

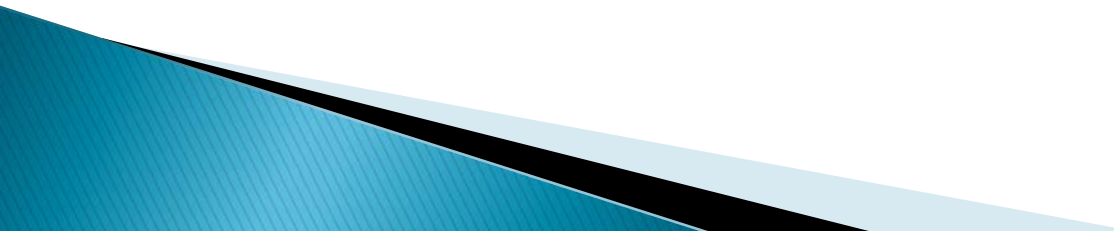
Developing Appropriate Investment Strategies for Funded Employee Benefit Plans- Need & Scope for Actuarial Involvement

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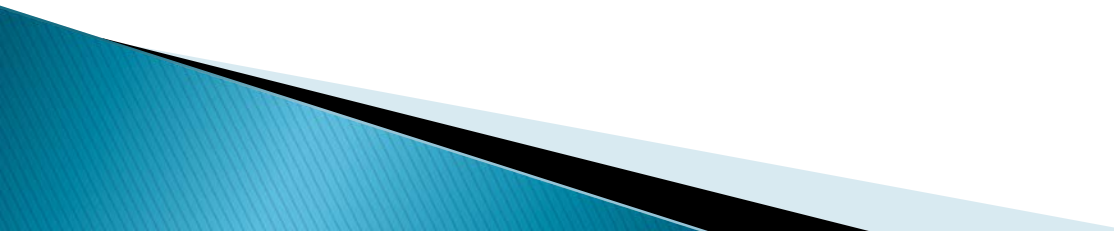
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Agenda

- ▶ Key Concern and Question
 - ▶ Risk Profile of Defined Benefit Plans
 - ▶ Need to Revisit Investment Strategies
 - ▶ Concept of Liability Driven Investment [LDI] Strategy
 - ▶ What does LDI Strategy do?
 - ▶ Inputs for LDI Strategy
 - ▶ Implementing Unconstrained LDI Strategies
 - ▶ Implementing Constrained LDI Strategies
 - ▶ Key Factors
 - ▶ Next Steps
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Key Concern And Question

- Key Concern
 - ▶ Traditional Investment Strategies adopted for funding employee benefits plans may not really reflect the risks inherent in the liability profile
 - Key Question
 - ▶ How can actuaries help in designing investment strategies with reference to the liability profiles of employee benefit plans?
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Risk Profile of Defined Benefit Plans

Defined Benefit Pension Plan

- Assets

- Interest Rate Risk
- Equity Risk
- Other Investment Risks

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- Liabilities

- Interest Rate Risk
- Inflation Risk
- Longevity Risk
- Other Demographic Risks

Need to Revisit Investment Strategies

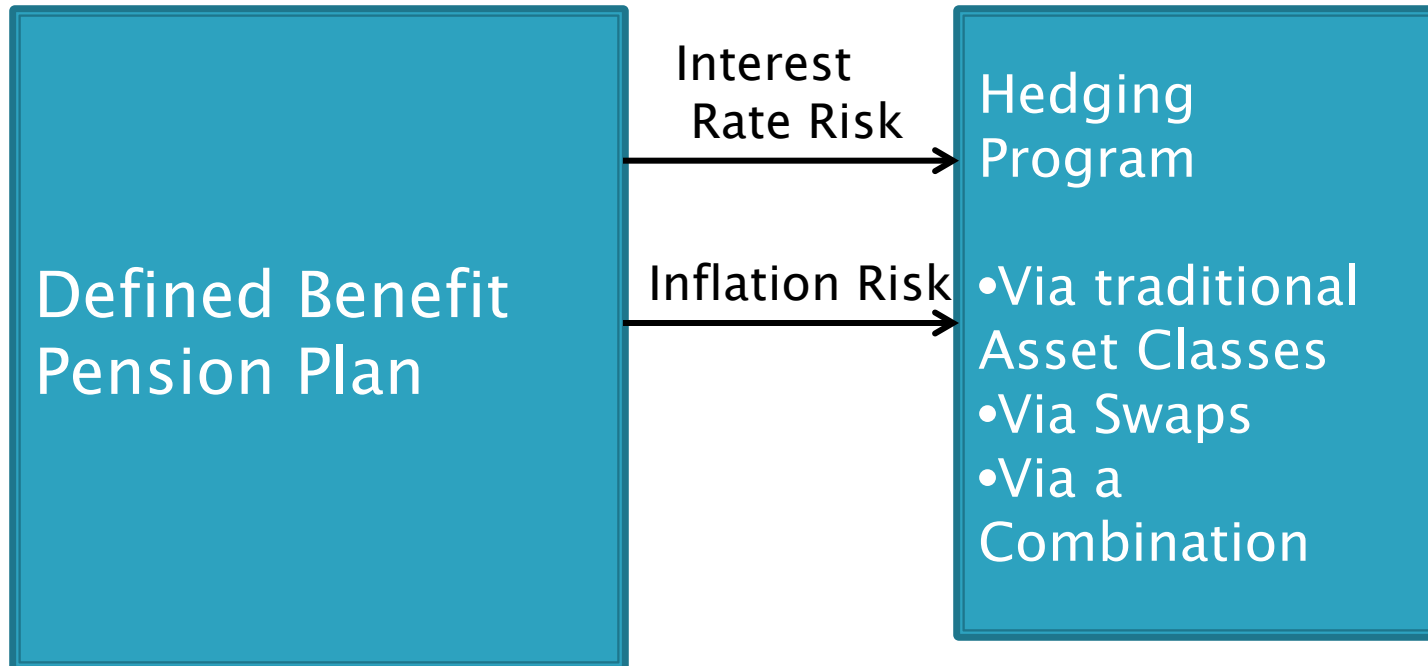
- Pitfalls of Conventional Investment Strategies
 - Unconstrained
 - Constrained
- Liability Risks are often not measured, let alone managed
- Drivers of Change
 - Minimum Funding Requirement (MFR)
 - Myners (2001) Report on Institutional Investment in the United Kingdom
 - IAS19R requires measurement & disclosure of liability risks along with disclosures on ALM strategies

Concept of Liability Driven Investment (LDI) Strategy

- “What is the problem to which LDI is the solution?”
 - The market value of the liabilities is sensitive to changes in the yield curve and expectations of future inflation
 - LDI strategy recognizes the fact that the investment risk of a Defined Benefit plan is a combination of asset risk and liability risk
 - Hence what a LDI strategy does is to reduce investment risk by attempting to hedge liability risks- primarily interest rate and inflation risk.

Source: IFoA: The Finance, Investment and Risk Management Board Working Party (June, 2007) Practical Implementation

What does a LDI Strategy do?

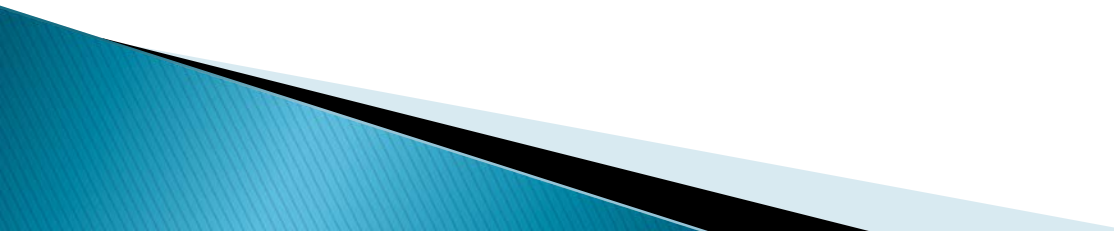


Interest Rate, Inflation and Longevity Risks are Unrewarded Risks

LDI focuses on hedging interest rate and inflation risk

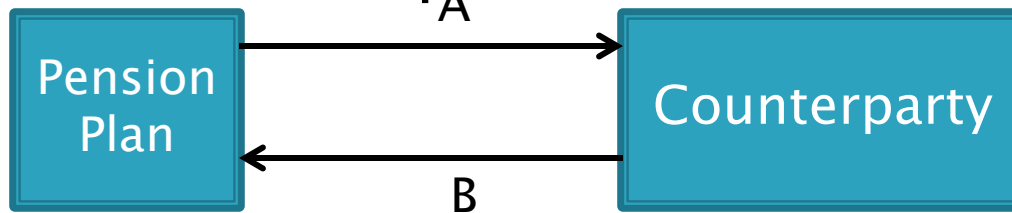
Hedging Longevity Risk is typically an extension of the LDI framework

Liability Related Inputs for Implementing LDI

- ▶ Economic Value of the Liabilities
 - ▶ Choice of Discount Rate
 - ▶ Interest Rate Duration and Convexity of Liability Related Cash flows
 - ▶ Inflation Duration of the Liability Related Cash flows
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Implementing Unconstrained LDI Strategies

- ▶ Unconstrained Investment Environment
 - ▶ Not constrained by a mandated investment pattern
 - ▶ There is a well developed market in long dated interest rate and inflation swaps
- ▶ How do swaps operate?
 - (a) Total Return Swaps

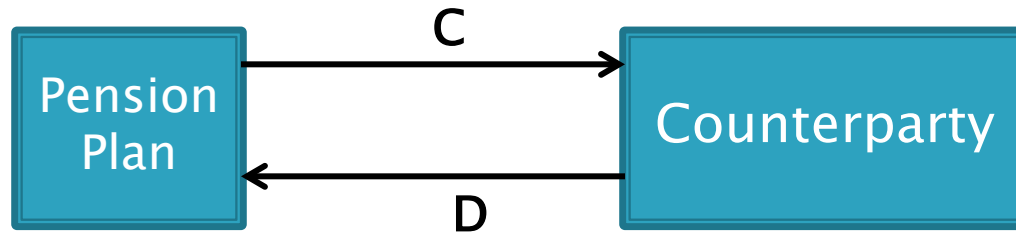


Legend: A. Pay total return on a bond or any portfolio of assets

B. Receive LIBOR plus a spread

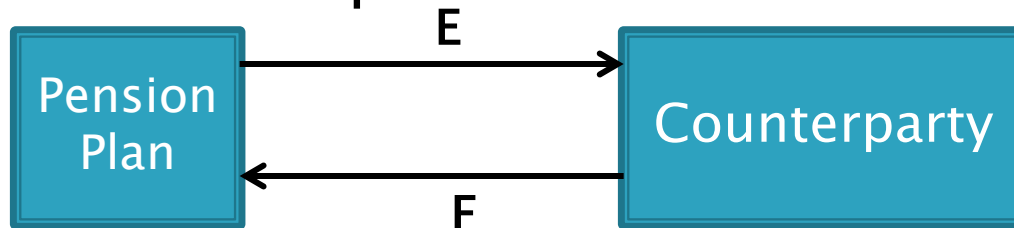
Implementing Unconstrained LDI Strategies

- ▶ How do swaps operate?
 - (b) Interest Rate Swap



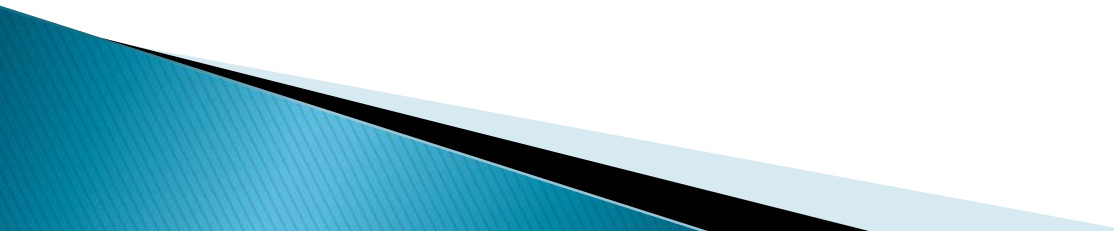
Legend: C. Pay floating (LIBoR)
D. Receive fixed (e.g. 8% pa)

- (b) Inflation Swap

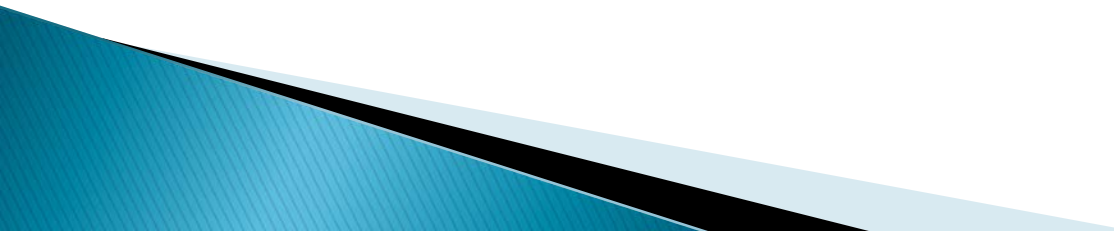


Legend: E. Pay fixed (e.g. 6% pa)
F. Receive actual inflation

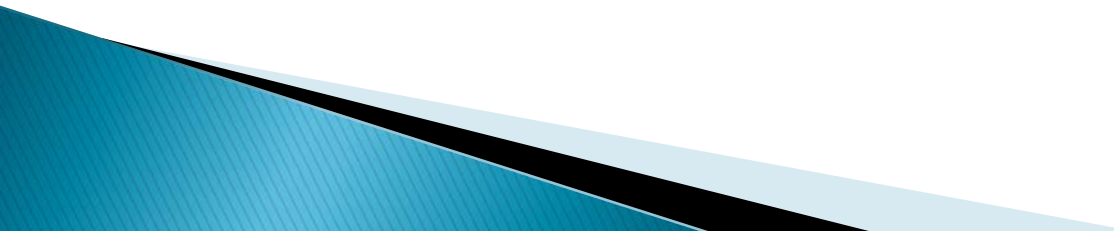
Implementing Constrained LDI Strategies

- ▶ Constrained Investment Environment
 - ▶ Restrictions on Pattern of Investments
 - ▶ Limited Liquidity and Capacity of Swap Market
 - ▶ Restructuring Bond Portfolio Using Duration – Convexity Approach and/or Matching Strategies
 - ▶ Relevance in the Indian Context
 - ▶ ALM Practices in the Indian Life Insurance Industry
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Implementing LDI Strategies – Some Case Studies in the United Kingdom

- ▶ Use very long dated bonds and swaps to match very long dated liabilities – Boots Pension Scheme
 - ▶ Swap liabilities to floating but with no change to asset allocation – Friends Provident Pension Scheme
 - ▶ Use a combination of total return swaps, interest rate swaps and inflation swaps for liability matching - W.H.Smith Pension Scheme
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Implementing LDI : Key Considerations

- ▶ Which liabilities are to be hedged?
 - ▶ Level of Precision Required
 - ▶ Short Vs Long Dated Cash flows
 - ▶ Embedded Liability Options
 - ▶ Liquidity and Capacity of the Swap Market
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Next Steps

- ❑ Role of Actuarial Profession
 - ▶ Underscoring the Need for LDI strategy
 - ▶ Pension Plans of Public Sector Banks
 - ▶ ALM Diagnostics
 - ▶ Developing the Framework
 - ▶ Disclosures - IAS19R
 - ▶ Structuring Relevant LDI Solutions
- ❑ Creating a Traded Market for Transferring Liability Risks

Thank You