Investments

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Agenda

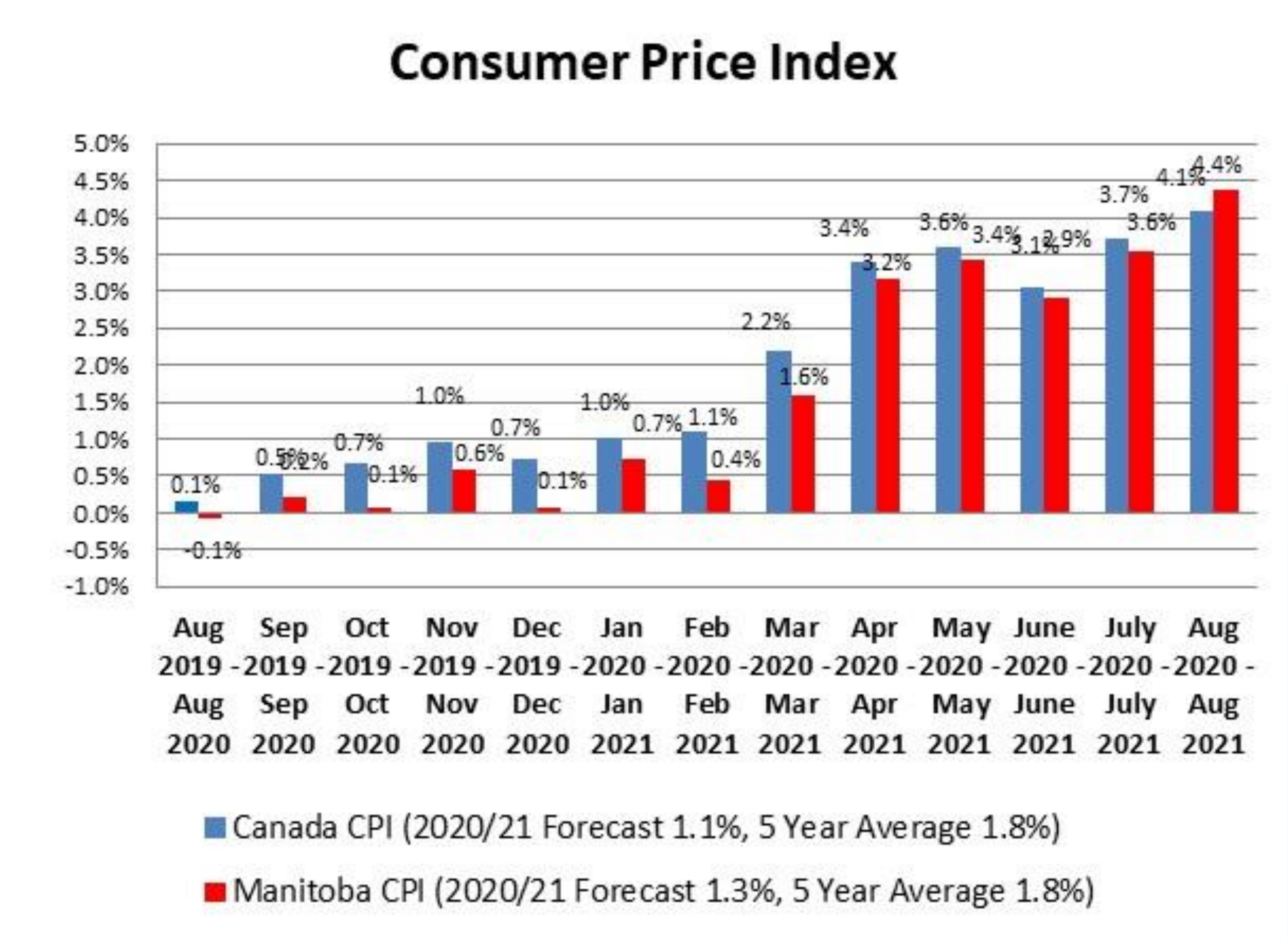
1) Recovery from COVID-19 & Portfolio Performance
2) Investment Objectives
3) Actual vs. Target Asset Allocation
4) ALM Update (implementation, improvements & next study)
5) Interest Rate Forecast

Recovery from COVID-19 – Impact on MPI Mixed

- Pandemic created one of fastest declines and recoveries in equity market history.
- Unemployment spiked in May 2020.
  - Since returned to long-term average.
- Inflation briefly fell into negative territory.
  - Recently accelerated.

Inflation

Increased from 0.1% to 4.1%. No changes to current strategy until ALM study is completed.



Actual vs. Benchmark Returns

Basic Claims outperformed benchmark over 12 months ended at March 31, 2021. RSR & EFB underperformed.

	Basic Claims*	RSR	EFB
Portfolio	3.9%	13.2%	13.9%
Transitional Benchmark	2.2%	15.9%	17.1%
Value Added	1.7%	-2.7%	-3.2%

*MUSH bond returns calculated using implied market values.

Impact on Public Equity Portfolio: 11.8% increase

Impact on Equity Portfolio

- Equity markets declined sharply in March 2020 due to Covid-19 and fully recovered by January 2021.

Write-downs

- At March 31, 2021, MPI had no write-downs to any investment assets.
- Canadian equity portfolio up 56% in 2020/21, global equities up 23%.
- Fiscal YTD (March 31 – August 31) equity portfolio has increased 11.8%.

Impact on Private Equity Portfolio: Mixed Results

Impact on Private Equity Portfolio

- Real estate and infrastructure investments less impacted by COVID-19 than publicly listed equities for the following reasons:
  - Assets less economically sensitive.[1]
  - Difficult to accurately forecast impact of pandemic, cash flows revised.
  - Private assets also valued infrequently (appear less volatile).

Over the 12 months ended at March 31, 2021

- Infrastructure portfolio increased by 3.8%.
- Pooled real estate fund declined by 1.3%.

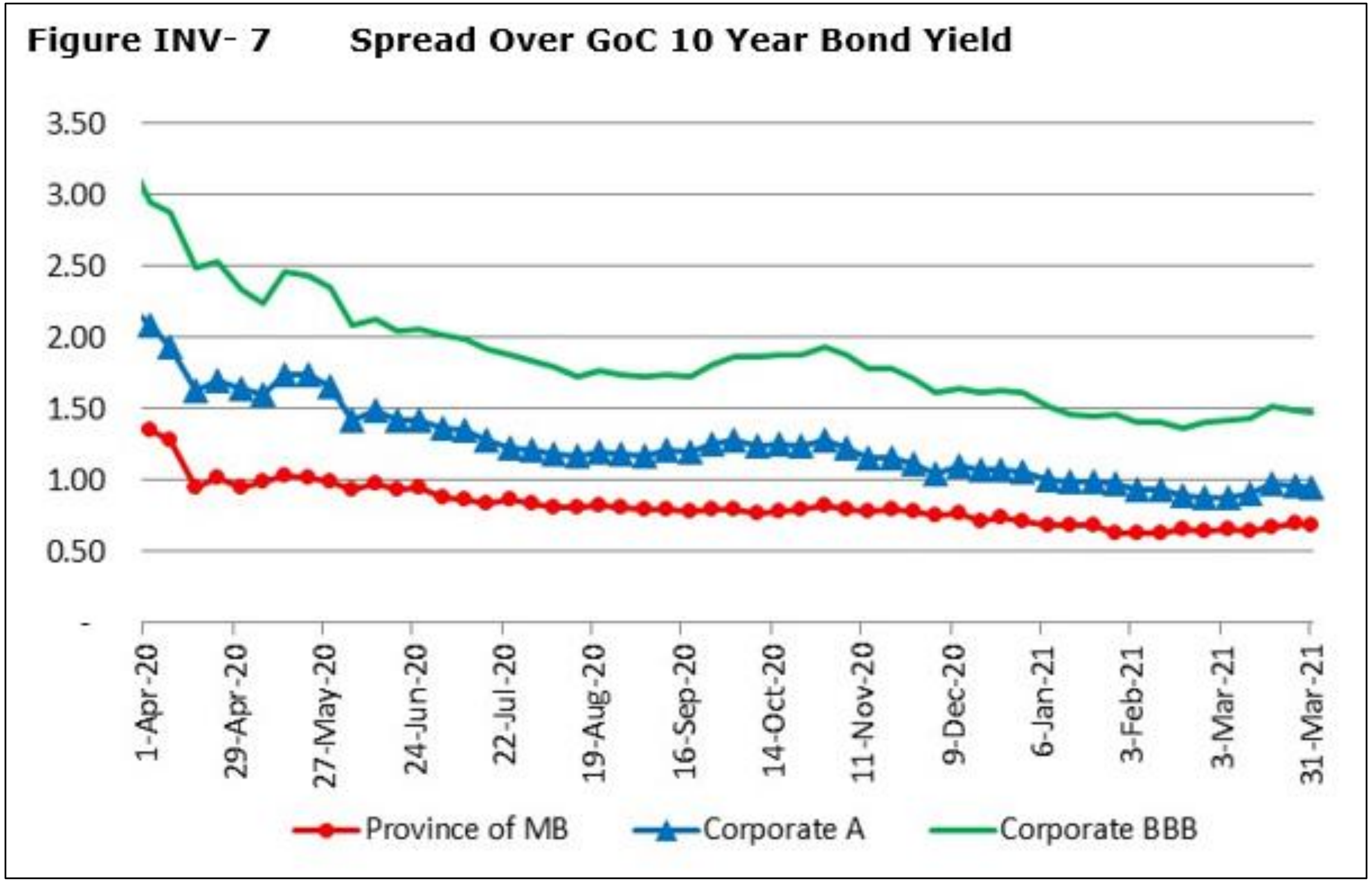
Fiscal YTD ending at August 31, 2021

- Infrastructure portfolio increased by 0.5%.
- Real estate pooled fund increased by 5.5%.

[1] Generally having long-term contracted or regulated revenue streams that are less impacted by short-term changes in demand or usage.

Impact on Fixed Income Portfolio

Decreasing spreads and yields



Impact on Fixed Income Portfolio – Yields Declined

Bond Yields

Government of Canada 10-Year, Corporate and Provincial Bond Yields:

Bond Type	Yield at March 31, 2020	Yield at March 31, 2021	Change since March '20	Yield at August 31, 2021	Change since March '21
Corporate BBB	3.93%	2.59%	-1.34%	2.45%	-0.14%
Corporate A	3.05%	2.13%	-0.92%	2.03%	-0.10%
Provincial	2.04%	2.06%	0.02%	1.88%	-0.18%
GCAN 10 Year	0.70%	1.56%	0.86%	1.22%	-0.34%

Source: FTSE Russell-Debt Market Indices

Impact to the Forecast – Limited So Far

Public Equity

The equity market recovery since March 2020 does not change the forecasted return for equities.

- Because the forecast is based on the long-term historical average return for the asset class.
- Starting values in the financial model reflect the reduced market values at March 31, 2021.

Private Equity

- Real estate and infrastructure returns are somewhat affected by COVID-19.
- forecasts are based on forecasted inflation plus a fixed spread of 4% and 5%, respectively.

Fixed Income

The forecast of bond yields is based on two components: (1) GoC 10 year bond yield and (2) spreads.

- The forecast of the GoC 10 year bond yield is based on the actual yield[1] at March 31st.
- The forecasted spreads are based on actual spreads[2] at March 31st.

[1] Which is 86 bps higher than the yield at March 31, 2020 (1.56% vs 0.70%).
[2] Which is 95 bps lower than the spreads in the 2021 GRA (93 bps vs. 188 bps).

Investment Objectives

Investment Objectives of MPI’s Board and Government

- Reduced premium/rate volatility.
- Directly match investments to liabilities.
- Ensure that capital is available to pay claims when necessary.
- Appropriate levels of risk for each portfolio driven by the purpose of each portfolio (as set out in the IPS and determined by the Board).

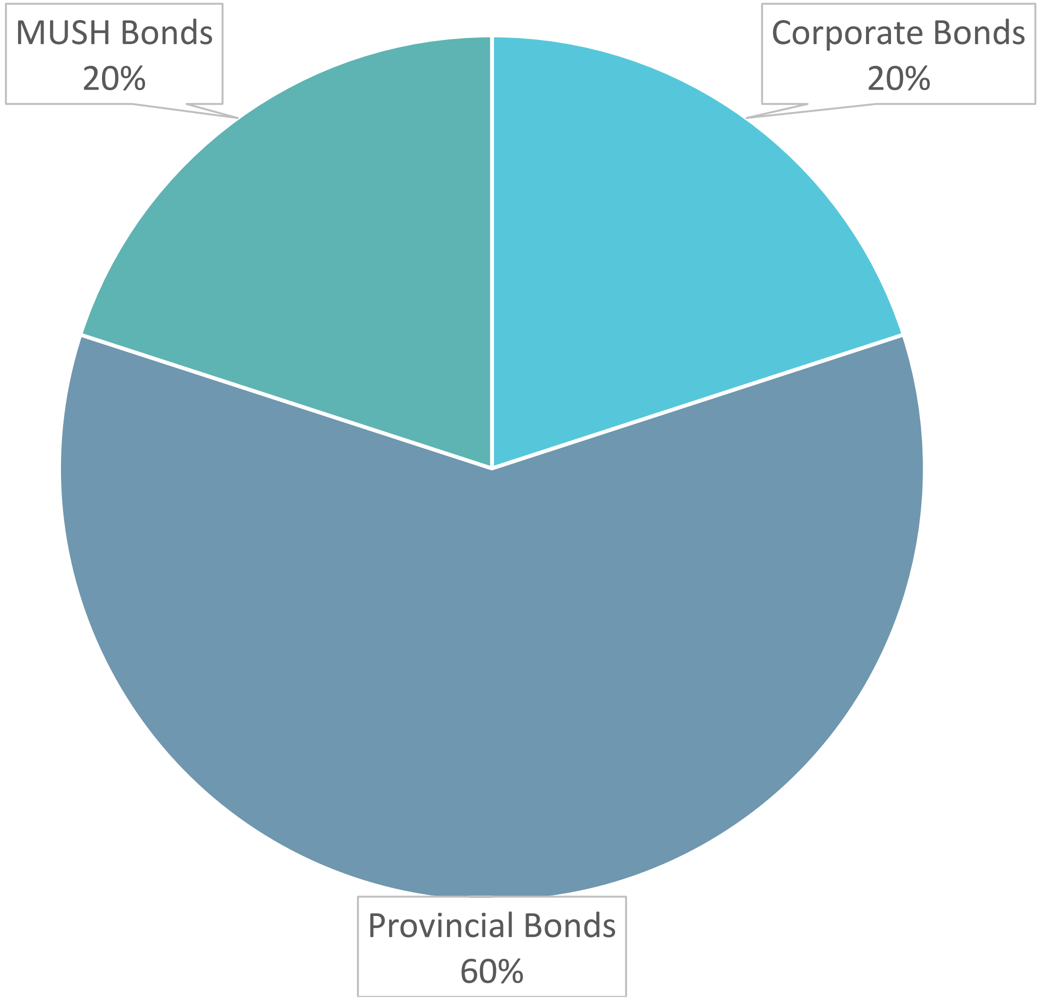
Actual vs. Target Asset Allocation

Asset Allocation Targets

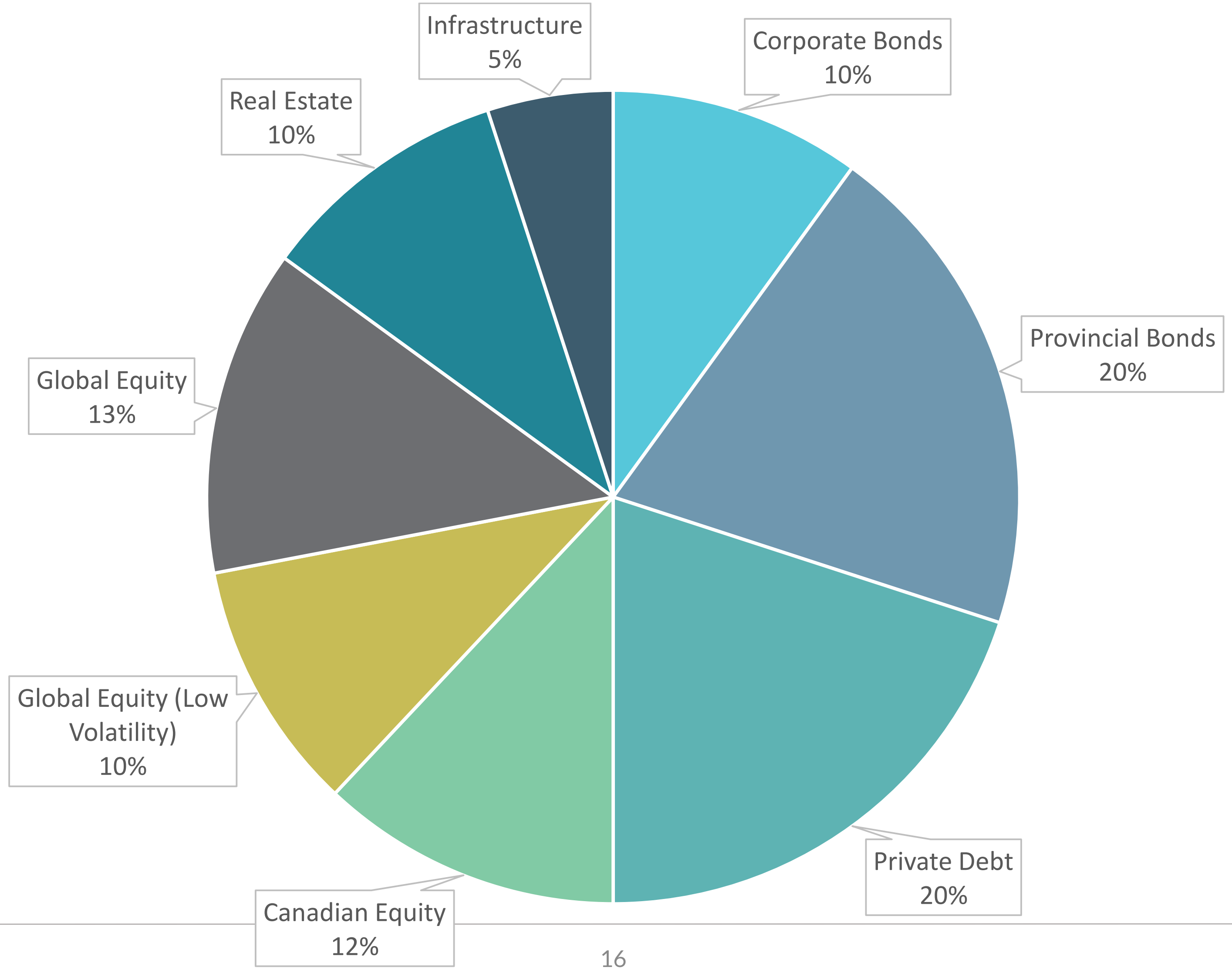
Figure INV- 11 Asset Mix Implemented on March 1, 2019

Line No.	Target Weights	Basic Claims	RSR	Employee Future Benefits
1	**Fixed Income**			
2	Provincial Bonds	60.0%	20.0%	0.0%
3	Corporate Bonds	20.0%	10.0%	20.0%
4	MUSH	20.0%	0.0%	0.0%
5	Private Debt	0.0%	20.0%	20.0%
6	**Total Fixed Income**	**100.0%**	**50.0%**	**40.0%**
7	**Public Equities**			
8	Canadian Equities	0.0%	12.0%	10.0%
9	Global Equities	0.0%	13.0%	18.0%
10	Global Low Volatility	0.0%	10.0%	7.0%
11	**Total Equities**	**0.0%**	**35.0%**	**35.0%**
12	**Alternatives**			
13	Canadian Real Estate	0.0%	10.0%	15.0%
14	Infrastructure	0.0%	5.0%	10.0%
15	**Total Alternatives**	**0.0%**	**15.0%**	**25.0%**

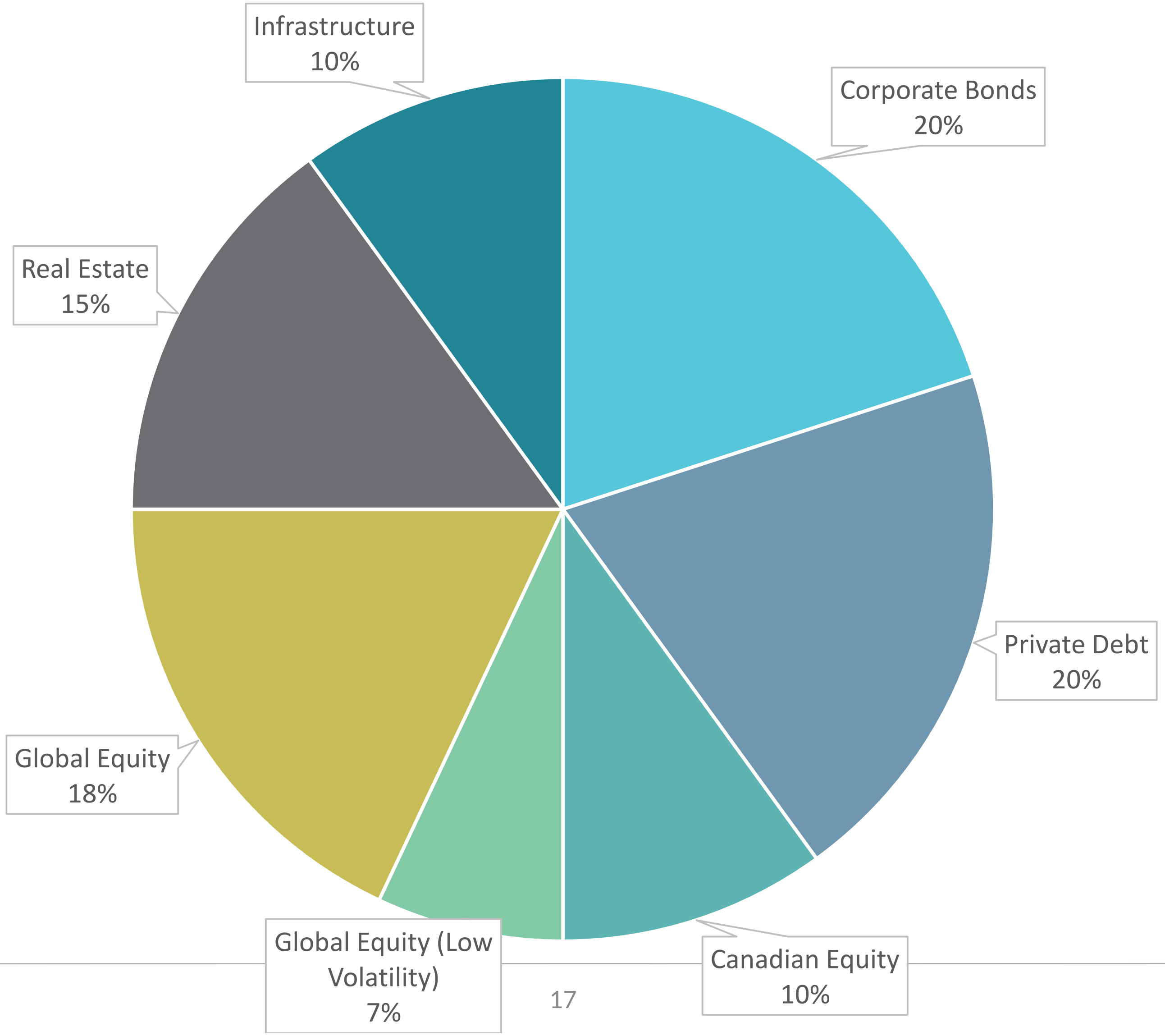
Basic Claims Target Asset Mix



RSR Target Asset Mix



EFB Target Asset Mix



Actual Asset Mix at August 31, 2021

Aug-21

(in $ Million)		Consolidated MV + AI	Total current	Basic current	RSR current	SRE current	EXT current	EFB current
Cash & Short Term	**$**	**16.5**	**0.4%**	**0.4%**	**0.3%**	**1.2%**	**0.2%**	**0.2%**
Fixed Income								
Provincial Bonds & FRNs	$	1,434.2	37.6%	52.3%	29.3%	27.7%	21.2%	
Corporate Bonds		719.7	18.9%	23.7%	9.8%	9.8%	9.5%	18.1%
Non-Marketable Bonds (***)		509.7	13.4%	23.6%				
Private Debt		243.7	6.4%		13.2%	13.3%	15.7%	16.9%
Total Debt	**$**	**2,907.3**	**76.2%**	**99.6%**	**52.3%**	**50.7%**	**46.3%**	**35.0%**
Public Equities								
Canadian		192.8	5.1%	0.0%	11.8%	11.7%	13.2%	10.9%
Global		271.4	7.1%	0.0%	13.9%	13.7%	15.6%	21.1%
Global Low Vol		155.7	4.1%	0.0%	10.4%	10.4%	10.6%	7.3%
Total Public Equities	**$**	**619.8**	**16.2%**	**0.0%**	**36.1%**	**35.8%**	**39.5%**	**39.2%**
Alternative Investments								
Canadian Real Estate (*)	$	159.3	4.2%	0.0%	6.6%	7.5%	8.4%	14.7%
Venture Capital		0.7	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%
Infrastructure (**)		113.0	3.0%	0.0%	4.8%	4.6%	5.5%	10.9%
Total Alternative Investments	**$**	**273.1**	**7.2%**	**0.0%**	**11.4%**	**12.3%**	**14.0%**	**25.5%**
Total Assets:	**$**	**3,816.7**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

(*) Parking lots at appraised value

(**) Infrastructure based on latest valuations from fund managers

(***) MUSH at book value

ALM Update

October 2021

Implementation of Previous ALM Study

- All asset classes, including private debt, are fully funded.
- Real estate and private debt are slightly underweight; will be corrected when committed funds are fully drawn by the investment managers.

ALM Strategy – Impact of Interest Rates

Net impact of changes in interest rates from March 31, 2021 to August 31, 2021 on a Corporate wide basis = $31.9 million better than budget on total fixed income assets of $2.924 billion.

	Millions
Gain on Marketable Bonds	$56.5
Increase in Claims Incurred due to Discount Rate Change	$25.5
Net Impact of Interest Rate Changes	$31.0
Budget	($0.9)
Actual Impact vs. Budget	$31.9

Improvements to Current ALM Strategy

Moment Matching implemented in June 2021

- In addition to duration, convexity is now matched between Basic assets & Basic liabilities.
- Managed by Addenda on a daily basis.
- Provides better protection from non-parallel shifts in interest rates.
- Expected to reduce interest rate risk by approximately 40%.
- Liabilities will be discounted using a full yield curve (ie: unique rates at each tenor/term) in order to match how the asset portfolio is priced.

Considerations for Next ALM Study

Planning to complete in Q1 2022/23 (ie: by June 30, 2022)

- Normally would prefer the fully funded portfolio to experience a full market cycle (ie: 3-5 years) before conducting the next ALM study.
- Due to the need to review our strategy prior to adoption of IFRS 9 & 17 waiting is not an option.
- Plan to issue an RFP this fall and select the consultant by December 31, 2021, if not sooner.
- An ALM study takes approximately 6 months to complete.
- The study will consider the impact of inflation on MPI assets and liabilities.

Interest Rate Forecast

August 2021

The Importance of Accurate Interest Rate Forecasts

- Interest rates are one of the key inputs into financial model, used to forecast revenues and expenses and to determine GRA rate indication (i.e. premiums charged to customers in the next rating year).
- Using an accurate forecast of future interest rates ensures customers charged correct premium.
- Updating forecasts with interest rates as of August 31, 2021 reduces time between making forecast and beginning to charge new rates to customers on April 1st, resulting in a more accurate forecast.
- Using Accepted Actuarial Practice (AAP) also reduces the impact of interest rates on premiums charged to customers.

Rationale for Naïve Interest Rate

Goal is to reduce pricing risk by using the most accurate forecast

- A “Naïve” forecast simply uses today’s actual interest rate as the forecast of future interest rates.
- Naïve interest rate provides a neutral, unbiased forecast.
  - Going forward, the GoC 10 year bond could increase, decrease or remain flat.
  - Naïve Forecast is a better predictor than the 50/50 or SIRF methodologies.
- Over the short term (1 to 1.5 years), the Bank of Canada overnight rate is not reliably predictive of the direction and magnitude of movements in the GoC 10 year bond rate.

Conclusion – Stay the Course, Study & Respond to Market Conditions

- Unique investment strategies are better aligned to purpose and characteristics of associated liabilities.
- New investment strategy is fully implemented.
- Improvements to current ALM strategy will reduce interest rate risk exposure.
- Next ALM study will carefully consider impacts of inflation and IFRS 9 & 17.