

Unsatisfactory Understanding, and Unreasonable Decision-making Standard and Process

August 28, 2018

Submitted by Consumers' Association of Canada, (Manitoba) Inc.

It is the view of the Consumers' Association of Canada, (Manitoba) Inc. ("CAC") that **MPI's understanding of the interest rate risks facing MPI is unsatisfactory**, and that both **the decision-making standard and process used by MPI for selecting its asset allocations is unreasonable**.

The CAC is questioning the **basis** for modeling the risks in the liabilities ("model"), and not the capital market assumptions ("inputs") about the level or volatility of inflation per se.

The information requests ("IRs") that the CAC has made, and which MPI has not provided, were designed to achieve two primary objectives, and these are to clarify our understanding of the:

1. **effectiveness of interest rate risk management**, clearly distinguishing between the two components of nominal interest rates: i) inflation expectations and ii) real interest rates; and
2. **decision-making standard and process for selecting asset allocations** to support liabilities.

The CAC believes the benefits of answering the CAC's questions exceed the costs of doing so, given:

- **Liability Benchmark Portfolio** is the starting point, basis, or framework for the analysis;
- **materiality of the Liability Benchmark Portfolio** from a risk measurement perspective;
- **materiality of the asset allocation decision** on long-term returns and risks, since allocations are based on the Liability Benchmark Portfolio; and
- **low frequency of asset/liability studies** (every three to four years).

Footnote references to the "Affidavit" and "Motion" relate to:

- the Affidavit of Glenn Bunston; and
- the Motion Brief of MPI.

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Reasonableness and Materiality Tests

Unsatisfactory understanding

Unreasonable standard

Unreasonable process

Purpose of Information Requests

MPI described the purpose of IRs, which is to provide "... a **satisfactory understanding** of the matters to be considered".¹

MPI added:

- "if the PUB is to grant the Order sought, it must be satisfied that the decision to conduct the ALM Study in the manner chosen was **unreasonable**", adding "there is no evidence before the PUB to suggest that this was the case"²; and
- "the PUB should measure MPI's decisions on a **standard of reasonableness**."

The CAC believes that MPI's understanding of the interest rate risks facing MPI is unsatisfactory and that both the decision-making standard and process used by MPI for selecting its asset allocations is unreasonable.

Materiality of Liability Characteristics

MPI said that the CAC seeks information that "will have no impact upon the determination of the 2019 GRA or on the investment decisions of the BoD/Department of Finance."³

The CAC disagrees. The Liability Benchmark Portfolio is the starting point for the analysis. We know that models are very sensitive to the assumptions used for both the assets and liabilities. In the case of the liabilities, the modeling assumptions are very different as illustrated in CAC (MPI) 1-83 (below). Here, the CAC showed how different the two bases for describing the nature of the liabilities are, as represented by two possible Liability Benchmark Portfolios that were being considered (i.e., Nominal vs. Real) for Basic Liabilities (left) and Pension Liabilities (right).

Material impacts

	Basic			Pension		
	Nominal	Real	Diff	Nominal	Real	Diff
Treasury Bills		26	26	17	11	6
Short-Term Provincial Bonds	28	8	20			
Mid-Term Provincial Bonds	18		18			
Long-Term Provincial Bonds	54		54		30	30
Long-Term Corporate Bonds				117		117
Real Return Bonds		66	66		81	81
	100	100	-	100	100	-

These two different proxies for the liabilities are materially different, with the Real Liability Benchmarks for both Basic Liabilities and Pension Liabilities showing very large exposures to:

- **real** interest rate risk (as distinct from **nominal** interest rate risk); and
- inflation risk.

The different **bases** for optimizations (real vs. nominal) have a material impact on the composition of the optimal asset allocations along the efficient frontier, and these allocations largely determine long-term returns/risks.

¹ Motion Part V item 12, page 13

² Motion Part V item 23, page 17

³ Motion Part V item 6, page 11

Effectiveness of Interest Rate Risk Management

Inflation

Inflation Risk

“MPI agrees that an inflation forecast predicting significantly elevated and/or prolonged inflation (should such a forecast exist), would no doubt lead to an optimal portfolio with inflation protection in the form of Real Return Bonds (RRBs). However, absent such a forecast, exploring these portfolio options becomes purely an academic exercise.”⁴ The CAC disagrees with the above statements.

Elevated Inflation Today

The 3%⁵ inflation rate reported in July 2018 represents the highest year over year change in years, and is above the Bank of Canada’s 2% target.

What about Real Interest Rate Risk?

Significantly elevated and/or prolonged inflation are **not** required to demonstrate that an optimal portfolio (for a wide range of risk tolerances) would include inflation protection in the form of RRBs (and possibly other real assets). The analyses based on the CAC’s IRs would show this.

It is the **basis** for describing the risks in the liabilities that the CAC questions, and which has a material impact on the optimal portfolios (and return/risk) – not the capital market assumptions about inflation per se. Exploring these portfolio options is not an academic exercise, but an exercise in common sense. If MPI waits for “elevated and/or prolonged inflation”, the cost of hedging will be higher than it is today (lower returns).

The relationship between nominal rates, **expected** inflation, and real rates is summarized below.

Fisher Equation: nominal interest rate (yield) = real interest rate (yield) + expected inflation

Unsatisfactory understanding – expected vs. actual inflation

Inflation Sensitivity of Assets and Liabilities

While MPI provides information about expected inflation and inflation volatility, there is little mention of **real** interest rates and the related **real** risks (which are material). Given the high duration (interest rate sensitivity) of the liabilities, it is important to focus on the long-term duration or “capital gain” effects related to both fixed income assets and the liabilities as well.

Equity Risk Analogy: Focused on Risk from Dividends (not Capital Gains)

MPI’s approach focuses on the inflation component only, not the (larger) capital gain/duration effects. This is like focusing on the dividend yield component of stock returns (low and stable), rather than the capital gain component (larger and more volatile). Note how the Dividend Discount Model (below) looks very similar to the Fisher Equation above.

Dividend Discount Model: return on stocks = dividend yield + capital gain (loss)

⁴ Motion Part V item 4, page 11

⁵ Statistics Canada, <https://www150.statcan.gc.ca/t1/tb11/en/tv.action?pid=1810000413>

Materiality of Basis Risk: What Difference Does It Make?

The standard deviation (not shown) of the **nominal** interest rate depends on:

- standard deviation of **inflation**, which the CAC does not question;
- standard deviation of **real** rates (related to duration), which is not discussed by MPI; and
- **correlation** between **real** rates and inflation, also not discussed by MPI.

In CAC (MPI) 1-84 (e), below, the CAC sought an understanding of the materiality of the “basis risk” between the Nominal Liability Benchmark and the Real Liability Benchmark, but MPI’s response did not really answer the question.

Question about Basis Risk (“Tracking Error”):

Would MPI and Mercer agree that there is material tracking error* or basis risk between the Nominal Liability Benchmark and the Real Liability Benchmark for:

i. Basic liabilities? ii. Pension liabilities?

* Tracking error measures the standard deviation of the return difference between two groups of assets or liabilities (e.g. actual portfolio vs. benchmark). Basis risk refers to the risk that two portfolios (including liability benchmarks) will experience different performance/growth, arising from imperfect correlations (not = 1.0), for example.

MPI’s Answer in CAC (MPI) 1-84 (e):

There is tracking error or basis risk any time one uses a portfolio of marketable fixed income securities to proxy liabilities. Whether the tracking error/basis risk is ‘material’ depends on one’s interpretation of what is ‘material’. Given MPI’s overall risk tolerance, return objectives, modelling budget, asset class constraints and the scope of the project, Mercer is supportive with MPI’s decision to make its asset allocation decisions based off of the liability benchmarks analysis used.

If materiality is interpreted in terms of the significance of return/risk differences across the opportunity sets (tradeoffs along the efficient frontier), then CAC believes that the basis risk described above is material, and that the analyses requested in the IRs would reveal that.

This is particularly true given MPI’s stated risk tolerances (e.g., very low for Basic).

Decision-making Standard and Process for Selecting Asset Allocations

MPI's "Circular" Process

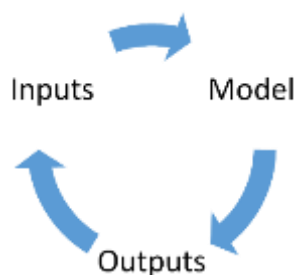
MPI's decision-making process related to asset allocation is summarized below.

"Based on the deficiencies in the portfolios generated by the Real Liability Benchmark modelling, and ... inflation forecast, **MPI decided against further modelling** and examination of high inflation scenarios or other portfolios based upon the real liability ..."⁶

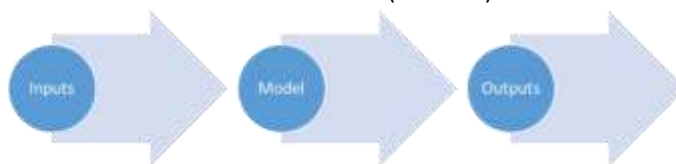
While MPI claims its decision-making and strategy are "reasonable"⁷, the CAC believes the process used was "circular". i.e. The **outputs** (portfolios) of its preliminary "real" analyses, which used the **Real** Liability Benchmark, were used to inform the **inputs/model** (capital market assumptions/ characteristics of the Liability Benchmark Portfolio). This is illustrated below, and contrasted with a more standard "linear" process.

Unreasonable standard or process

MPI's Process
("Circular"):



Standard Process ("Linear"):



A standard approach would start with inputs, then modeling, but it would exclude any feedback effect. (The linear process reduces the possibility of reverse-engineering desired outcomes that might not otherwise appear optimal under a more neutral perspective.)

Long-Term Opportunity Costs Matter More

MPI said the "effort (and cost) ... to answer IRs exceeds the anticipated value ..."⁸ and that MPI "plans to conduct an ALM study every three to four years, meaning it will revisit these forecasts and ... portfolios in the near future. Should actual inflation materialize above the forecast before the next ALM study, MPI's Investment Committee will respond appropriately."⁹

Time is money

If this point is reached, it would be too late (buying insurance after the adverse experience). In other words, it would be more costly to better hedge inflation risk at that time. Meanwhile, the portfolio would face inefficient return/risk tradeoffs (lower returns and/or higher risks).

⁶ Affidavit item 17, page 7

⁷ Motion issue 1: ii), page 9

⁸ Motion issue 1: iv), page 9

⁹ Motion Part V item 5, page 11