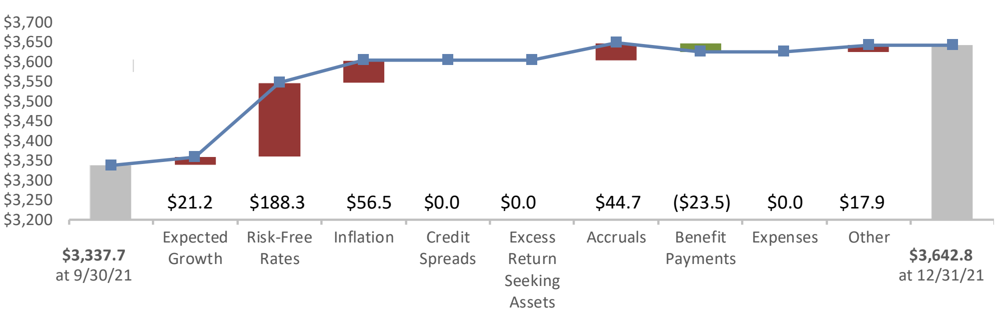
Assets

Values in $1,000,000 (CAD)



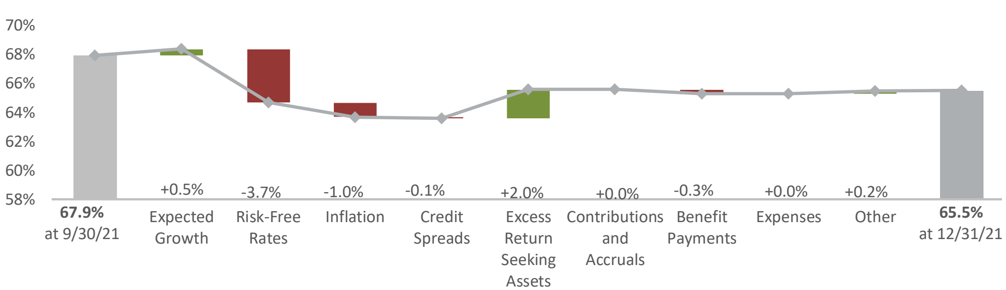
- Assets returned 5.2% during this quarter.
- The fixed income assets lost value due to an increase in the underlying risk-free rates.
- The plans' return-seeking assets performed higher than expected during the quarter.
- $26.8 million in contributions during the quarter and the trust paid $23.5 million in benefits to the participants.
- "Other" includes the impact of active management, and differences between benchmark and actual investment allocations.

Liabilities



- Liabilities were expected to grow by $21.2 million due to interest cost during the quarter.
- Risk-free rates used to determine the liabilities decreased resulting in an increase in liabilities of $188.3 million.
- Expected inflation rates increased resulting in an increase in the liabilities of $56.5 million.
- New benefit accruals increased the liability by $44.7 million during the quarter.
- Plan liabilities decreased by $23.5 million during the quarter as benefits were paid.
- "Other" includes impact of a decrease in the underlying long-term nominal and real federal bond yields used to determine the risk-free and implied inflation rates.

Funded Ratio

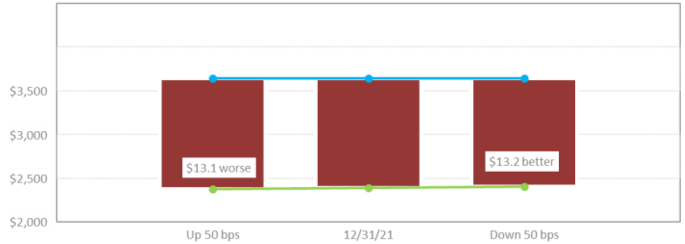


- The difference in exposure to risk-free rates between assets and liabilities combined with changes in risk-free rates resulted in a decrease in funded status of 3.7%.
- Increase in inflation expectation resulted in a decrease in funded status of 1.0%.
- Changes in credit spreads resulted in a decrease in funded status of 0.1%.
- Return-seeking assets experienced gains during the quarter, adding 2.0% to the plans' funded status during the period.

Sensitivity Analysis – Risk-Free Benchmark

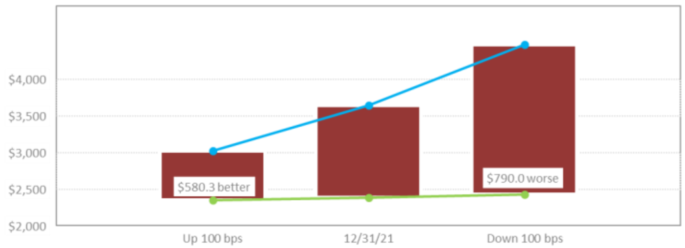
Values in $1,000,000 (CAD)

Credit Spreads



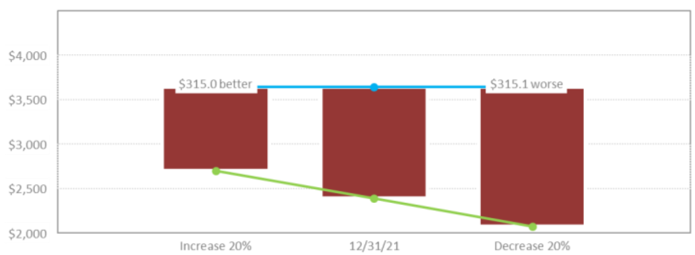
	Up 50bps	Current	Down 50bps
Market Value of Assets	$2,374.6	$2,387.7	$2,400.9
Risk Free	$3,642.8	$3,642.8	$3,642.8
Surplus/(Deficit)	($1,268.2)	($1,255.1)	($1,241.9)
Change		($13.1)	$13.2

Risk-Free Rates



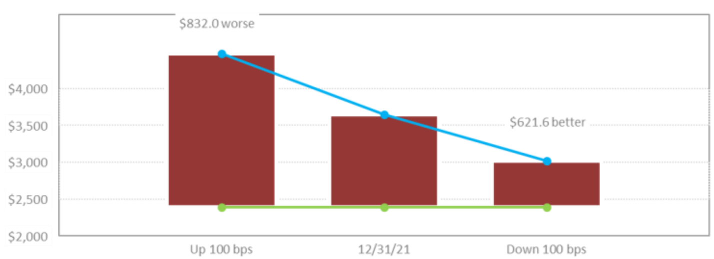
	Up 100bps	Current	Down 100bps
Market Value of Assets	$2,346.4	$2,387.7	$2,429.7
Risk Free	$3,021.2	$3,642.8	$4,474.8
Surplus/(Deficit)	($674.8)	($1,255.1)	($2,045.1)
Change		$580.3	($790.0)

Return-Seeking Assets



	Increase 20%	Current	Decrease 20%
Market Value of Assets	$2,702.7	$2,387.7	$2,072.6
Risk Free	$3,642.8	$3,642.8	$3,642.8
Surplus/(Deficit)	($940.1)	($1,255.1)	($1,570.2)
Change		$315.0	($315.1)

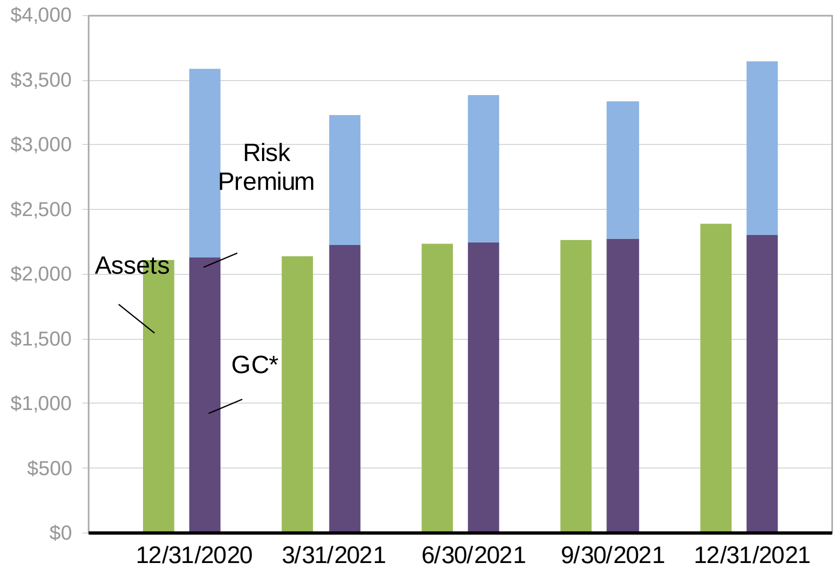
Inflation



	Up 100bps	Inflation	Down 100bps
Market Value of Assets	$2,387.7	$2,387.7	$2,387.7
Risk-Free	$4,474.8	$3,642.8	$3,021.2
Surplus/(Deficit)	($2,087.1)	($1,255.1)	($633.5)
Change		($832.0)	$621.6

Reconciliation of Risk-Free Benchmark and Going Concern Funded Status

Values in $1,000,000 (CAD)



*Going Concern

		12/31/20		3/31/21		6/30/21		9/30/21		12/31/21
Market Value of Assets	$	2,108.2	$	2,140.1	$	2,233.1	$	2,267.7	$	2,387.7
Going Concern Liability	$	2,127.7	$	2,222.3	$	2,249.7	$	2,279.0	$	2,306.3
Risk Premium		1,463.3		1,012.7		1,133.9		1,058.7		1,336.5
Risk-Free Liability	$	3,591.0	$	3,235.0	$	3,383.6	$	3,337.7	$	3,642.8

The difference between the Risk-Free Liability and the Going Concern Liability is a measure of the amount of risk premium on which the Pension Plan funding is based.

Hypothetical Wind Up (HWU) and Transfer Ratio

Values in $1,000,000 (CAD)

		1/1/2021 (Last Filed)		10/1/2021		1/1/2022
HWU Assets *	$	2,105.4	$	2,267.2	$	2,387.2
HWU Liability		3,247.2		3,149.5		3,228.5
Surplus/(Deficit)	$	(1,141.8)	$	(882.3)	$	(841.3)
Transfer Ratio:						
Market Value of Assets/HWU Liability		64.8%		70.8%		73.9%

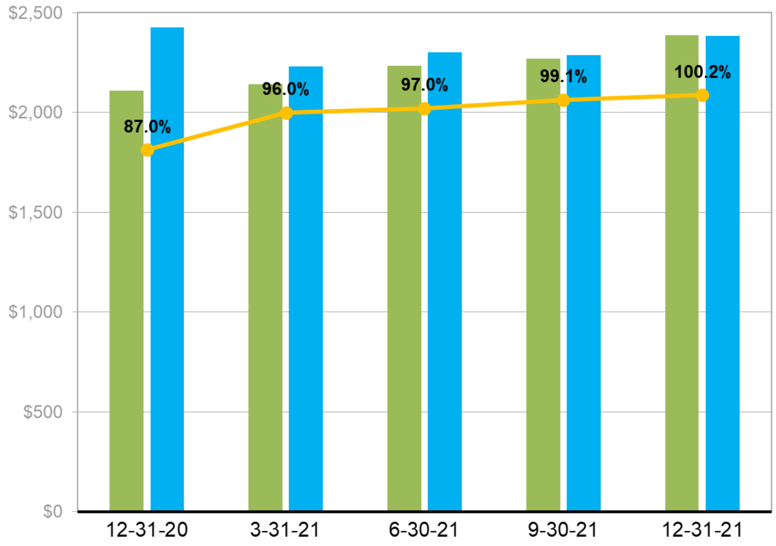
* Net of estimated wind up expenses

- Restrictions on commuted values may come into effect if the administrator of the pension plan knows or ought to know that since the valuation date of the last filed report, events have taken place that may result in the reduction of the transfer ratio by 10% or more of the most recently determined transfer ratio. In such case, the administrator shall not transfer any part of the commuted value without prior approval of the Superintendent.
- If the transfer ratio (the hypothetical wind up assets divided by the hypothetical wind up liabilities including indexation) drops by 10% or more since the last filed valuation, the administrator must stop paying commuted values and seek approval from the regulators to restart paying commuted values. The application is made in a prescribed format. This is generally referred to as a “Regulation 19 Filing”.
- During Q4 2021, the financial position of the Pension Plan as measured on a wind-up basis did not drop by more than 10% since January 1, 2021 (the last filed valuation). Therefore, no Regulation 19 Filing is required as of January 1, 2022.
- The Regulation 19 filing requirements will be monitored throughout 2022 on a quarterly basis.

Executive Summary - Solvency

Funded Status

Values in $1,000,000 (CAD)



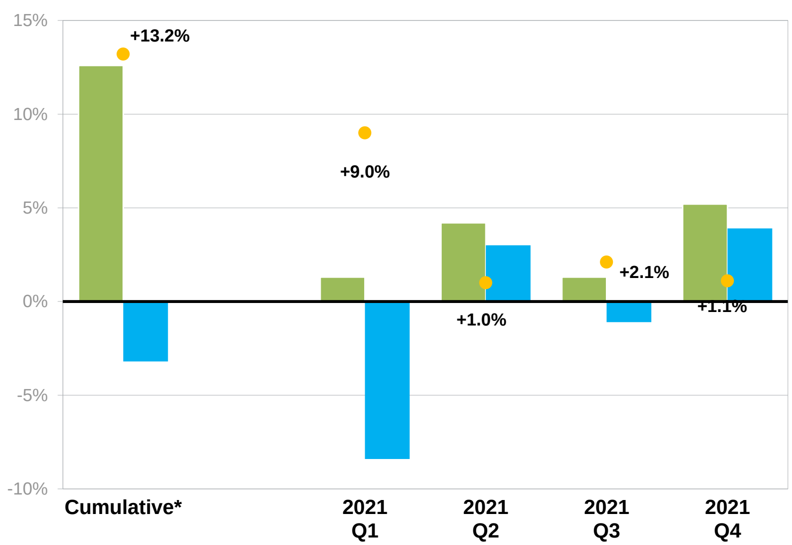
Highlights for the Quarter-Ending 1231/21

The plans' funded ratio increased to 100.2% at 12/31/2021. This result was primarily due to the combined effects of:

- Asset performance higher than expected, offset by
- New benefit accruals which exceeded contributions, and
- Increase in the liabilities due to decrease in the interest rates.

	12/31/2020	3/31/2021	6/30/2021	9/30/2021	12/31/2021
Market Value of Assets	$ 2,108.2	$ 2,140.1	$ 2,233.1	$ 2,267.7	$ 2,387.7
Solvency Liability	2,424.3	2,229.4	2,302.8	2,287.4	2,382.8
Surplus/(Deficit)	$ (316.1)	$ (89.3)	$ (69.7)	$ (19.7)	$ 4.9
Periodic Contributions	$ 25.6	$ 25.6	$ 26.4	$ 27.1	$ 26.8
Effective Interest Rate	2.43%	3.06%	2.88%	3.01%	2.81%
Funded Ratio:					
Assets/Solvency Liability	87.0%	96.0%	97.0%	99.1%	100.2%
Assets Duration:	2.1	1.9	1.8	1.8	1.8
Solvency Liability Duration:	14.9	14.4	14.8	14.3	14.9

Asset-Liability Return



Asset Liability Return for Quarter-Ending 12/31/21

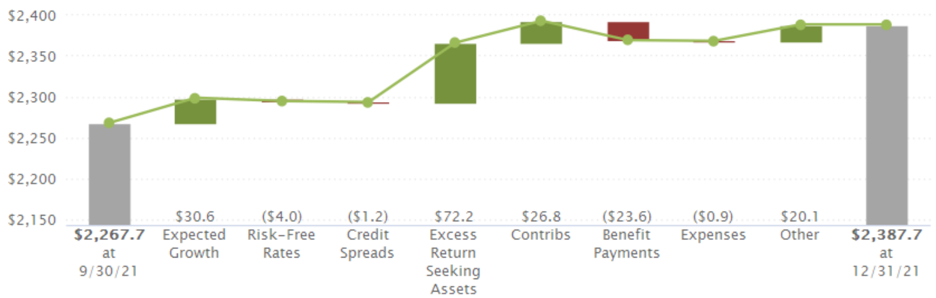
Assets returned 5.2% during the quarter while liabilities returned 3.9%, resulting in a funded status increase of 1.1%.

Periodic Return/Change	Cumulative	3/31/21	6/30/21	9/30/21	12/31/21
Market Value of Assets Return	12.6%	1.3%	4.2%	1.3%	5.2%
Solvency Return	-3.2%	-8.4%	3.0%	-1.1%	3.9%
Funded Ratio Change	13.2%	9.0%	1.0%	2.1%	1.1%

Asset-Liability Performance Attribution - Solvency

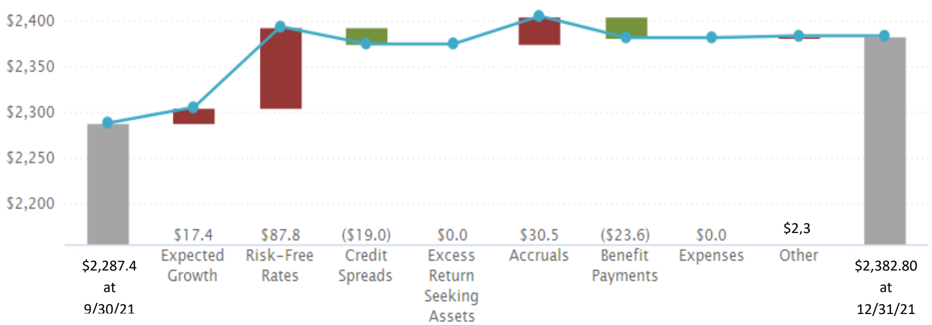
Values in $1,000,000 (CAD)

Assets



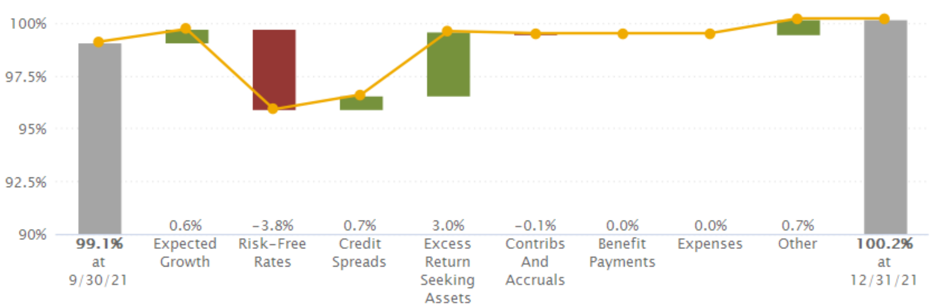
- Overall, assets returned 5.2% during this quarter, , higher than the expected growth assumption of about 1.3% per quarter.
- The fixed income assets lost value due to an increase in the underlying risk-free rates.
- The plans' return-seeking assets (Alternatives and International Equities) performed higher than expected during the quarter.
- $26.8 million in contributions during the quarter and the trust paid $23.6 million in benefits to the participants.
- “Other” includes the impact of active management, and differences between benchmark and actual investment allocations.

Liabilities



- Liabilities were expected to grow by $17.4 million due to interest cost during the quarter.
- Risk-free rates used to determine the liabilities decreased, and credit spreads widened, resulting in a net increase of $68.8 million ($87.8 million - $19.0 million).
- New benefit accruals increased the liability by $30.5 million during the quarter.
- Plan liabilities decreased by $23.6 million during the quarter as benefits were paid.

Funded Ratio

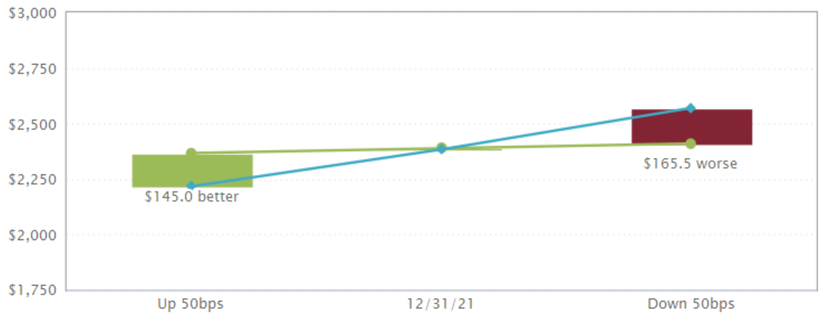


- The difference in exposure to risk-free rates between assets and liabilities combined with changes in risk-free rates resulted in a decrease in funded status of 3.8%.
- The difference in exposure to credit spreads between assets and liabilities combined with changes in credit spreads resulted in an increase in funded status of 0.7%.
- Return-seeking assets experienced gains during the quarter in excess of expected, adding 3.0% to the plans' funded status during the period.

Sensitivity Analysis - Solvency

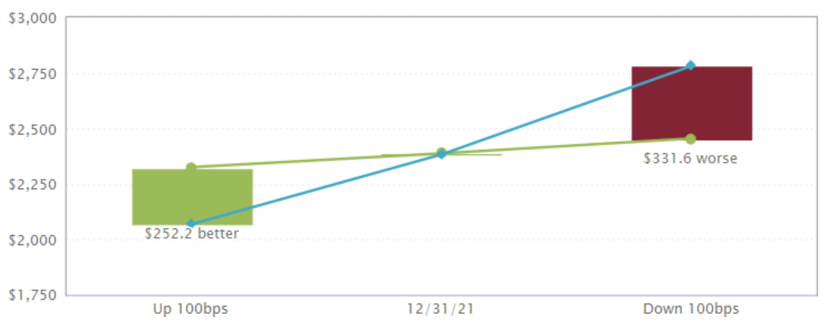
Values in $1,000,000 (CAD)

Credit Spreads



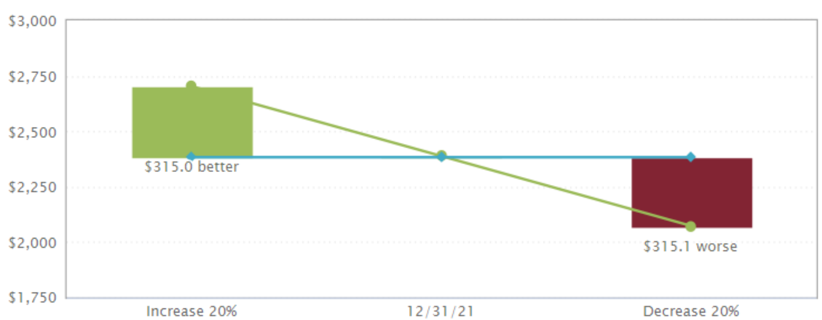
	Up 50bps	Current	Down 50bps
Market Value of Assets	$2,366.5	$2,387.7	$2,409.4
Funding Target	$2,216.6	$2,382.8	$2,570.0
Surplus/(Deficit)	$149.9	$4.9	($160.6)
Change	$145.0		($165.5)

Risk-Free Rates



	Up 100bps	Current	Down 100bps
Market Value of Assets	$2,325.6	$2,387.7	$2,454.8
Funding Target	$2,068.5	$2,382.8	$2,781.5
Surplus/(Deficit)	$257.1	$4.9	($326.7)
Change	$252.2		($331.6)

Return-Seeking Assets



	Increase 20%	Current	Decrease 20%
Market Value of Assets	$2,702.7	$2,387.7	$2,072.6
Funding Target	$2,382.8	$2,382.8	$2,382.8
Surplus/(Deficit)	$319.9	$4.9	($310.2)
Change	$315.0		($315.1)

Appendix

Plan Provisions & Membership Data

Same as in the Actuarial Valuation Report as of January 1, 2021.

Actuarial Methods & Assumptions

Our analysis of the estimated financial position of the Pension Plan is based on the following:

	12/31/20	3/31/21	6/30/21	9/30/21	12/31/21
Going Concern					
Discount Rate	5.60%	5.30%	5.30%	5.30%	5.30%
Inflation	2.00%	2.00%	2.00%	2.00%	2.00%
Salary Increase	4.00%	3.00%/4.00%[1]	3.00%/4.00%[1]	3.00%/4.00%[1]	3.00%/4.00%[1]
PfAD	11.15%	9.00%	9.00%	9.00%	9.00%
Mortality	CPM2014Public	CPM2014Public	CPM2014Public	CPM2014Public	CPM2014Public
Risk-Free Benchmark					
Discount Rate	0.12%	0.65%	0.48%	0.62%	0.23%
Solvency					
Annuity Purchase Interest Rate	2.50%	3.10%	2.97%	3.12%	2.86%
Effective Date of Annuity Purchase Guidance Used	12/31/20	3/31/21	6/30/21	9/30/21	12/31/21
Lump Sum Value Interest Rate (Years 1-10)[2]	1.20%	1.90%	1.80%	1.90%	2.10%
Lump Sum Value Interest Rate (Years 10+)[2]	2.80%	3.50%	3.30%	3.40%	3.10%
Mortality[3]	CPM2014	CPM2014	CPM2014	CPM2014	CPM2014
Hypothetical Wind Up					
Annuity Purchase Interest Rate (100% Indexed)	-0.78%	-0.22%	-0.39%	-0.25%	-0.54%
Annuity Purchase Interest Rate (75% Indexed)	0.04%	0.61%	0.45%	0.59%	0.26%
Effective Date of Annuity Purchase Guidance Used	12/31/20	3/31/21	6/30/21	9/30/21	12/31/21
Lump Sum Value Interest Rate (100% Indexed) (Years 1-10)[2]	0.60%	0.80%	0.70%	0.80%	0.70%
Lump Sum Value Interest Rate (100% Indexed) (Years 10+)[2]	0.80%	1.40%	1.20%	1.30%	1.00%
Lump Sum Value Interest Rate (75% Indexed) (Years 1-10)[2]	0.80%	1.10%	1.00%	1.00%	1.00%
Lump Sum Value Interest Rate (75% Indexed) (Years 10+)[2]	1.30%	1.90%	1.70%	1.90%	1.50%
Mortality[3]	CPM2014	CPM2014	CPM2014	CPM2014	CPM2014
Underlying Canadian Reference Data					
CANSIM v39054 (7 Year)	0.46%	1.26%	1.15%	1.24%	1.27%
CANSIM v39056 (30 Year Long Term)	1.21%	1.97%	1.84%	1.98%	1.68%
CANSIM v39057 (30 Year Real Return)	-0.28%	0.22%	0.11%	0.25%	-0.14%
CANSIM v39062 (Over 10 Years)	1.10%	1.90%	1.77%	1.92%	1.66%

[1] 3.00% per year for 3 years; 4.00% year thereafter

[2] Lump Sum Value Interest Rates are based on rates in effective on the first day of the month following quarter end (i.e., January 1st, April 1st, July 1st and October 1st).

[3] With improvement scale MI-2017 for Going Concern and Risk Free and CPM-B for Solvency.

All other assumptions and methods are the same as those shown in the Actuarial Valuation Report as of January 1, 2021. For the Risk-Free Benchmark basis, all other assumptions and methods are the same as those used for the Going Concern basis.

Actuarial Attestation

This document is intended to provide to the University of Waterloo a summary of the performance of the Pension Plan as of December 31, 2021.

This analysis is intended to assist University of Waterloo with a review of the associated issues and options, and its use may not be appropriate for other purposes. This analysis has been prepared solely for the benefit of University of Waterloo. Any further dissemination of this report is not allowed without the written consent of Aon.

In conducting the analysis, we have relied on plan design, demographic and financial information provided by other parties, including the plan sponsor. While we cannot verify the accuracy of all the information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy or completeness of the information and believe that it has produced appropriate results.

Experience different than anticipated could have a material impact on the ultimate costs of the benefits. In addition, changes in plan provisions or applicable laws could have a substantial impact on cost. Actual experience may differ from our modeling assumptions.

Aon
February 2022

Asset Allocation and Benchmarking

Asset Class	9/30/21
Alternatives	
■ FTSE EPRA NAREIT DEVELOPED Total Return Index USD	3.1%
■ MSCI USA Infrastructure Index	5.9%
Fixed Income	
■ FTSE TMX Universe Bond Index	34.0%
International Equities	
■ MSCI World Index	51.6%
■ S&P TSX	5.4%
Total	100.0%

Cost of Living Adjustment (COLA)

Applicable Changes Effective May 1, 2022

The pension plan text defines the Cost-of-Living Adjustment (COLA) increase as the ratio of the average of the monthly Consumer Price Indices (CPI) for the preceding calendar year divided by the average of the monthly CPI for the previous calendar year, minus 1, to a maximum of 5%.

The following table provides the monthly CPI figures for 2020 and 2021, as well as the average of the monthly CPI for each year.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
2020	136.8	137.4	136.6	135.7	136.1	137.2	137.2	137.0	136.9	137.5	137.7	137.4	136.958
2021	138.2	138.9	139.6	140.3	141	141.4	142.3	142.6	142.9	143.9	144.2	144.0	141.608

<u>May 1, 2022 COLA Calculation</u>

(2021 Avg. CPI / 2020 Avg. CPI) – 1 = (141.608 / 136.958) – 1 = .03395 or 3.40%

The COLA for pension benefits earned after December 31, 2013 is equal to 75% of COLA, and pension benefits earned up to December 31, 2013 attract 100% of COLA.

May 1, 2022 ➔ 100% COLA is 3.40%
➔ 75% COLA is 2.55%

Pensioners

COLA is automatically applied to monthly pensions in pay (Plan Text, Article 7) effective each May 1st. If in any year the COLA increase exceeds 5%, the Pension & Benefits Committee must decide if the adjustment will be restricted to 5% or whether the higher rate will be applied. If the increase is limited to 5% in any given year, a catch-up increase will be given on a cumulative and compounded basis in the following year or as soon as the plan resources permit, but there will be no retroactivity in any catch-up increase.

The breakdown of the application of COLA to pensions in pay is noted below:

Pension Benefits Earned	COLA
Up to December 31, 2013	3.40%
Accrual after December 31, 2013	2.55%

Action Required: ***None***

Deferred Members

The COLA adjustment for deferred pensions is determined in accordance with Article 7.03(d) of the plan text, which requires the amount of COLA increase be determined by the Pension & Benefits Committee each year.

The full deferred pension of a member who terminated employment prior to January 1, 2008 is eligible for a COLA adjustment. For members who terminated employment on or after January 1, 2008, if as of the termination date the member is within 10 years of normal retirement date or has 20 or more years of continuous service, the full deferred pension is eligible for a COLA adjustment. Otherwise, the pension benefit earned for service on or after January 1, 2008 is not eligible for a COLA adjustment.

	Criteria for COLA	**COLA Eligibility**	**# of Deferred Members**
Terminated prior to January 1, 2008		100% COLA on full pension	182
Terminated after January 1, 2008 and before January 1, 2014	Over 55 or > 20 years continuous service	100% COLA on full pension	52
	Under 55 and < 20 years continuous service	100% COLA on pre 2008 pension, no COLA on post 2007 pension	74
	No pre2008 CS and under 55 and < 20 years continuous service	No COLA on full deferred pension	31
Terminated on or after January 1, 2014	Over 55 or > 20 years of continuous service	100% COLA on pre 2014 pension, 75% COLA on post 2013	90
	No pre2014 CS and over 55 or > 20 years continuous service	75% COLA on full pension	10
	pre2008 CS and under 55 and < 20 years continuous service	100% COLA on pre 2008 pension, no COLA on post 2007 pension	27
	No pre2008 CS and under 55 and < 20 years continuous service	No COLA on full deferred pension	198
		Total as at December 31, 2021	***664***

***Based on Membership Reconciliation done in conjunction with the Valuation.**

100% COLA on full deferred pension	234
100% COLA on pre 2008 deferred pension, no COLA on post 2007 deferred pension	101
100% COLA on pre 2013 deferred pension, 75% COLA on post 2014 deferred pension	90
75% COLA on full deferred pension	10
No COLA on full deferred pension	229

Guiding Principles

In November 2015, the Pension & Benefits Committee approved the following guiding principles for deciding the COLA for deferred pensions:

- All deferred pension accruals currently eligible for indexation should be treated the same with respect to indexation decisions, subject to any future plan provision changes that provide otherwise;
- If indexation is granted in a particular year, it will be at 100% of the COLA increase for pre-2014 service and 75% of COLA increase for post 2013 service;
- The post retirement COLA increase "catch up" provision for pensions in payment takes precedence over indexation of deferred members' pensions; and
- Financial status of the plan should be considered by the Pension & Benefits Committee before deciding on deferred indexation (no specific metrics).

The value of the COLA adjustment to deferred pensions based on COLA rates indicated above is included in the going concern liability.

Action Required: ***Decision***

Pensionable Earnings for LTD Benefit Recipients

The pension plan provides that pensionable earnings for members on LTD be adjusted annually by an amount to be determined by the Pension Committee, taking into consideration other factors including the cost of living adjustment awarded to pensioners and the salary increases awarded to active faculty and staff, subject to the Income Tax Act limits.

As of December 31, 2021, there were 92 individuals in receipt of LTD benefit payments.

Guiding Principles

In November 2015, the Pension & Benefits Committee approved the following guiding principles for deciding the COLA applied to salaries for pension purposes for members on LTD:

- Members on LTD are more like active members than other groups receiving COLA increases,
- Therefore, salaries for pension purposes for members on LTD should be indexed by the lesser of 100% of COLA increase and the range increase for active employees.

Effective May 1, 2022 the range increase for Faculty and Staff employees is 1%. Union negotiations are still ongoing at this time.

The cost of adjustment to pensionable earnings is already included in the going concern liability, based on 2% inflation assumption.

Action Required: ***Decision***

Account Name: The University of Waterloo Payroll Plan
Account Number: 45420

Description	Last Month	Last 3 Months	Year To Date	One Year	Two Years (Annualized Compound Return)	Three Years	Four Years	Five Years	Since Inception	Inception Date
Fixed Income	**1.68%**	**1.48%**	**-2.66%**	**-2.66%**	**2.74%**	**4.05%**	**3.38%**	**3.19%**	**5.05%**	**07/31/00**
FTSE Canada Bond Universe Index~ CAD	1.67%	1.47%	-2.54%	-2.54%	2.92%	4.22%	3.51%	3.31%	5.14%	
Canadian Equities	**3.06%**	**6.47%**	**25.14%**	**25.14%**	**14.98%**	**17.57%**	**10.34%**	**10.09%**	**6.25%**	**07/31/00**
S&P/TSX Composite Index CAD	3.06%	6.47%	25.09%	25.09%	14.91%	17.51%	10.27%	10.03%	6.12%	
U.S. Equities	**2.85%**	**10.61%**	**27.27%**	**27.27%**	**21.44%**	**22.42%**	**17.50%**	**16.68%**	**6.65%**	**07/31/00**
S&P 500 Net TR Index - C$	2.85%	10.59%	27.07%	27.07%	21.21%	22.16%	17.24%	16.41%	6.41%	
International Equities	**3.49%**	**2.42%**	**10.41%**	**10.41%**	**8.16%**	**10.67%**	**6.29%**	**8.32%**	**3.63%**	**07/31/00**
MSCI EAFE Net TR - C$	3.51%	2.39%	10.32%	10.32%	8.09%	10.61%	6.20%	8.24%	3.59%	
Total Portfolio	**2.51%**	**4.88%**	**13.09%**	**13.09%**	**11.13%**	**12.81%**	**8.78%**	**8.51%**	**6.03%**	**07/31/00**
45420 CUSTOM BENCHMARK	2.51%	4.89%	13.07%	13.07%	11.12%	12.78%	8.71%	8.45%	6.01%	

For segregated assets total return is calculated using daily time-weighted rates of return which are linked geometrically over the period. The total return includes realized and unrealized gains and losses plus income. Returns are calculated after trading expenses but before management fees. Assets are valued using trade date accounting and accrual accounting for dividends as well as fixed income securities and all other assets that accrue interest.
Fund returns are calculated as Ending Net Asset Value per unit (NAVpu) plus distribution per unit divided by beginning NAVpu. If the since inception period is less than one year, the since inception return represents the total return for the period.

UNIVERSITY OF WATERLOO
BOARD OF GOVERNORS
PENSION & BENEFITS COMMITTEE
2021 Report to the Community

This report provides an overview of issues addressed by the Pension & Benefits Committee for the calendar year. Further information on any of these topics may be obtained by contacting the Secretariat or by visiting the committee webpage.

A. The Committee and its Members

The Pension & Benefits Committee is a standing committee of the Board of Governors (Board) responsible for overseeing the University's employee pension plans, health care and dental plans, sick leave benefits, long-term disability benefit, and life insurance benefit (Plans). The committee consists of representatives from the University's employee groups, administration, the Board, retirees, and affiliated and federated institutions of Waterloo. The committee meets on a monthly basis (except April, July and August); meetings are open to the University community and agendas and minutes are available on the committee webpage. The committee monitors the health and oversees the administration of the Plans. Changes and improvements to the Plans are developed by the committee with support from staff and external consultants, and recommended to the Board for approval.

B. Benefits

1. **Holistic Benefits Working Group Recommendations**.

In February 2021, the Board approved changes to the extended health care plan on the recommendation of the Pension & Benefits Committee, which was informed by the work of the Holistic Benefits Working Group (HBWG) struck in 2018. Benefit plan changes came into effect on 1 May 2021 and included:

- Medical plan improvements including the removal of the requirement for doctors' notes for some paramedical services, the increase to the annual maximum for psychologist and emergency out-of-country coverage, expansion of practitioners within some paramedical categories, the addition of coverage for Continuous Glucose Monitors and in vitro fertilization; and
- Implementation of new prescription drug management programs: mandatory generic substitution requirement; Canada Life's Health Case Management and SMART program.

The Board also endorsed the recommendations to review the administrative service and insurance provider for quality of service and competitiveness of pricing. In June 2021, the University released a request for proposal for a provider to insure/adjudicate its long-term disability, health and dental programs. Following completion of due diligence, the committee approved engaging Sun Life Financial to insure the long-term disability program effective 1 May 2022; and Green Shield Canada to administer the health and dental plans effective 1 January 2023.

2. **Annual Work Plan Items.** In accordance with the annual work plan for the committee, the committee:
   - Approved the benefits plans premium renewals negotiated by Human Resources in conjunction with our consultants. The two-year rate guarantee for long-term disability premium (employee paid) ended this year, and, even with a negotiated reduction to the originally proposed premium (97% increase), there was a 50% increase. The premiums are expected to be reduced with the new provider, Sun Life Financial;
   - Received reports on the benefits plan utilization rates and associated costs; and
   - Provided oversight to a number of other items that occur automatically according to plan provisions e.g. annual indexation of pensionable earnings for employees on long term disability.

C. Pension Plans

3. **1 January 2021 Actuarial Valuation and Filing.** An actuarial valuation report is required to be filed at least every three years; notwithstanding this, a valuation is completed on an annual basis for the purposes of assisting with planning and the University's budgeting. The most recent actuarial valuation was filed in 2020. The 1 January 2021 valuation was prepared largely using the same assumptions as the 1 January 2020 valuation, except for a change to the discount rate from 5.60% to 5.30%, phased in changes to member contributions, and an amendment to the Standards of Practice by the Canadian Institute of Actuaries which has impacted the way that commuted values are determined.

As at 1 January 2021, the going concern deficit for the registered pension plan (Registered Plan) was $89.3 million. The University continues to make additional contributions to the Registered Plan. This valuation was filed with the regulator, and the full actuarial report for the Registered Plan and Payroll Plan can be found on the committee's webpage: 1 January 2021 Actuarial Valuation Report .

4. **Pension Investment.** The committee receives quarterly reports from the Pension Investment Committee (PIC) on pension fund investments, meetings with investment managers and other activities of PIC. In 2021, following diligence by PIC, the committee made recommendations to the Board re: exiting a Canadian investment manager for underperformance, and appointing two new global equity managers based on both their long-term performance and their approach to environmental, social and governance factor integration in investment decisions. The Board approved these investment decisions in June 2021.

   Following research, consultation and consideration of an asset-liability study conducted by Aon Hewitt, a working group of PIC revised the Statement of Investment Policies and Procedures (SIPP) for the Registered Plan and created a new Fund Implementation Procedures (FIP) document to accompany and guide implementation of the SIPP. The committee received and provided feedback on these documents before recommending their adoption by the Board. At the same time, the committee considered and recommended further diligence on a standalone Responsible Investment Policy (RIP) which will govern the Registered Plan and the endowment fund. A recommendation on the RIP is expected in early 2022.

5. **Renewal of the Pension Administration System.** The committee approved the renewal of the license agreement for Ariel software and services which supports the administration of the defined benefit pension plan. The committee also asked Human Resources to investigate functionality to provide commuted value estimates for those members who need them for United States tax filings and other purposes. It is anticipated that a competitive bidding process will be required in late 2024/early 2025 in order to confirm the supporting system in late 2026

6. **Education and Monitoring.** The committee receives regular reports from the consulting actuary on legislative and policy changes anticipated and in force that impact public sector pensions, as well as changes implemented by other public sector pension plans. The committee discusses implications for the University's pension plans and takes said information into account when making decisions on matters including plan design, funding and administration.

7. **Annual Work Plan Items.** In addition to the above, the committee:
   - Reviewed and approved the audited pension fund financial statements for filing with FSCO. The statements show, among other things, that there are significant assets in the fund, the change in assets over the year and drivers for that change, amounts paid out of assets, and compliance with the SIPP;
   - Reviewed and approved cost of living increases to pensionable earnings of individuals on long-term disability for the purpose of calculating pension entitlements, and to eligible deferred pensions;
   - Received the annual report from Aon re: the contribution and protocol caps, including the impact of indexing or removing the caps on costs and liabilities, the number of individuals who would be impacted if the caps were not indexed, and the projected date on which the cap under the *Income Tax Act* will hit the hard cap in the pension plan, if the cap is not increased. The committee monitors these numbers annually in order to make decisions about how and when to increase the caps; and
   - Provided oversight to a number of other items that occur automatically according to plan provisions, e.g. annual indexation of pensions.

XX February 2022