Asset & Liability Management in a New Era:
Managing To A Moving Target

Shannon Eidson FSA, CFA
Vice President

Muz Waheed ASA, CFA
Vice President

Lee Freitag
Vice President
Presentation Overview

Asset & Liability Management in a new era

- Introductions
- Market environment for DB plans
- Pension risk management philosophy
- Asset & liability case study
- Conclusion
Defined Benefit Plans: Market Environment

- Changes: Mark to Market
  - Funding discount rate (PPA)
  - Asset smoothing reduced (PPA)
  - Funded status hits balance sheet (FASB Phase 1)
    - FASB Phase II – Change in funded status hits income statement

- Results: More volatile contributions, balance sheet and potentially income

- Solution: Focus on Assets and Liabilities together helps reduce funded status volatility
Market Environment for Defined Benefit Plans

### Funding Ratio
- DB plans at 9/30/10 reported ~80% funded
- Lower bond yields exasperate funded status
- Plans need to take more risk to close the gap or expect to make greater contributions

### Asset and Liability Growth
- Asset levels struggle to keep pace with liabilities

Source: Hewitt - Cumulative assets and liabilities (billions) of all pension schemes in the S&P 500 index on an accounting basis, as of 9/30/2010
Investment Program Management (IPM), coupled with a focus on Asset & Liability Management (ALM), is a solid pension risk management framework for measuring, managing and monitoring the inherent investment risk/return trade-offs of your portfolio – in the context of your underlying liabilities

- A focus on surplus space, considering the movement of pension assets and liabilities in tandem, redefines pension plan investment success

- Appropriate investment strategies span a continuum of choices that change over time. The allocation between return seeking assets and hedging assets becomes an important decision point in determining the success of an investment program.
Case Study
Asset and Liability Management

The case study is for illustrative purposes only and do not necessarily represent experiences of clients, nor do they indicate future performance.
For a hypothetical client we will explore three questions:

- Question 1: What should be the strategic allocation between Return Seeking and Hedging Portfolios?
- Question 2: Are there tactical considerations for the Hedging Portfolio?
- Question 3: How does the strategic asset allocation evolve over time?

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Case Study - Background

Sample Pension Plan Characteristics

- Current Discount Rate = 5.5%
- Liability Duration: 12 yrs

<table>
<thead>
<tr>
<th>Sample Plan</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td>$150,000,000</td>
</tr>
<tr>
<td>Liabilities</td>
<td>$200,000,000</td>
</tr>
<tr>
<td>Funded Status</td>
<td>$(50,000,000)</td>
</tr>
<tr>
<td>Funding Ratio</td>
<td>75%</td>
</tr>
</tbody>
</table>
Question 1: What is the Strategic Asset Allocation?

- The appropriate mix of return seeking and hedging assets is a function of:
  1. Current Funded Status
  2. Contribution Policy
  3. Plan Status (Frozen, Closed, Open and Ongoing etc)
  4. Risk Appetite

Solution: Asset Liability Study

- Based on a comprehensive Asset Liability study, for this sample client we would recommend the following strategic asset allocation change:
Question 2: What are the tactical considerations?

- Do you believe that discount rates will increase in the next 24 months (Yes/No)?

- Let’s examine historical data and current level of discount rates
Citigroup Pension Liability Index data goes back to 1995.

To get a longer historic perspective, the distribution of Moody's Seasoned Aaa Corporate Bond Yield since 1950 is shown below:

- Although pension discount rate is at its lowest recorded level, high quality bond yields have seen lower values.

**Moody’s Seasoned Aaa Corporate Bond Yield**

**1950 to 2009**

<table>
<thead>
<tr>
<th>Year</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>8.86%</td>
</tr>
<tr>
<td>1953</td>
<td>9.88%</td>
</tr>
<tr>
<td>1956</td>
<td>9.68%</td>
</tr>
<tr>
<td>1959</td>
<td>9.88%</td>
</tr>
<tr>
<td>1962</td>
<td>9.88%</td>
</tr>
<tr>
<td>1965</td>
<td>9.88%</td>
</tr>
<tr>
<td>1968</td>
<td>9.88%</td>
</tr>
<tr>
<td>1971</td>
<td>9.88%</td>
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<tr>
<td>1974</td>
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<td>1977</td>
<td>9.88%</td>
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<td>1980</td>
<td>9.88%</td>
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<td>9.88%</td>
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<td>1986</td>
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<td>1989</td>
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<td>1992</td>
<td>9.88%</td>
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<td>1995</td>
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</tr>
<tr>
<td>1998</td>
<td>9.88%</td>
</tr>
<tr>
<td>2001</td>
<td>9.88%</td>
</tr>
<tr>
<td>2004</td>
<td>9.88%</td>
</tr>
<tr>
<td>2007</td>
<td>9.88%</td>
</tr>
</tbody>
</table>

8/31/2010: 4.49%

Source: Moody’s
Question 2: What are the tactical considerations?

- For a better funded plan (e.g. 90% Funded), the focus is on preservation of funded status, so the plan should invest in their strategic long bond allocation.

- For a poorly funded plan (75% in our example), if it is believed that interest rates are more likely to increase than decrease, the strategic allocation to long bonds can be delayed until discount rates start increasing.
  
  "Migrating to long bonds using discount rate triggers will require periodic review of the interest rate environment."

Solution: Duration Migration

Sample Rate Based Duration Migration

<table>
<thead>
<tr>
<th></th>
<th>Current-5.0%</th>
<th>5.50%</th>
<th>6.00%</th>
<th>6.50%</th>
<th>7.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td>US Equity</td>
<td>40%</td>
<td>40%</td>
<td>40%</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>International Developed</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>Core Fixed Income</td>
<td>40%</td>
<td>30%</td>
<td>20%</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>Long Bond</td>
<td>0%</td>
<td>10%</td>
<td>20%</td>
<td>30%</td>
<td>40%</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Economic and demographic environment can change significantly over time:

- The asset allocation should be changed as the funded status of the plan improves
- Lock in funded status gains by reducing:
  - Equity exposure
  - Interest rate risk

Solution: Glidepath

Monitor the improvement in funded status periodically and lock in any gains by reducing equity exposure and increasing fixed income duration
Sample Glidepath

Current
75% Funded
75/25

Stage 1
Move to
70/30

Stage 2
80% Funded
60/40

Stage 3
90% Funded
40/60

Stage 4
100% Funded
20/80

Stage 5
105% Funded
10/90

Asset Allocation

Core Fl, 25%

Hedging Asset, 30%

Hedging Asset, 40%

International Equity, 15%

International Equity, 20%

International Equity, 20%

International Equity, 10%

Intn'l Eq. 5%

Intn'l Eq. 2.5%

US Equity, 60%

US Equity, 50%

US Equity, 40%

US Equity, 30%

US Equity, 25%

US Equity, 7.5%

International Equity, 15%

International Equity, 20%

International Equity, 20%

International Equity, 10%

Intn'l Eq. 5%

Intn'l Eq. 2.5%

Long Bonds, 60%

Long Bonds, 55%

Long Bonds, 45%

Strips, 15%

Strips, 25%

Strips, 30%
Case Study: Glidepath

Future Stage:

Discount rate = 6.7%
Equity Returns = 10%
Funded Status = 93%

Result
Strategic Hedging with 90% Funded Target

Asset Allocation
- Core FI, 25%
- Hedging Asset, 30%
- Hedging Asset, 40%
- Strips, 15%
- Strips, 25%
- Strips, 30%
- Long Bonds, 45%
- US Equity, 60%
- International Equity, 15%
- International Equity, 20%
- International Equity, 20%
- International Equity, 10%
- Int'l Eq. 5%
- Int'nl Eq. 2.5%
- 0%
- 10%
- 20%
- 30%
- 40%
- 50%
- 60%
- 70%
- 80%
- 90%
- 100%

Stage 3
90% Funded
40/60

Stage 1
Move to
70/30

Stage 2
80% Funded
60/40

Stage 3
90% Funded
40/60

Stage 4
100% Funded
20/80

Stage 5
105% Funded
10/90

Northern Trust
Robust asset liability reporting provides ongoing information to monitor the effectiveness of strategies and measure performance of portfolio funded status.
Conclusion

All plans and circumstances are different. For your plan and circumstances:

- Decide on your return seeking vs. hedging allocation
- Decide if your current hedging allocation should be strategic or tactical
  - If tactical, decide how to move to strategic
- Prepare to derisk by planning now
- Measure and monitor in asset-liability space
- Plan management is more complicated now, find a trusted advisor to help

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