

The Corporation of the City of Hamilton

Hamilton Municipal Retirement Fund

December 31, 2019 Funding Valuation Results

November 24, 2020



Agenda

Executive Summary



Valuation Results



- Membership data
- Assets
- Valuation Results
- Funding requirements

Risk Assessment



Actuarial Certification



Background



Assumptions & Membership



- Going concern
- Solvency

Next Steps





Executive Summary



December 31, 2019 Valuation Highlights

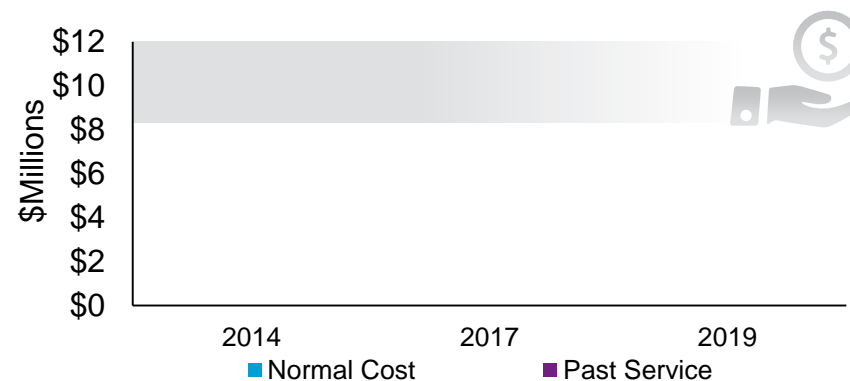
Key Results

Solvency Funded Ratio	 1.7%
December 31, 2019	123.5%
December 31, 2017	121.8%
Going Concern Funded Ratio	 -1.8%
December 31, 2019	109.6%
December 31, 2017	111.4%
Minimum Required Contributions	No Change
December 31, 2019	\$ 0
December 31, 2017	\$ 0

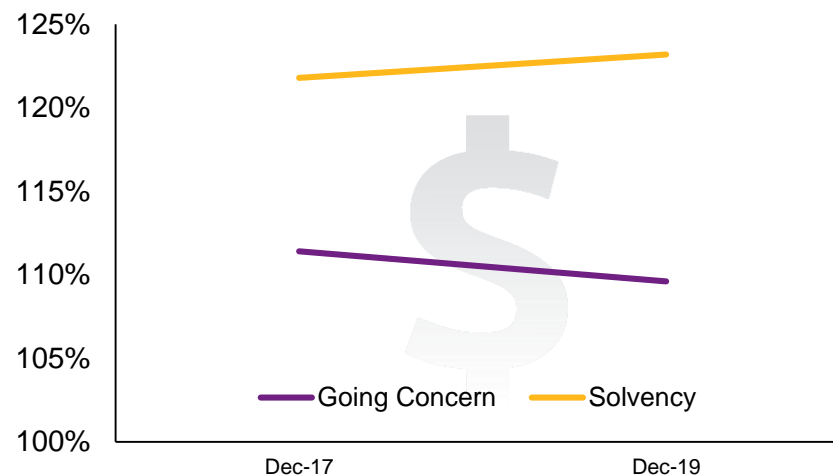
Commentary

- Assumption and demographic experience losses, partially offset by favourable investment returns, have led to a decline in the going concern funded status
- Favourable investment returns have led to an improvement in the solvency funded status

Contributions



Funded Ratio





Hamilton Municipal Retirement Fund Valuation Results

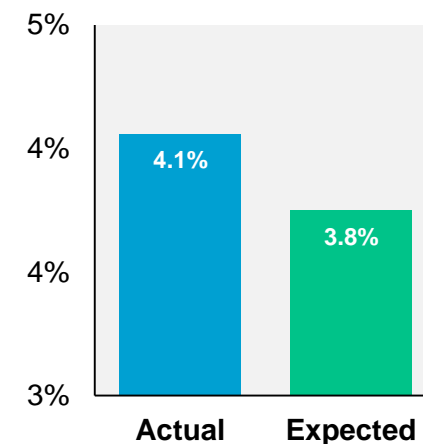
Assets

Reconciliation (Accrued basis)

(in 000's)	2018	2019
As at beginning of year	\$ 77,679	\$ 68,307
Company contributions	\$ 0	\$ 0
Benefit payments	(6,128)	(6,037)
Investment income, net of all expenses	(2,924)	9,448
Expenses	<u>(320)</u>	<u>(273)</u>
As at end of year	\$ 68,307	\$ 71,445
Rate of return, net of all expenses	(4.4)%	14.1%

Annualized return 2018 to 2019

The actual return exceeded the expected return, resulting in an actuarial gain of \$0.5 million.



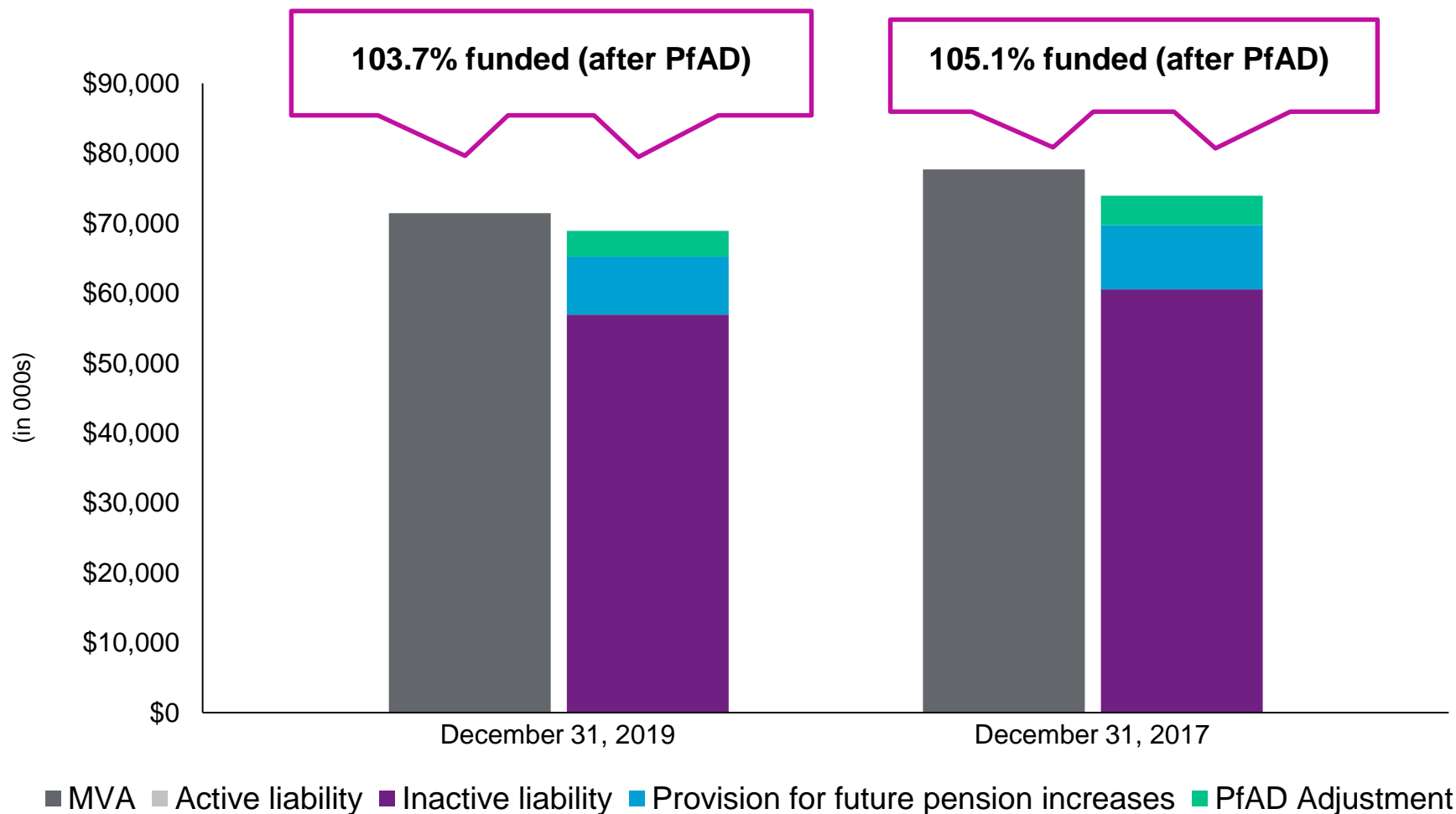
Going concern valuation

Financial position

(in 000's)	December 31, 2019	December 31, 2017
Going concern value of assets		
▪ Market value of invested assets	\$ 71,445	\$ 77,679
Going concern actuarial liability		
▪ Active and disabled members	\$ 0	\$ 0
▪ Terminated vested members	129	126
▪ Retired members and beneficiaries	56,809	60,431
▪ Provision for future pension increases	<u>8,274</u>	<u>9,144</u>
▪ Total	\$ 65,212	\$ 69,701
Going concern surplus (deficit)	\$ 6,233	\$ 7,978
Funded ratio	1.096	1.114
Provision for adverse deviations	\$ 3,701	\$ 4,239
Going concern surplus (deficit) after PfAD	\$ 2,532	\$ 3,739
Funded ratio after PfAD	1.037	1.051

Going concern valuation

Financial position



Going concern valuation

Reconciliation of financial position

(in 000's)	Plan Experience
Surplus (deficit) as at December 31, 2017	\$ 3,739
Special payments towards deficits	0
Interest on deficit and special payments	286
Investment gains (losses), net of all expenses	455
Membership experience	
▪ Mortality gains (losses)	(502)
▪ Pension increase gains (losses)	(99)
▪ Other liability gains (losses)	(104)
Change in demographic assumptions	0
Change in assumed liability discount rate	(2,105)
Impact of PfAD	<u>862</u>
Surplus (deficit) as at December 31, 2019	\$ 2,532

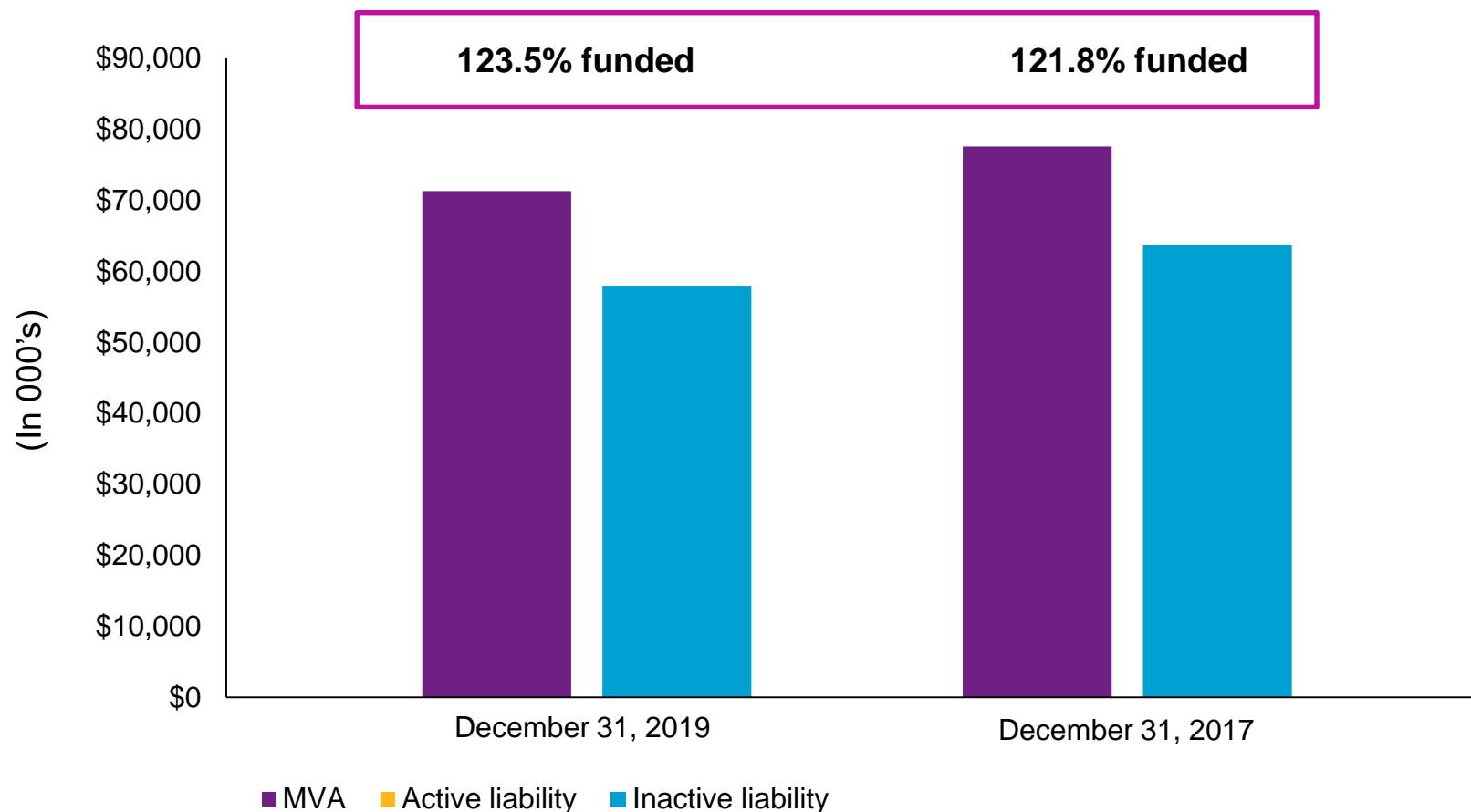
Solvency / Windup valuation

Financial position

(in 000's)	December 31, 2019	December 31, 2017
Solvency value of assets		
▪ Market value of invested assets	\$ 71,445	\$ 77,679
▪ Provision for windup expenses	<u>(150)</u>	<u>(100)</u>
▪ Total value of assets	\$ 71,295	\$ 77,579
Solvency liability		
▪ Active and disabled members	\$ 0	\$ 0
▪ Terminated vested members	129	126
▪ Retired members	38,942	43,973
▪ Beneficiaries	<u>18,789</u>	<u>19,685</u>
▪ Total	\$ 57,860	\$ 63,784
Solvency surplus (deficit)	\$ 13,435	\$ 13,795
Solvency ratio	1.235	1.218
▪ Provision for future pension increases	\$ 14,960	\$ 16,176
Transfer ratio	0.981	0.972

Solvency valuation

Financial position



Notes:

- Market value of assets is net of windup expenses of \$150,000 (\$100,000 last valuation)
- Hypothetical windup (transfer) ratio is 98.1% as at December 31, 2019 (97.2% funded last valuation)

Funding requirements

Minimum funding requirements

- Minimum funding requirements
 - No contributions required until the next required funding valuation report is filed as at December 31, 2022
- Maximum funding allowed
 - \$1,524,634 until the next required funding valuation report is filed as at December 31, 2022

Risk Assessment

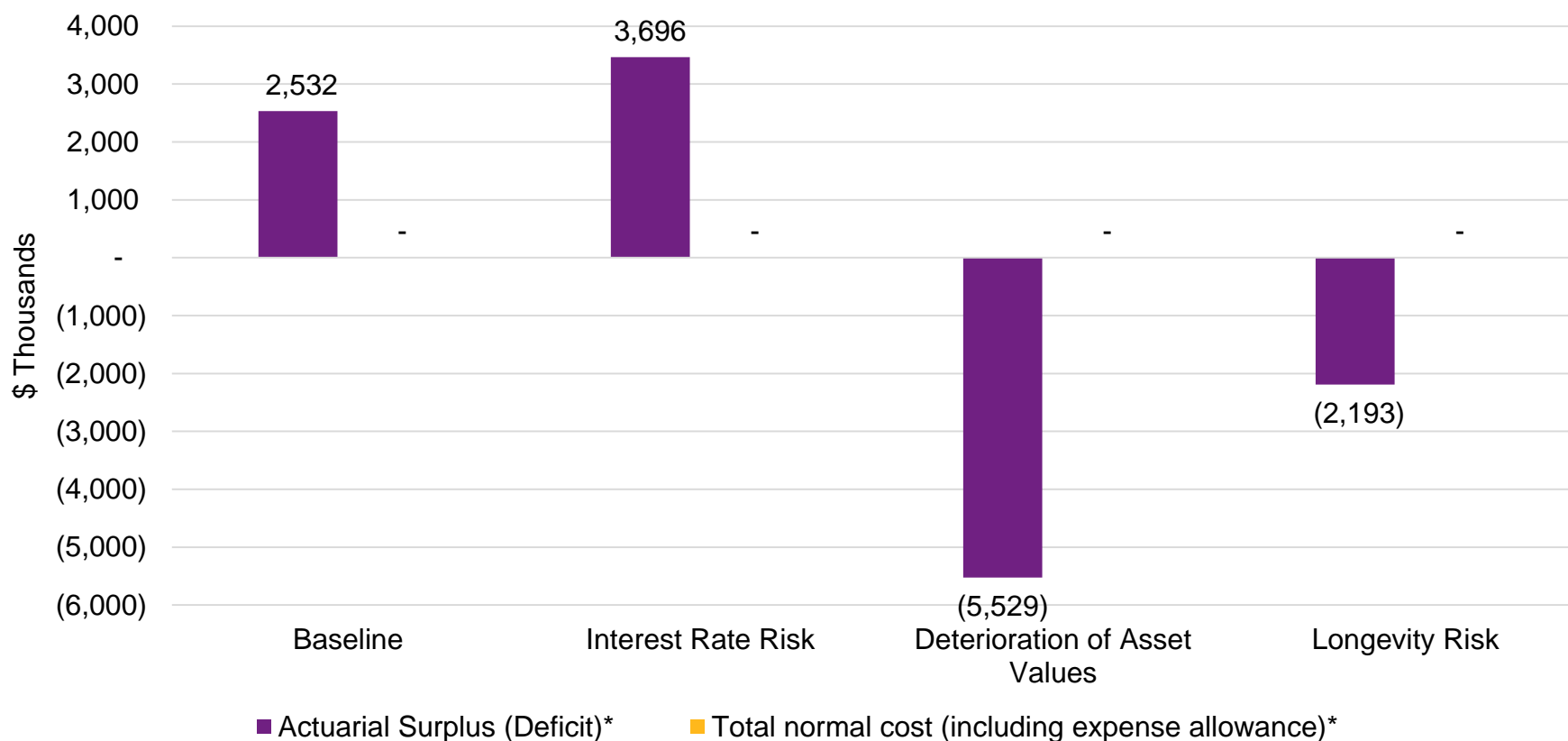
Stress testing on Going Concern Basis

- Canadian Institute of Actuaries' Standards of Practice now require valuation reports to include disclosure of the effects of certain "plausible adverse scenarios" on the going concern funded status and normal cost
 - Applicable for valuations on or after March 1, 2019
- Must consider the following risks:
 - Interest rate risk (the potential that interest rates will be lower than expected)
 - Deterioration of asset values
 - Longevity risk (the potential that pension plan members will live longer than expected)
 - *For pension plans where contributions are fixed or restricted by the terms of the plan or other governing documents, the potential that the contribution base will be lower than expected (N/A for HMRF)*
- A plausible adverse scenario would have a non-trivial probability of occurring within the short term (immediately to one year)
 - Would generally be consistent with a likelihood of between 1 in 10 and 1 in 20

Risk Assessment

Stress testing on Going Concern Basis

- Scenarios shown below reflect stress testing on underlying assets and assumptions in isolation
- Effects on assets, liabilities and normal cost are determined as at the valuation date



* Includes provision for adverse deviations

Actuarial certification

The results presented in this presentation are based on the membership data and assumptions included in this presentation and on the methods, plan provisions and other information outlined in the actuarial valuation report to determine funding requirements for the pension plan prepared as at December 31, 2019. Therefore, such information, and the reliances and limitations of the valuation report and its use, should be considered part of this presentation.

The information provided in this presentation has been prepared solely for the benefit of the City of Hamilton, for its internal use in connection with the actuarial valuations of the plans prepared by Willis Towers Watson. This presentation should not be used for other purposes and we accept no responsibility for any such use. It should not be shared with or relied upon by any other person without Willis Towers Watson's prior written consent.

The results presented in this presentation have been developed using a particular set of actuarial assumptions. Other results could have been developed by selecting different actuarial assumptions. The results presented in this presentation are reasonable actuarial results based on actuarial assumptions reflecting our expectation of future events.

Future contribution levels may change as a result of future changes in the actuarial methods and assumptions, the membership data, the plan provisions and the legislative rules, or as a result of future experience gains or losses, none of which have been anticipated at this time. Subsequent to the valuation date, both pension plan asset values and bond yields have been volatile and, as a result, the financial position of the pension plan may have deteriorated. The effects of this volatility have not been reflected in this presentation.

In our opinion, for the purposes of this presentation, the data are sufficient and reliable, the assumptions are appropriate and the methods employed in the valuation are appropriate. This presentation has been prepared, and our opinion has been given, in accordance with:

- The funding and solvency standards prescribed by the Pension Benefits Standards Act (Ontario) and Regulation thereto;
- The requirements of the Income Tax Act (Canada) and Regulation thereto; and
- Accepted actuarial practice in Canada, except that this presentation has been appropriately abbreviated.



Bill Liu, FCIA



Geoffrey Melbourne, FCIA

An aerial, high-angle photograph of a city street intersection. Several tall, multi-story buildings with varied architectural styles (brick, stone, modern) surround the street. Numerous cars, including yellow taxis, are visible on the road. The image is used as a background for a presentation slide.

Background

Plan

Hamilton Municipal Retirement Fund



Purpose

- Legislation requires that an actuary conduct a funding valuation of the plan at least every three years
 - The last valuation as of December 31, 2017
 - This valuation has been undertaken as of December 31, 2019
- The Ontario Pension Benefits Act requires an actuarial valuation as part of the requirements to provide benefit security
- The Income Tax Act requires an actuarial valuation to approve tax deductible contributions

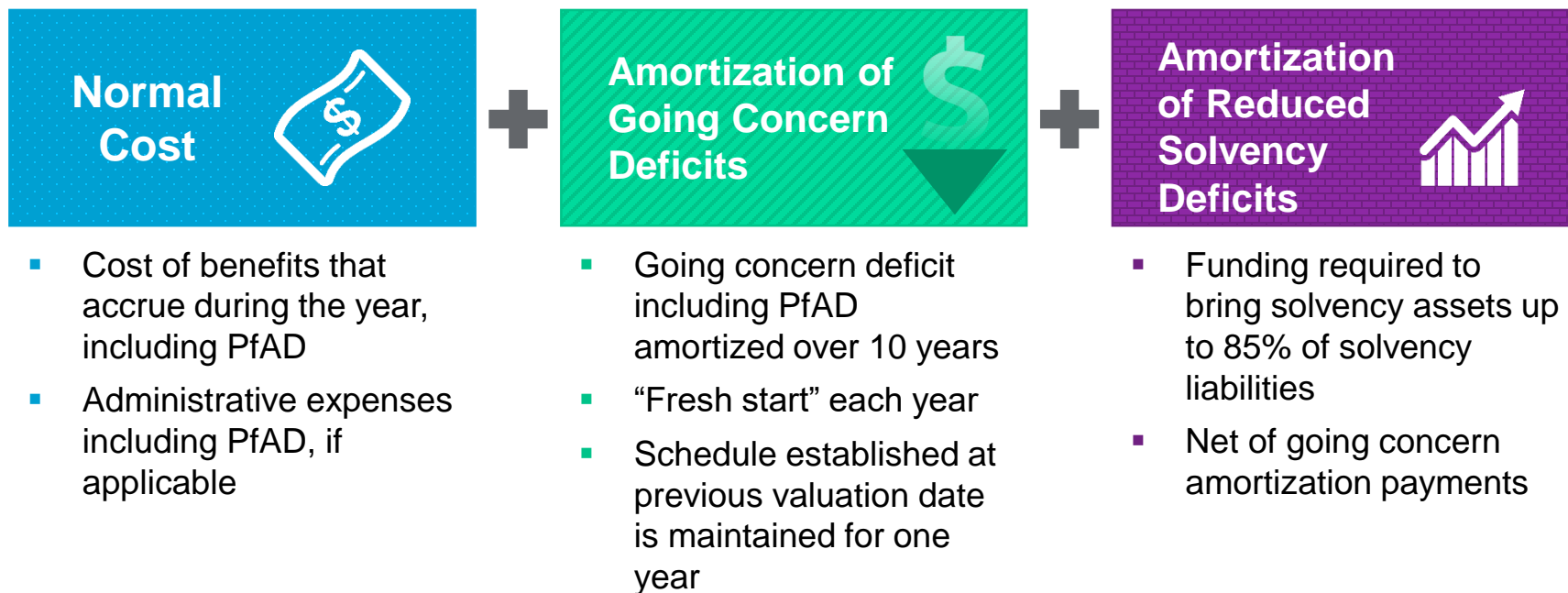
Types of Valuations

Two types of valuations are required for funding purposes:

Type	Going Concern	Solvency
Scenario	Plan continues indefinitely	Plan winds up
Assumptions	Long term assumptions, selected by actuary	Largely prescribed, based on market conditions on valuation date
Timing for amortization of deficits	10 years	5 years

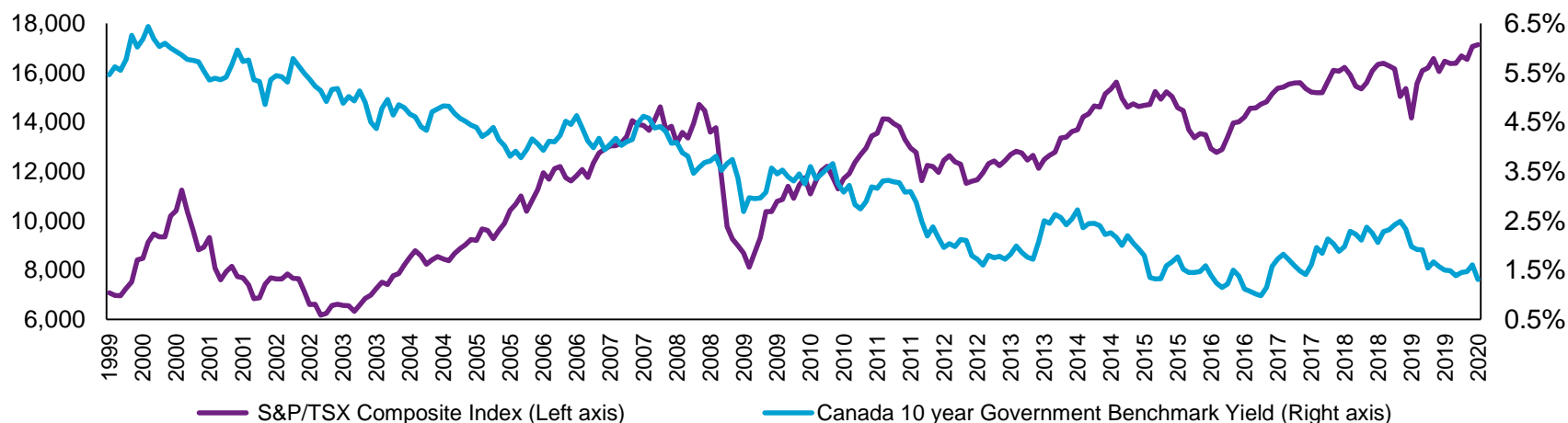
Funding requirements

Minimum funding requirements

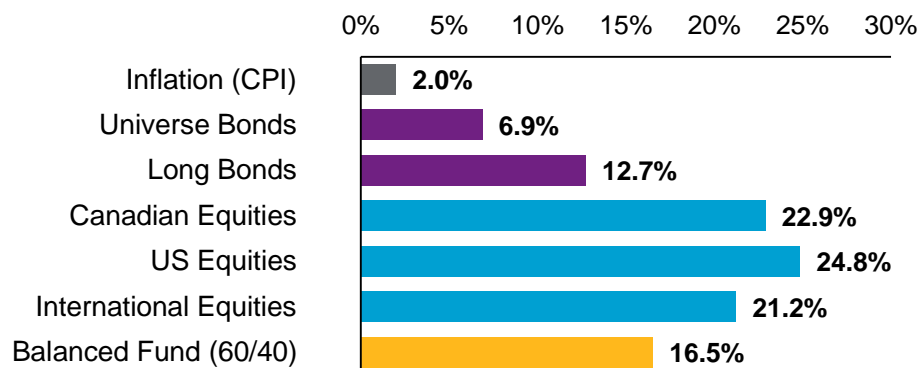


Financial markets backdrop

Prolonged period of declining interest rates and volatile equity markets (at January 1)



2019 Benchmark asset returns (in \$CAD)



Solvency discount rates

0 bps

Annuity purchase rate - Solvency

- 2.8% at Dec. 31, 2017
- 2.8% at Dec. 31, 2019

20 bps

Annuity purchase rate - Windup

- (0.1)% at Dec. 31, 2017
- (0.3)% at Dec. 31, 2019



Assumptions & Membership

Assumptions

Overview

Two types of funding valuations are undertaken:

- **Going concern valuation** assumes the plan continues indefinitely (long-term outlook)
 - Best estimate assumptions are selected by actuary in accordance with professional actuarial standards and prescribed provincial regulations
 - Best estimate assumptions were reviewed and selected
- **Solvency valuation** assumes the plan terminated and all benefits were settled on the valuation date
 - Assumptions are based on current market conditions and are effectively prescribed by CIA
 - Excludes value of future pension increases

Going concern valuation

Key assumption changes

Discount Rate

- Going concern discount rate reflects the long-term expectation of investment returns (no margin for conservatism as at December 31, 2019)
- Discount rate decreased from 3.75% to 3.30% per annum to reflect lower return expectations and target asset mix

Other

- Same as prior valuation

Solvency valuation

Key assumption changes

Annuity Purchase Discount Rate

- Prior assumption:
2.8% per year for solvency, (0.1)% per year for windup
- New assumption:
2.8% per year for solvency, (0.3)% per year for windup

Other

- Same as prior valuation

Membership data

Reconciliation



	Active and Disabled Members	Terminated Vested Members	Retired Members	Beneficiaries
As at December 31, 2017	0	3	104	82
Deaths				
▪ With survivor benefits	0	0	(6)	0
▪ Without survivor benefits	0	0	(2)	0
▪ Deceased survivors	0	0	0	(10)
New beneficiaries	0	0	0	6
Data corrections	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
As at December 31, 2019	0	3	96	78

Next Steps

Next Steps

- Make a decision on whether to file the funding valuation report as at December 31, 2019
 - The next required funding valuation is as at December 31, 2020
 - The advantages of filing the December 31, 2019 valuation is to lock-in the funded status of the plan as at December 31, 2019 with nil contributions for the next three years (2020 to 2022)
 - If the December 31, 2019 funding valuation is filed, the next required funding valuation will be as at December 31, 2022
- Adjusting the asset allocation based on funded status of the plan and SIPP
 - The investment manager to review and adjust the asset allocation based on the updated funded ratio on windup basis
 - WTW to provide future cash-flows to the investment manager for asset allocation monitoring purposes

Mortality Assumption Review

- We recommend reviewing the mortality assumption using Willis Towers Watson's new Canadian Postal Code Mortality Tool (PMT) – see next slide
 - The selection of appropriate assumptions is an important component of good governance and sound risk management
 - Plan membership is too small to enable credible mortality analysis based on the plan experience
 - PMT provides useful, straightforward indication of mortality profile of plan membership, notwithstanding low headcount

Willis Towers Watson Canadian Postal Code Mortality Tool

It's about health and wealth

Introduce **lifestyle factors** in the assessment of your longevity risk



About **1M** 
Years of life exposure based on organizations **across Canada**, mostly from the **private sector**

10 Years of experience with our analytics in the **UK** 



Supplement **experience study**

Only need **~50** 
members to use the tool

Assess **competitiveness** of insurers' annuity purchase quotes with similar analytics



3% 
Impact on liabilities if change of +/- one year of life expectancy

850,000 As many possible **adjustments to mortality** as there are postal codes in Canada

