Public Utilities Board (PUB)

Manitoba Public Insurance (MPI) Asset-Liability Study

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Introduction

Mandate

Aon Hewitt was mandated by Manitoba Public Insurance Corporation (MPI) to:

- Phase 1 - Study the existing duration matching program and recommend an appropriate interest rate risk mitigation strategy
- Phase II - Part A - Determine an appropriate asset allocation for MPI's investment portfolio
- Phase II - Part B - Discuss implementation considerations

Approach

- The purpose of Phase I was to study the hedging strategy
  - Focused on how the value of only the bond portfolio tracks that of the liabilities
  - Was conducted at a static point in time
- In Phase II, the portfolio is considered in its entirety
  - Incorporates the growth portfolio and MPI's mechanism for managing the Rate Stabilization Reserve (RSR) and setting premium rates
  - Included modeling under various scenarios

…Introduction

Context under which MPI operates

- MPI's Basic compulsory program is required to break even rather than to target profits
- MPI must apply annually to the Public Utilities Board (PUB) for approval of the premiums charged with respect to compulsory driver and vehicle insurance
- The PUB approves both the rates and the capital targets for the Basic compulsory program; therefore, the assumptions used for these items could change at any time as the result of a PUB Order

Phase I - Analysis of the Interest Rate Risk Hedging Strategy

Objective of the analysis

MPI indicated that the short term volatility of the premium rate requirement is a primary concern

- MPI's main concern is not one of liquidity, but one of short term relative value between assets and liabilities, which is driven by interest rate changes
- In that context, MPI would benefit from a bond portfolio whose behavior matches that of the liabilities
  - The analysis therefore focused on:
    - Assessing current MPI practices in building the bond portfolio and valuing liabilities; and
    - Identifying opportunities to improve the asset-liability match

Phase I - Analysis of the Interest Rate Risk Hedging Strategy

Approach

- We compared 3 strategies commonly used by institutional investors for addressing interest rate risk
  A. Duration match: involves the construction of a bond portfolio such that its Effective duration equals that of the liabilities
  B. Hybrid solution (duration buckets approach): matching of total duration and dollar-duration of liabilities within 4 duration buckets
  C. Cash flow match: involves the precise matching of liability cash flows with asset cash flows

Summary of recommendations

- Outlined proposed improvements in the formulation of the MfAD and calculation of the portfolio yield
- Suggested MPI work with its manager to assess and align its capabilities to implement a tighter hedging strategy

Phase II - Part A - Optimization of the Investment Portfolio

Risk Diagnosis

- We modeled a 10-year integrated projection of key outcomes for MPI
- The Risk Diagnosis gives the “Base Case” results. This represents a status quo situation, with the following exceptions:
  - The Desired State rules apply to the RSR
    - The targets are 100% of the Minimum Capital Test (MCT) value for the upper bound and 65% of the MCT value for the lower bound
  - The Fixed Income portfolio is assumed to follow a Bucket Approach to liability matching
- The Risk Diagnosis included projections of the following metrics:
  - Returns
  - Basic Net Income
  - Retained Earnings
  - Net Cash Flows

…Phase II - Part A - Optimization of the Investment Portfolio

Optimization

The optimization was conducted in multiple steps

- The first step compared the impact of 3 hedging strategies
  - This analysis built on Phase I by considering the portfolio in its entirety (including both growth and liability hedging assets) and the mechanism for managing the RSR and premium rate setting. It also incorporated a variety of economic scenarios
  - We concluded that the cost of more precise matching is too high for the reduction in risk
    - More precise matching has a higher cost because the portfolio yields are lower
      - Duration Matching has the highest yield, the Bucket Approach has a lower yield and Cash Flow Matching has the lowest yield
        - This occurs, in an upward-sloping yield curve environment, as you more closely match cash flows, the portfolio invests more in shorter-term (lower yield) bonds

…Phase II - Part A - Optimization of the Investment Portfolio

…Optimization

- The second step explored the split between the fixed income matching portfolio and growth assets, along with the optimization of the growth assets
  - Asset classes were chosen by MPI
    - Asset-only Marginal Risk Analysis provided risk and reward information on various asset classes
    - Implementation issues, such as cost and complexity, were considered
  - Minimum constraints were imposed in order to reflect MPI's objectives and ensure results were practical for implementation
    - Fixed income minimum allocation reflected MPI's liability matching objective
    - Minimum allocation to Canadian equities reflected MPI's desire for a home country bias
    - Real estate and infrastructure minimum allocations considered less liquid nature of these asset classes
  - The minimum constraints left limited room for other asset classes, especially at large levels of fixed income
    - As the growth assets allocation increases, the asset classes that were favored were U.S. equities, Canadian equities, international equities and timberlands

…Phase II - Part A - Optimization of the Investment Portfolio

Recommendations

Policy considerations

- Provide in the policies that surplus distributions be spread over time
  - Rationale: surplus distributions could cause liquidity issues
- Revise the RSR targets
  - Rationale: The modeled lower and upper RSR targets are in part responsible for frequent large rate adjustments
  - A larger distance between the lower and upper RSR targets would reduce the likelihood of rate adjustments
    - The distance between targets should reflect the volatility of the RSR
  - Smoothed rate adjustments could be used to reduce rate volatility
  - Further study would be required to determine the most attractive approach

…Phase II - Part A - Optimization of the Investment Portfolio

… Recommendations

Total portfolio composition

- Hedging strategy: use duration matching
  - Rationale: the risk reduction of more precise matching strategies (Bucket Approach and Cash Flow Matching) is too small for the reduction in reward as a result of the lower yield on the Bucket and Cash Flow Matched portfolios

- We perceive that MPI has a low risk tolerance resulting from
  - The mandate to break even instead of targeting profit
  - The extensive process to change targeted levels of reserve
  - The lack of control of MPI over premium rates

- Therefore, we recommended adopting portfolio 2 for the following reasons
  - The portfolio is at the lower end of the risk spectrum
  - It has a significant allocation to real estate and infrastructure, which is required to provide some inflation protection in the long term
  - The equity allocation it contains provides liquidity to balance the illiquid asset allocation

Phase II - Part B – Implementation Discussion

Phase II – Part B reviewed a variety of implementation considerations. Topics addressed included:

- Observations on asset class ranges
- Discussion of tactical fixed income opportunities in corporate bonds
- Observations on style investing and alternative indexing
- Commentary on MPI's Withdrawal Policy and Investment Policy