Institute of Actuaries of India

Liability Driven Investments

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Introduction

- Evolution of Pension Fund Investing
- Concept of Liability Driven Investment (LDI)
- Application of LDI Strategy
- Indian Scene on Employee Benefits
- Constraints of applying LDI in Indian Context
- Case Study
- Conclusions

Evolution of Pension Fund Investing

Upto Mid 1990s:

- Projected liabilities compared with smoothed asset values
- Balanced investment strategy investing across range of asset classes
- Diversification used as a tool for risk management
- Liability profile had little influence over investment strategies
- Long sustained bull markets resulted in high funding levels
- Benchmark being average returns over peer groups
- Proportion of assets allocated against equities high

Evolution of Pension Fund Investing

Towards end of 1990s:

- Bear market gave rise to deteriorations in funding positions
- Falling interest rates & increasing longevity put further pressure
- Advent of mark-to-market accounting brought its own challenges in investing in volatile asset classes
- Long term viability of defined benefit schemes came under question
- Realization that "one-size-fits-all" does not work
- Each scheme is unique in its risk profile
- Investment strategy to be tailored to mitigate scheme's specific risks

Evolution of Pension Fund Investing

End of 1990s to mid 2000s:

- Switching over from defined benefit to defined contribution changed the liability profile
- Moving away from equities…..
- ….into fixed income bonds which reduced volatility
- Broad based matching of fixed pension liabilities using bonds
- Concept of “duration” evolved and techniques developed to manage funding level volatility

Evolution of Pension Fund Investing

Mid 2000s onwards:

- Became imperative to understand the relationship between assets and liabilities
- Led to liability driven benchmark approaches
- Asset allocations captures the characteristics of the liabilities and represent them as a portfolio of assets in which scheme can invest
- Suitable benchmarks were drawn to monitor fund managers
- Increase usage of wider range of instruments such as derivatives to achieve more precise liability hedges
- Move towards a more sophisticated liability driven investment strategies

Concept of Liability Driven Investments

- LDI looks at pension plan asset allocation from the perspective of total plan return and risk
- Not simply about return on assets beats performance target or peer group of benchmark returns
- Nor is it about investing blindly in bonds or any low risk investment strategy
- Since it recognizes that along with assets, the value of liabilities itself has risks
- LDI is a strategy which keeps pace with the changing values of liabilities whilst it optimizes the asset returns
- LDI approach meets this challenge by dividing its investment strategy into two components:
  - First component manages liability risks
  - Second component generates appropriate returns

Concept of Liability Driven Investments

- LDI aims to reduce investment risks by measuring success or otherwise of the investment strategy by reference to the plan's funding position

- Basic measure of pension scheme's ability to meet its obligation is its funding position

- Funding position = Assets – Liabilities

- Both assets and liabilities have risks which produces huge volatility

- Assets risks which contributes to volatility are movement in equity returns, interest rate risks or defaults in payments

- Liability risks of a DB plan which contributes to volatility are of two types – investment risks and non-investment risks

- Investment risks on liability sides of a typical DB plan are interest rate risk and inflation risks

Concept of Liability Driven Investments

- Non-investment risks includes longevity risks, uncertainty of cash flows due to salary increases, attrition or commutation

- In absence of LDI, both asset side as well as the liability side will fully contribute towards the volatility in funding position of the plan

- It is hard to fully hedge the non-investment risks of liability side although products such as longevity sways can go someway in mitigating these risks

- However, the investment risks of the liability side can be mitigated through LDI thereby substantially reducing the volatility in funding position

- LDI is a strategy to choose part investments to hedge the interest rate and inflation risks and invest the rest to optimize investment returns

- This two pronged strategy is possible through partially funded instruments

Application of LDI Strategy

- Typically, pension schemes use bonds to hedge their liability risks as they have a predictable future payments and they change in value in response to interest rates
- They are a poor match for longest dated pension cash flows and also provide limited protection to inflation
- Such matching leave little assets for investments in growth avenues
- Partially funded instruments provide investment exposure without a substantial commitment of initial capital & are more efficient
- They provide opportunity to invest in growth assets thus fulfilling the overall objective of optimizing returns & reducing funding costs
- Swaps, repos and other derivative products are examples of partially funded instruments

Application of LDI Strategy

- Swaps are the most popular partially funded instruments for managing liability interest rate and inflation risks
- Swaps can be created and shaped to meet each pension schemes specific needs
- Common to use bonds as a base for liability hedging and to overlap them with interest rate and inflation swaps to follow a more closer matching of liabilities
- Non-investment risks of longevity can be transferred thorough a longevity swap
- A complete alternative to LDI strategy is to buy-out the liabilities with an insurer
- Pursuing a LDI strategy in practice is complex
- Requires a good understanding of pension scheme liabilities, current market conditions and availability of fixed income and other sophisticated instruments

Indian Scene on Employee Benefits

- In India, employee benefits comprises of:

  - Provident fund
  - Gratuity
  - Leave encashment
  - Pension (DB or DC)
  - Long service benefit
  - Post retirement medical plans
  - Long term incentive / bonus plans

- No compulsion to pre fund employee benefit liabilities
- Absence of any minimum funding requirements
- Tax benefits of pre funding benefits such as provident fund, gratuity & pension
- Typically, only such plans which attract tax benefits are pre funded

Indian Scene on Employee Benefits

- Even though there are tax benefits to pre fund gratuity or pension benefits, many employers choose not to fund these benefits
- All other benefits are usually unfunded
- Trusts need to be formed to avail tax benefits with employees acting as trustees
- Choice of conventional asset classes with greater focus on fixed income instruments
- Investment restrictions for tax exempt arrangements
- For DB pension plans in private sector, employers have to compulsorily purchase annuity for the pension of the employee at the time of retirement
- Accounting of employee benefit costs is as per AS15
- AS15 requires mark to market accounting with discount rates based on government security yields

Constraints of Applying LDI in Indian Context

- Application of LDI relevant for employer sponsored DB plans
- Type of asset classes allowed
- Restrictions of investing within asset classes
- Tax limits on amount allowed to be contributed
- Limitations on long duration bonds
- Lack of availability of inflation rate linked instruments
- Lack of availability of longevity swaps
- Compulsory buy-out of pensions at time of retirement from insurers

Case Study - Problem

- A MNC company operating in India
- Offered generous post retirement medical benefits to those who retired from the company
- Benefit was a reimbursement of upto 90% of the actual medical costs incurred post retirement to both employee and the spouse during their lifetime
- With high medical cost inflation, the cost of providing benefits under this scheme inflated substantially in 1990s
- As part of cost rationalization of employee costs, scheme was closed to new entrants about 15 years ago
- Liabilities were unfunded and a provision was held in the books of accounts of the company
- Falling interest rates, high medical inflation and increase in longevity brought in huge volatility to the P&L of the company

Case Study - Solution

- Company decides to fund the liability despite no tax benefits available to fund
- Did not form an income tax approved trust fund
- Instead, a trust fund was so created and structured such that it would count as "admissible asset" under IAS19 accounting but without resorting to any tax benefits
- Since the scheme has been closed to new entrants for last 15 years, nearly 85% of the liabilities pertained to pensioners
- Company purchased marketable long term tax free bonds to hedge the pensioner's liability
- Will consider investing in future interest rate swaps that are available in the market to bring more closer liability matching

Case Study - Outcome

- Funding the liability & structuring it appropriately helped the company take credit of the fund assets against the liabilities in its accounts
- By mapping the liability cash flows and investing in bonds the company ensured that asset values move in tandem with the value placed on the liabilities
- By choosing not to opt for an income tax approved trust, the company has given itself more flexibility on investments
- Company has saved on taxes and maximized returns once the liability hedging objective was achieved by investing in tax free bonds
- This strategy of LDI within the constraints of Indian laws and availability of products has resulted in a lower volatility in company's financials and better security for employees
- The company is still however heavily exposed to medical inflation and longevity risks for which there is no easy solution at the moment

Conclusions

- LDI manages liability risks of a DB scheme and generates adequate returns
- Focus of reducing funding level volatility is at the heart of any LDI strategy
- Whilst LDI can effectively mitigate few liability risks, some other risks cannot be reduced / eliminated through LDI
- Successful LDI strategies require good understanding of liability profile, current market conditions and availability of fixed income and sophisticated products
- LDI strategies are very commonly used in western countries
- There are constraints of effectively using LDI in India
- Emanating from Indian laws and lack of availability of suitable products
- Notwithstanding these, companies in India can use LDI strategies to effectively reduce volatility in funding levels and company financials

Thank you