Ryan ALM, inc.
Asset / Liability Management — The Solutions Company

Pension Solution **# 1**

Custom Liability Index

There is a Pension Crisis in America today that threatens the financial structure and solvency of many major corporations, cities, states and even the Federal Government. Corporations have a pension deficit of about $230 billion according to reports based on IRS Form 5500 but if marked to market accurately would be near $500 billion. Popular surveys show Public Funds have a pension deficit of $300 billion but if properly valued at market would swell to over $1.5 trillion. The Social Security Trustees report an ultimate deficit approaching $10 trillion and Medicare has an unthinkable projected $30 trillion deficit. How America finances this massive under funding will shape our economy for generations to come.

Doctor/Patient
It is obvious that many of America's pension plans are financially sick and in some cases look terminal. The cure may be painful with a long tedious treatment process. Higher contributions, earnings drags, credit rating impairments and even bankruptcies seem to be the symptoms for corporations while Public Plans face budget shocks in the form of significantly higher contributions. Similar to a Doctor/patient relationship, the first step in the process of curing this financial malignancy is the diagnosis. Until a series of accurate tests are done, how could you know how bad a situation exists, where it is located and what caused it, so the appropriate remedies can be prescribed. Once the true condition is diagnosed, only then can the treatment process begin in earnest. I doubt that you would accept surgery from a physician without being properly tested. You would certainly seek a second opinion.

The Problem
Improper accounting rules and actuarial practices are the basic problems undermining pension plans today. Such mandates create inaccurate valuations (present values) of liabilities. This forces pensions into an improper asset allocation where assets are given the wrong hurdle rate and benchmarks as their objective. It follows **that given the wrong objective… pensions get the wrong risk/reward outcome**.

Current practices value liabilities only once a year (sometimes every three years), months delinquent where all liabilities are priced at the same discount rate. Moreover, this portfolio of liabilities (Cash Flow schedule) is seldom shown to the plan sponsor or its consultant and asset managers (**no transparency**). The discount rate chosen is a **single rate** used to value all liabilities no matter what benefit payment date they have (maturity). This single discount rate comes from the long Moody's AA corporate rate (FASB 87 accounting), an amalgamation of three corporate bond indexes (IRS funding rules) or is the forecasted rate of return on assets (ROA) specified for Public Plans by ASOP 27.

Logic should suggest that **if you cannot buy this single discount rate used, then it is not a real rate**… and will cause valuation distortions. **If you cannot defease (buy assets that match) your liabilities with the discount rate used then the plan is in jeopardy** as the pension plan can not match assets to liabilities even if it wanted to. Moreover, plan assets will never know if they are winning or losing if the valuation of liabilities is not an **accurate** and **frequent** market valuation. Can you imagine trying to beat the S&P 500 if it came out annually, months delinquent, all securities have the same price and you are not shown the portfolio. Well, welcome to the pension world of accounting and actuarial valuations! It should also be noted that the calculation for the IRS minimum contribution and funding ratio is based on the present value (permitted fair value) of assets versus the present value of liabilities. In other words, **a lot is riding on the accuracy of the present value calculation of liabilities**.

Proper Diagnosis

Ryan ALM strongly recommends a **Custom Liability Index as the first step on the road to recovery (the Diagnosis).** Until liabilities are priced at the market individually as a term structure (benefit payment schedule) the Plan Sponsor will never know the true economic value, shape and risk/reward behavior of their liabilities. Think of it as another set of accounting books… **economic books**. Indeed, the SOA has just released their exposure draft on October 12, 2004 called " Principles Underlying Asset Liability Asset Management" which clearly promotes in section III. A. that a consistent ALM structure can only be achieved for **economic objectives** versus accounting measures that focus on earnings rather than liability funding objectives. For more info, read the Ken Buffin Commentary "Asset Liability Management Principles" located on our web site in our Monthly Newsletter section.

Ryan ALM has designed an **ALERT** system as the proper way to value liabilities and provide early warning signals to a Plan Sponsor as to when, where and how big their pension deficit is.

ALERT System™ (Asset/Liability Early Risk Transparency System)

The Ryan ALM **ALERT System™** is a daily system that calculates and monitors the present value size, shape and risk/reward behavior of the plan's liabilities. Our **ALERT** system works as follows :

1. Actuary provides Annual Cash Flow schedule (**Future Value**). Ryan ALM will match and balance to this schedule plus show the future value of liabilities as a report.
2. Calculate **Present Value** for each liability payment and sort into a series of annual duration cells plus total liabilities as an index series.
3. Calculate and monitor the **Structure** of liabilities showing the future value, present value and average duration, yield, price for each annual duration cell + total liabilities.
4. Calculate and monitor **Growth Rate** (total return) of each annual duration cell + total liabilities.
5. Provide succinct **Liability Portfolio** showing every liability payment and its valuation.
6. **Delivery** via a private web site password protected so there is clear transparency on current liability portfolio valuation plus an archive of historical monthly reports .

ALERT System™ … Benefits

1. Monitoring System - The **ALERT System**™ is a ***daily*** system that calculates and monitors the present value of liabilities as a term structure (yield curve). This provides an accurate measurement of the true **size**, **shape** and **present value growth** (return) behavior of liabilities. This is a critical step in order for the asset side to function effectively. Asset allocation should be based on the shape of liabilities such that the amount allocated to short, intermediate and long assets is based upon the percent in short, intermediate and long liabilities. Performance measurement would need to know the growth (return) of liabilities as a term structure in order to compare the performance of short assets to short liabilities and long assets to long liabilities, etc. Asset management needs to know all of the above in order to effectively manage assets versus the liabilities the assets are funding (i.e. short, intermediate, long).

2. Frequency – The **ALERT System**™ solves one of the critical problems in ALM today which is that the liability valuations are traditionally provided annually (or triennially) and are delinquent. Very difficult, if not impossible, for the asset side to function with such stale information. Trends do not wait for the end of a calendar year. Asset management must be responsive to the volatility of liabilities and take advantage of the liability growth vagaries or avoid it (match assets to liabilities).

3. Accuracy – Hard to believe that we have rules today that mandate and encourage pension plans to price liabilities at a **single discount rate**. Moreover, this single discount rate can be a weighted average over the last four years (IRS), a AA composite (FASB 87), or unbelievable… the ROA forecast (ASOP 27). As the old phrase says "garbage in … garbage out". There is no way a single discount rate could be used to price a yield curve of liabilities much less rates that do not exist in the bond market. As the Society of Actuaries (SoA) just released in their October exposure draft, ALM requires assets to be managed based on true economic values (market values) instead of accounting values. The **ALERT System™** prices each liability based upon market prices that are purchasable and real.

4. Transparency – Hard to beat an invisible opponent. Any benchmark should be required to easily available so the participants can access necessary information upon demand. The **ALERT system**™ is a series of reports delivered daily via a private password protected web site to the client and whoever they authorize to have daily access.

5. Index Benchmark - All functions of the asset side require an index benchmark to support its objective. Asset Allocation models try to outperform a hurdle rate within a risk tolerance. This hurdle rate should be the yield on liabilities (long-term growth rate) and the risk tolerance should be the volatility of liabilities. Performance measurement requires multiple liability indexes for each part of the liability term structure that each asset class is funding. Equities might be assigned to long liabilities but their job is never total liabilities unless you are 100% allocated to equities (very risky). And each asset manager needs to understand what part of the liability term structure they are funding as an index so they can decide how best to control the risk/reward tradeoff versus the liabilities they are funding.

6. Clarity – Most pension practioners are asset specialists and do not understand the liability side nuances. Since so much of the liability side is embedded in accounting and actuarial rules and theories, the asset side gets confused and tends to ignore what happens to the liability side of the equation. The **ALERT System**™ tries to translate actuarial reports into asset type reports so asset practioners can better understand and value how liabilities truly behave.

7. Conformity to Rules – In the end, we must conform to the rules although we should understand the difference between economic value and accounting value. The **ALERT System**™ prices liabilities in conformity to FASB, GASB and SEC. More importantly, the **ALERT System**™ creates a true set of economic books (values) versus accounting books that may mislead pension plans.

8. Due Diligence – Since most pension plans are severely under-funded, they have a fiduciary responsibility to monitor this deficit to make sure it is not life threatening and correct it. In most Asset/Liability dilemmas (i.e. S&L crisis, Orange County) a task force is assigned to study the cause and effects of this financial disaster. After several months, their conclusions are usually succinct … we must monitor Assets vs. Liabilities more closely ! How about ***Daily*** … how about the **ALERT System**™ of Ryan ALM !!

Key Benefit :

"Given the wrong index objective(s), you will get the wrong risk/reward behavior".