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STREET RESEARCH

PENSION FUND MANAGEMENT REVISITED

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In 2003, the most visible issue in the investment community was how to deal with the aftermath of the so-called "pension perfect storm". This storm was created from the combination of global equity bear markets and declining interest rates during the period 2000–2002. As a result, nearly three quarters of pension plans in the US were running various levels of pension deficits at the end of 2002. The magnitude of US equities underperforming long-term bonds for one and three years ending 2002 (-37% and -25% per year respectively) were the largest since the early 1930s. Note that if one views the pension gap issue in a 10 year horizon, equities were still ahead of long-term bonds by more than 2% per year from 1993 to 2002. The only eras of equity underperformance over a rolling 10 year period are the early 1930s and the oil crisis in the 1970s.

Regardless of the investment horizon, pension funding status forces corporations, investors and pension sponsors to revisit many important issues pertaining to how pension funds should be regulated, valued, and invested. Fidelity and Plansponsor magazine jointly conducted a comprehensive survey of how pension plans "react" to the funding environment (Fidelity Management Trust Company, 2004). Ironically, the last time Wall Street paid so much attention to pension funding and investing was the period of extremely high interest rates in the 1980s. The issues of shortfall risk, immunization, surplus management, and pension fund strategies were well studied by many practitioners and academics (most notable is a series of groundbreaking research by Martin Leibowitz (1992), formerly with Salomon Brothers). Twenty years later, the analytical framework and solutions provided by these researchers remains fresh and clever.

In a broad sense, practical issues of pension fund management are related to

(1) External Setting
- government regulation with regard to plan design, tax implication, corporate governance, and liability valuation (discount rates);
- accounting rules governing financial statements, disclosures, and valuation;

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- equity risk premium;
- the correlation and valuation equilibrium of equity and bond asset classes;
- global demographic transformation.

(2) Corporations
- enterprise valuation and creditworthiness in the eyes of security/credit analysts and rating agencies;
- capital structure and funding financing decisions;
- decisions to contributions, termination, changes (e.g., cash balance plan), etc;
- corporate governance related to pension management and liability hedging.

(3) Pension Funds
- asset/liability risk management;
- asset return assumption;
- characteristics of liabilities, especially in relation to assets and wage inflation;
- plan's target mismatch of interest rate sensitivity between assets and liabilities;
  - Reality of practicing pension risk management: will and should pension plans finally implement the surplus volatility management and surplus optimization?
- liability hedging strategies;
- asset allocation and active management.

Legislative efforts in addressing deficiencies in pension accounting involve various regulatory bodies. Investors and security/credit analysts have long perceived GAAP accounting for pension funds to be sporadic, confusing, and arguably misleading regarding the plan's true economic value. The accounting complexity of pension liabilities and expenses are attributable to the plans' operating environment: GAAP, ERISA, IRS, and PBGC (Pension Benefit Guaranty Corporation) to name a few.

GAAP/FASB governs the economic measure of a plan's funded status by using AA-rated corporate bond rates in determining the value of *actuarial* or *economic* liability, funded status, and pension expenses. On the other hand, in determining the minimum contribution requirement according to ERISA, assets and liabilities are assessed via a smoothing mechanism and the discount rate is the moving average of prior 30 year Treasury rates. The liability in this case is often referred to as the "*current*" or *accounting* liability. The third measure of pension liability is related to the determination of variable rate premium payment as required by PBGC.

Goldman Sachs' report (2003) depicts a detailed road map of how various calculations of liability and expenses flow through balance sheet, income, and cash flow statement items. While the accounting rules governing pension plans have been in existence since the mid-1980s, most street research has not paid much attention to how pension funded status, income, and expenses impact corporate and earnings valuation until the last 2–3 years. Now, numerous reports advocate a process to adjust for pension related items in determining EBITDA, cash flows, leverage, credit ratio, and ultimately the quality of earnings and enterprise value. Adjustment items cover assumed asset returns, asset and liability smoothing valuation, asset/debt inclusion, changes in pension income and expense. Reports from BearStearn (2001), CSFB (2002), Lehman Brothers (2003), SalomonSmithBarney (2002), and Moody's Investors Service (2003) represent excellent discussions on this subject from the standpoints of equity and debt holders.

Both US and International Accounting Standards Board seek to have more transparent disclosures about pension costs, plan asset allocation and funding requirements. Recent legislative reforms attempt to address minimum funding requirements, minimum funding ratio, and PBGC premia, as well as how and when liabilities should be funded. Perhaps the most important part of potential regulatory changes is related to the federal legislature guidelines for determining the appropriate pension discount rate. The choice of the discount rate greatly impacts the calculation of the liability's present value, lump sum annuities, and the mandatory funding requirement. Depending on sector/industry, this decision may provide significant relief on the firm's free cash flows, capital expenditure funding and debt servicing ability. Discount rates under consideration include corporate bonds and swaps. One proposal goes a step further advocating an age-based funding assumption in the form of "maturation yield curve." For the discussion of discount rate issues, please see reports from Morgan Stanley (2003a,b) and Russell (2003).

Obviously, the uncertainty of pension liabilities goes beyond the choice of discount rate. The changes in actuarial assumptions such as worker turnover, business environment, and benefit structures all contribute to the uncertain outcome of liability changes. Notwithstanding, the mismatch of interest rate sensitivity of assets versus liabilities for most pension plans is enormous, especially if the fixed income allocation is earmarked to broad bond markets. This mismatch greatly contributes to the volatility of the plan's funded status as well as indirectly, other items in financial statements. The desire of managing this volatility calls for a re-examination of the plan's *net* target duration and asset allocation policy.

Many research reports, such as those published by Goldman Sachs Asset Management (2003a,b) and numerous unpublished works by the dealer community and NISA, a St. Louis based money management firm, formulate various physical and overlay hedging strategies for reducing the plan's net exposures to interest rate risk. The research focuses on surplus/liability volatility in deriving the desired hedging and asset allocation policy. In this setting, the objective function of pension policy can be stated by downside risk and a tolerance level of the pension funded status. While the research generally follows the framework set forth by Leibowitz and others in the 1980's, the explosive development of swaps and option markets over the last decade makes the implementation feasible and efficient. Since a fund's liability can be measured and affected in different ways, the nature of hedging strategies can vary substantially. Issues to be considered include:

- specific actuarial and accounting assumptions;
- relative importance of three liability measures in the fund's management objectives;
- the distance of a plan's funded status to its stated threshold level;
- the characteristics of hedging instruments used *vis-à-vis* liability streams: spread duration, convexity, and non-interest-rate related risk;
- tactical view (or lack of) about interest rates and spread movement that may influence the choice of bonds, TIPs, futures, swap, swaptions, put spread, and collars;
- static versus dynamic hedging; and
- the interaction of liability hedging and other hedging activities (e.g. equity) in achieving the plan's overall funded status objectives.

Issues of pension funded status and liability hedging considerations also bring us to the frontier of the so-called "new pension paradigm" of asset management. Street discussions concentrate on the following three topics:

- the essence and necessity of the asset allocation policy (or policy portfolio) (e.g. Bernstein, 2003);
- practical consideration of investment horizon;
- single-period versus multi-period dynamic strategies;
- the role of equity in view of a plan's funding status (e.g. UBS, 2003);

- separating active performance from a portfolio's systematic risk (risk preference of alpha and beta in a portfolio setting) (e.g. Litterman, 2003; Bridgewater, 2002).

The debate of whether investment principles have been re-written or "merely repackaged" by street research will be examined further here in the future. One thing we do know—like the case of liability/surplus management coming back to life after 20 years—institutional investors, in general, have a selective short-term memory of fundamental principles of investing. This by itself does not constitute a new direction in managing pension assets, as was well publicized last year.

Note on Street Research

The New York Society of Security Analysts holds an "Investment Research Challenge" annually as an educational initiative to promote best practices in research and security analysis. The event brings students from five business schools into a "street research" setting. The activities include training, mentoring by street research analysts, meeting corporation management, research reporting, and finally presenting their findings to a judging panel of prominent Wall Street research analysts. The past year winner is a team from Pace University that comprised Adriana Kalova, Charles Yan, Priya Hariani, and Ronny Veith. Their report analyzes Galaxy Nutritional Foods, a small cap company specializing in alternative dairy products.

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