

Publication

March 2006

Pension Update: Slip Slidin' Away?

By Jim Moore

"You know the nearer your destination, the more you're slip slidin' away."
-Paul Simon

As we close the books on 2005, the early results indicate it was not a good year for pensions in the United States. Returns for both the S&P 500 and the Lehman Brothers Aggregate were anemic, trumped by returns on 20+ year Treasury bonds as the yield curve flattened during the year. This is never a good thing in (Un)Funded Status Land and the meager gains made in 2004 were more than erased in 2005. Fully funded defined benefit pensions are moving further out of grasp, and for a growing segment of the aging U.S. workforce, retirement income security may be fading as well. More on that later, but first a review of the health of defined benefit schemes.

The combination of falling long bond yields and poor returns on broad market indices does not bode well for the funded status of pension plans when year-end 10K's are released and the numbers totaled. The yield on the Moody's AA long corporate bond index dropped approximately 25 basis points for the year indicating that discount rates for accounting liabilities will show similar declines. Most U.S. pension plans probably saw liabilities increase between 8-11% even before taking into account additional benefit accruals or benefits paid. With an 85% funded ratio, those plans would have needed asset returns of 9.5-13% to keep pace without making additional contributions. The 5.1% from our assumed mix of assets falls quite a bit short. The year-end funding ratio for 2004, at 88.4%, came in higher than our estimate last year of 85.8%, likely due to better asset returns than our simple model and higher contribution levels. Contributions, while increasing from the lows seen in 2000-2001, still look decidedly insufficient to keep up with the growth in liabilities from interest accruals and falling rates. The table below spells out an estimate of the roll forward from 2004.

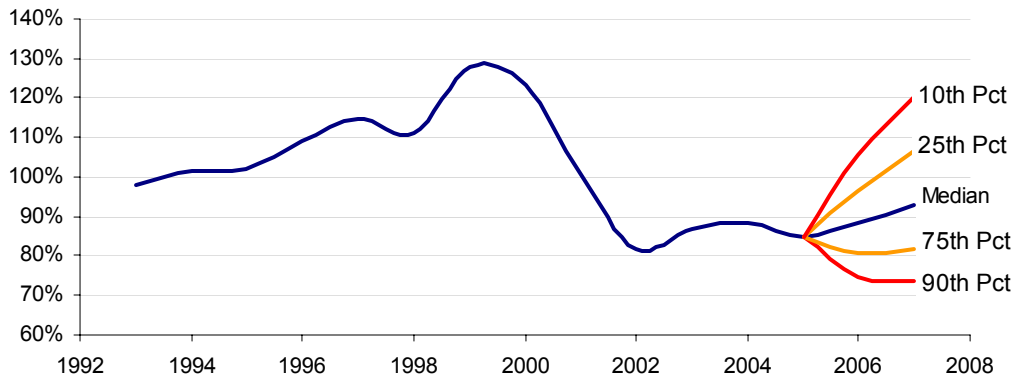
	2003	2004	2005est.
Funded Ratio	86.8%	88.4%	85.0%
Assets (\$M)		Liabilities (\$M)	
12/31/04	1,267,900	12/31/04	1,432,600
Return On Assets (5.10%)	64,000	Service Cost	35,400
Contributions	60,000	Interest Cost	79,100
Benefits Paid	(86,400)	Benefits Paid	(87,200)
		Actuarial Loss (rate decrease)	75,000
12/31/05	1,305,500	12/31/05	1,534,900

Source: PIMCO estimates based data collected from CSFB, annual reports, and consensus of various estimates of plan contributions. Proxy ROA assumption assumes 55% invested in S&P 500, 10% MSCI-EAFE, 30% LBAG, and 5% 3m T-bills + 100bps. Actuarial loss assumes mean discount rate drop from 6.25% to 5.875% paralleling behavior of Moody's Long-term AA corporate index and average liability duration of 12 years.

Publication
March 2006

Figure 1 below illustrates the historic, roller-coaster path that funded ratios have taken since the early 1990's and some of the possible paths the ride could take going forward. The median path assumes returns and interest rate changes as outlined in the footnote below.¹ This path is bounded by the 25th and 75th percentile paths indicating a range covering half of the possible outcomes and the 10th and 90th percentile paths enveloping four-fifths of the possibilities given the assumed return dynamics. In 2006, the median path would bring us back to year-end 2004 levels (88.4%), rising to 93% funded at the end of 2007. The corresponding aggregate deficits are \$183B in 2006 and \$107B in 2007. Bear in mind that the median assumes modest relief on the rate front as long rates rise, plus considerable additional contributions—some \$140B over the next two years. For comparison, this is roughly 39% of current annual dividends paid by S&P 500 companies and 20% of CAPEX.² These contribution estimates may appear high to some readers, but we feel that with more stringent accounting and funding law fast approaching, sponsors will have to get used to paying this bill.

Fig. 1: Aggregate Funding Ratio of S&P 500



Source: PIMCO Estimates from data collected by Credit Suisse

¹ Forecast rolls forward 2005 estimate for 2006 and 2007. Service cost is estimated at 2.5% of previous year's liabilities. Benefit payments grow at 5% per annum. Interest cost is based on previous year discount rate. Contributions are assumed at \$60B for 2006 and \$80B for 2007. Actuarial gain/(loss) – attributable to change in discount rate – and return on assets are stochastic with the following assumptions:

	Mean	Volatility	Correlation			
US Equities	7.75%	14%	1.00	0.65	-0.20	-0.10
International Equities	7.50%	12%		1.00	0.00	0.00
Intermediate Rates	0 bps	110 bps			1.00	0.90
Long Rates	+10bps	90 bps				1.00

Durations are assumed as 4.5 years for sponsor bond portfolios and 14 years for liabilities. The asset mix is assumed as 55% US Equities, 10% International Equities, and 35% intermediate US Bonds. Note that a negative correlation between interest rate changes and US equity returns implies a positive correlation between equity and bond returns.

² Based on PIMCO estimates for defined benefit contributions and estimates for dividend payments and CAPEX from Morgan Stanley Research.

Publication

March 2006

Of course, given the variability in the key factors underlying the forecasts, on-target numbers would only be a happy coincidence. The spread in funded ratio from the 25th percentile to the 75th percentile, covering just half of the possibilities, is 80.7% to 96.5% for 2006. For 2007, the range is 81.9% to 106.4%. Putting this in context, if the S&P 500 repeats its 2001-2002 performance and we leave all other assumptions the same, funded ratios after 2007 would be 70.1% with an aggregate funding deficit of some \$463B. This is equivalent to the impact of roughly a 70 basis point drop in long interest rates in each of the next two years. A happier occurrence would be a repeat of the cumulative 42% return on the S&P 500 seen in 2003-2004, which would *just* bring us back to full funding absent any other deviations from assumptions. As these examples clearly show, a great deal of risk is imbedded in the status quo of how pensions are managed. The standard deviation of the one-year forecast funded ratios is 12.4%. Recall that each percentage point represents roughly \$15 billion dollars. Applied to a one and a half trillion-dollar base, this 12.4% amounts to a whole lot of dollars put at risk by corporate America to fund pension benefits.

Here Come the Risk Police

While there have been calls to tighten U.S. pension accounting from a number of voices over the past few years, no voice gets FASB's attention like that of the SEC. As one of its final obligations under Sarbanes-Oxley, the SEC conducted a detailed forensic audit of the 100 largest U.S. public companies and a random sample of 100 smaller ones. The SEC released its findings in June in a report with the catchy title "Report and Recommendations Pursuant to Section 401c of the Sarbanes-Oxley Act of 2002 On Arrangements with Off-Balance Sheet Implications, Special Purpose Entities, and Transparency of Filings by Issuers."³ The report escaped the notice of those looking for summer beach reading and most of the financial press, but its findings were not lost on those making accounting policy. The staff found that if pensions and other post-retirement benefits (healthcare) are combined, "approximately \$535 billion in retirement obligations are not recognized on issuer balance sheets." (p.4). In the recommendations section, the report was fairly damning of the current accounting standard:

"[F]irst, the accounting for defined-benefit pension plans deviates from the accounting required for other business and compensation arrangements, even when the economics are similar. While issues such as how to most appropriately measure the pension obligation and report pension items in the income statement should be considered, the Staff believes that work on accounting for defined-benefit plans should also focus on those areas that are inconsistent with the accounting for similar items in other areas, including:

- *Consolidation...there is not an obvious reason why the plan should not be consolidated...*
- *Deferral of Actuarial Gains and Losses – It is not clear why changes in estimates related to retirement obligations should not be treated in the balance sheet the same way as changes in estimates related to other obligations...*

³ The report is available at <http://www.sec.gov/news/studies/soxoffbalancerpt.pdf>

Publication

March 2006

- *Valuation of Asset...As the sponsor of a defined-benefit plan is affected by the gains and losses on pension plan assets in almost the same way as it is affected by gains and losses on other investments, this distinction appears questionable.*

[W]hile the disclosures are quite detailed, the Staff notes that it has long been accepted that 'good disclosure doesn't cure bad accounting.'"

- SEC report, pp. 107-108

For those keeping score at home, accounting for retirement benefits was only the second most serious accounting concern relating to the understatement of corporate liabilities. The SEC estimated that there might be "approximately \$1.25 trillion in non-cancelable future cash obligations committed under operating leases that are not recognized on issuer balance sheets."

Given that subtle prodding by the SEC, it is little wonder that FASB voted unanimously to overhaul accounting standards FAS 87 (Pensions) and FAS 106 (Other-Post Employment Benefit Obligations (OPEB) aka: Retiree Healthcare) in November. The structure of the reform will take two phases:

- **Phase One:** Show the net surplus/deficit (Assets - Projected Benefit Obligation (PBO)) of the plan at market on the balance sheet. Target date for implementation is December 31, 2006.
- **Phase Two:** Everything else, in other words anything that would flow through the income statement. Timetable is uncertain, but probably three years or more until a recognition date (Dec. 31, 2008 or later).

The two-step approach addresses SEC's highest concerns, but leaves the dirtiest and most contentious work for later. For some sponsors, Phase One will dramatically alter the appearance of their balance sheet and reduce shareholder's equity. According to a study by CSFB, if Phase One had been in effect at the end of 2004, eighteen companies would have seen shareholder's equity reduced by 25% or more and seven would have seen it wiped out completely.⁴

While the one-time effects of the change are significant, reducing shareholder's equity of the S&P 500 by some 7%, the impact of the change will be felt years into the future. Because asset values and PBO will be valued at market on the balance sheet annually (quarterly mark-to-market will probably come in Phase Two), sponsors of large pension plans who do not address asset-liability mismatches will see significant volatility in book value much as FAS 133 added volatility to the balance sheet of large derivative users. This may draw heightened attention from ratings agencies, bondholders, and those few equity investors who look beyond the income statement.

Changes to how pensions are presented on the income statement will be far more contentious. Three of the major issues to be addressed in Phase Two:

⁴ "Let the Games Begin: FASB to Tackle Pensions & OPEB," CSFB, November 10, 2005.

Publication

March 2006

1. **Presentation of Net Periodic Pension Cost (NPPC)**

NPPC currently aggregates the cost of additional benefit provision (service cost), with financing costs (interest cost), income (return on assets), and amortized gains and losses. Revision of the standard may keep service cost as an operating expense while moving the other pieces to below the EBIT line.

2. **Amortization of Gains and Losses**

It is unclear how this piece will be reflected on the income statement if the entire amount of gains and losses will be reflected on the balance sheet in Phase I. To preserve coherence between the two, some flow through the income statement is required.

3. **Use of an *Expected* Return on Assets or Actual Realized Returns**

Accounting currently uses an expected rate of return rather than realized returns. This yields a considerable reduction in volatility, but there is some debate whether doing so gives an accurate picture of the company. It does enable a truer picture of core operating businesses, but not the total picture of the sponsor. A move away from expected returns would likely be the single greatest factor leading to major changes in sponsor asset allocation.

The arguments for expected return center on the idea that plans are sponsored for the long run and year-over-year changes represent non-material noise. Financial economists would contend that using expected returns without adjusting for the risk of the assets (or possibly the relative risk of assets versus liabilities) is flawed. The reason that expected returns for equities or risky bonds are higher is precisely because risk is borne. Recognizing income attributable to a risk premium before the actual returns are realized is tantamount to counting your chickens before they are hatched. It is like writing insurance or making loans without providing reserves for possible losses.

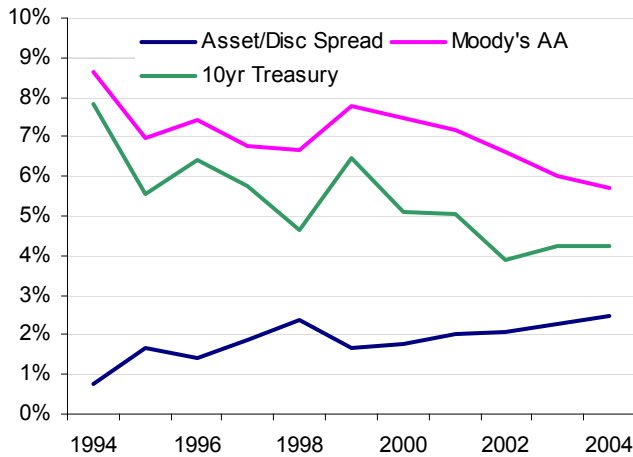
The natural tendency using expected returns is to bias asset allocation toward higher returning assets to enhance earnings. Because equity returns are volatile and uncertain, the question arises whether expectations may be too aggressive on a forward-looking basis. Figure 2a, below, shows the yield on the Moody's long-term AA corporate index (a proxy for liability discount rates), 10-year Treasury yields, and the average spread between the discount rate and expected return on assets for S&P 500 companies with defined benefit pensions. Note that the spread between assumed returns on assets rises while the bond yields fall. Assuming a simple split of 65% equities and 35% fixed income, Figure 2b shows the implied equity risk premium (ERP). While the first year of the sample appears conservative with an ERP of 2.4%, recent implied ERP's may appear high considering current high levels of liquidity from global sources of capital and street estimates for the ERP clustering in the 3-4% range.⁵

⁵ Sources: Goldman Sachs (3.5%), Morgan Stanley (3.0%), UBS (3.0%).

Publication

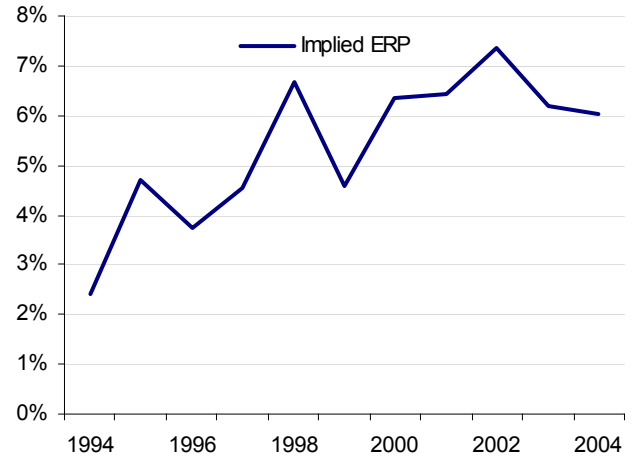
March 2006

Fig. 2a: Expected Return vs. Discount Rate



Sources: UBS, Bloomberg

Fig. 2b: Implied Equity Risk Premium



Sources: PIMCO estimate based on data from UBS, Bloomberg

If using expected returns is a “little white lie” in corporate GAAP, it is a much bigger issue among public sector pensions. While FASB discounts liabilities commensurate with high quality corporate bonds, GASB (Government Accounting Standards Board) discounts liabilities for public plans using the assumed return on assets. Making adjustment to reported funding ratios on a market-value-of-assets basis paints a bleak picture. One state plan that we spoke with recently shows a funding ratio of 72% on its latest actuarial report. Adjusting liabilities to reflect the FASB basis, which is roughly where the state could issue taxable bonds to fund the plan, would reduce the funded ratio to approximately 55%. With a larger envelope and sharper pencil, making allowance for more conservative mortality tables, accurate valuation of cost-of-living adjustments, and other major factors, that number could easily fall below 50%. This is a typical plan, probably near the middle of the pack if ranked by funded status. Others are in far worse shape. It is hard to know the aggregate status of the country’s state and municipal plans on the same basis as corporate America’s, but the adjusted deficit is likely in excess of one *trillion* dollars.

Some would argue that the use of expected returns for public plans is more suitable as they have infinite lives and thus longer planning horizons. While this may have some merit if applied to the federal level, it is weaker when applied at the state or municipal level. The states and municipalities may endure, but assuming their taxpayers—in the face of rising income, sales, or property taxes—will continue to pay for benefits that do not accrue to them is a bigger stretch.

Another issue with state and municipal plans is the increasing tendency to put off addressing the funding problem. While localities have historically amortized gains and losses over periods on the order of ten years, they are increasingly extending these to thirty or even forty years. The sponsors may endure, but the elected officials who passed the buck onto future generations will be long gone. With benefits earned over

Publication

March 2006

House and Senate substituting a simplified three-point approximation and possibly weaker credit standards. All would have some phase-in of the new law with full implementation not coming until 2008 or 2009. All would raise PBGC per participant premia to \$30 per head from the current \$19. All allow for additional tax deductibility of contributions for plans that are currently over-funded. The principal differences lie in smoothing asset values or discount rates through time, treatment and determination of “at risk” plans, PBGC variable rate premia, special dispensation for the airline industry, and the use of credit balances – still many horses to trade.

- **Time Smoothing**

Current law allows for a four-year smoothing of discount rates and up to five-year averaging of asset values to reduce volatility. Critics would argue that averaging gives an unnecessarily conservative picture of plan health in good times and a dangerously rosy picture in bad times – it conflates the valuation and capital budgeting processes needlessly. HR2830 would reduce both smoothing periods to a maximum of three years. The Senate and Administration would use fair market values of assets at valuation date. S1783 would smooth interest rates over one year and the Administration version would smooth over the 90 business days preceding the valuation date.

- **At-Risk Plans**

Given the troubles faced by the PBGC and the characteristics displayed by plan sponsors who have put pension plans to the PBGC, all proposals have more stringent funding requirements and limitations on grant of additional benefits for financially weak sponsors with poorly funded plans. All would force actuarial valuation assumptions that increase the present value of liabilities beyond that seen in healthy running plans (termination versus ongoing liabilities). The principal difference lies in determination of “at risk” status with the Senate and Administration versions relying on credit ratings assigned by the recognized ratings services. Weak sponsors would be those who are non-investment grade and have been so for a period of time. The House version does not use outside agents to determine risk status.

- **PBGC Variable Rate Premia**

Both the Senate and House versions would maintain the current 90 bps (0.90%) premium on unfunded benefits, but the liability basis used would be more onerous than the one used currently for variable rate premium determination. Funding would also be determined using current market value of assets in both cases. The Administration believes that these remedies are not sufficient to fill the PBGC’s deficit in a reasonable time frame and would point to the fact that the credit spreads for many of the companies who have to pay variable rate premia are sizable multiples of the 90 bps level. They would give the PBGC Board, with representation from the Departments of Treasury, Labor, and Commerce, the right to set variable rate premia at their discretion. Current revisions to the PBGC premium structure require Congressional and Administration approval.

Publication

March 2006

- **Special Dispensation for the Airlines**

The Senate Bill would extend the seven-year amortization of unfunded liabilities to twenty years for the airline industry given their current and unique hardships. Both the House Bill and Administration proposal allow for no special dispensation.

- **Credit Balances**

Under current law, if a sponsor makes a contribution to a pension plan in excess of the minimum required by law, this creates a *credit balance* that can be used in the future to offset future minimum required contributions. The House and Senate Bills would maintain credit balances albeit in more restricted forms and eliminate their use entirely if a plan fell below 80% funded. The Administration proposal would eliminate them completely.

Now that Senate has filled the Supreme Court, and confirmed Ben Bernanke as the new Chairman of the Federal Reserve Board, look for the pension debate to re-emerge in Washington sandwiched between debate about the budget and other pressing issues. Some form of compromise legislation should arrive on the President's desk by Easter.

Mission Impossible? Get Me 8% with Low Tracking Error to My Liabilities

Many plan sponsors are still feeling the pinch from anemic equity performance and falling rates over the past five years. With contributions an alien concept after so many years of funding holidays, many are trying to solve two problems at once—achieve assumed asset returns and reduce tracking error to liabilities. Once-staid pension funds are rushing en masse into heretofore-uncharted territory – hedge funds, commodities, leverage, and derivatives. With all the newfound capital chasing trades, it may be tough for all the hedge funds to meet expectations and some will almost undoubtedly face spectacular demises in the quest for outsized returns.

It is amazing to see the eager acceptance of the long-shunned tools of leverage and derivatives. Five years ago, the most difficult sale for a Wall Street derivatives salesman was to a pension plan. Now in the quest to do more with less or to be the first pension plan in your town to have a portable alpha strategy⁸, sponsors are embracing derivatives. For those who understand what they are doing and have carefully thought through the decision and have procedures in place to monitor and manage risks, these can be very powerful and useful tools. But they are tools only and cannot solve the underlying problems in any underfunded plan. Moreover, they do nothing to alleviate the fact that with higher expected return must come higher risk and price volatility.

For those who have not proceeded with care and thoughtfulness, *caveat emptor*. Like anything else in life, promises that seem too good to be true usually are, and risks overlooked at strategy inception can crop up at the most inopportune times.

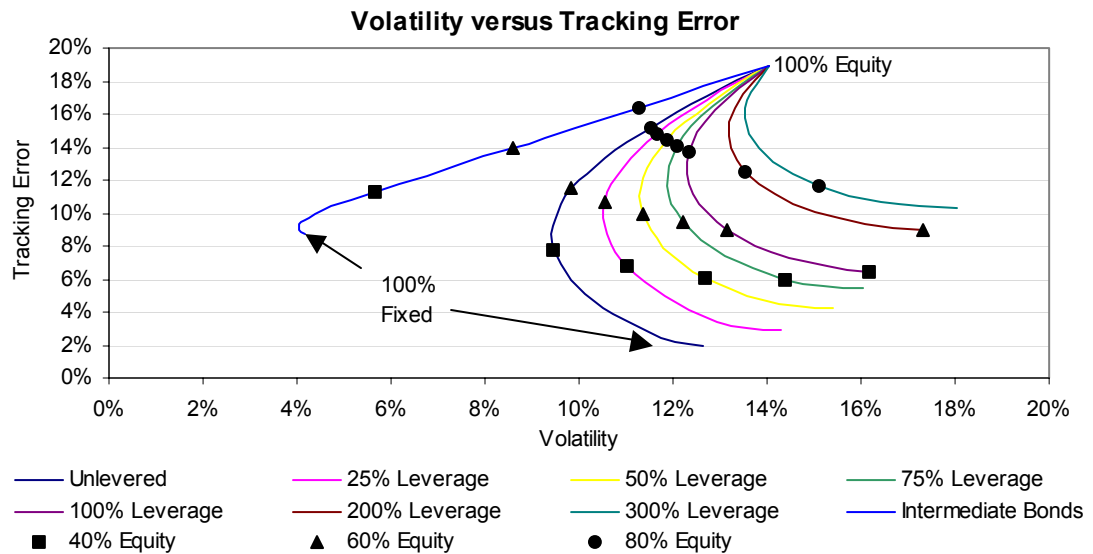
⁸ See *Alpha-Beta: Separation, Transportation, and Recombination*, PIMCO, May 2005, for a discussion on some of the issues in implementing portable alpha strategies.

Publication

March 2006

One example of an increasingly popular trade is a duration extension overlay through swaps or Treasury Futures. The pitch focuses on the plan sponsor's twin goals of reducing tracking error and keeping a high enough equity allocation to maintain their current return on assets assumption. There is a psychological element involved: *keep your asset allocation the same, and reduce risk through this derivative overlay*. Sounds appealing. However, a plan invested in 60% equities and 40% fixed income with a duration completion swap or futures overlay, is almost *economically identical* to an allocation of 100% duration-matched fixed income backing a 60% equity futures overlay. In fact, a strong argument could be made that the latter strategy is actually superior when considerations such as collateral management and liquidity are taken into account. It is interesting to note that many sponsors will look at these trades as very different, with different *perceptions* of leverage, although the reality is that they are the same.

Another factor that seems to be under-appreciated is that when you move into levered strategies—even if they are used to control asset-liability mismatch—you need to still be cognizant of absolute volatility. The figure below presents plots of absolute volatility (asset only) versus tracking error (assets – liabilities) for a variety of leverage levels. Each curve traces the range from 100% fixed income to a 100% equity allocation. The two curves furthest to the upper left represent unlevered strategies with bond allocations to either intermediate bonds (e.g.: Lehman Aggregate) or a liability duration-matching fixed income portfolio (14 years duration). Curves to the right of the unlevered strategies represent increasing levels of effective leverage in the duration overlay. These curves are truncated as it is assumed that the plan sponsor would not be interested in total asset durations much in excess of liability duration. The markers represent equi-equity allocations—the fraction of the underlying portfolio held in equity is held constant—of forty, sixty, or eighty percent equity.



Source: Hypothetical example based on an assumed S&P 500 volatility of 14% and an assumed liability duration of 14yrs

Publication

March 2006

First, note that the only way to decrease both absolute volatility and tracking error is to move money from equities into fixed income. Rule one: there is no free lunch. Second, note that the move from an unlevered intermediate bond portfolio to an unlevered liability duration-matching portfolio trades off absolute volatility for reduced tracking error. However, in the range of equity allocations commonly seen (40-80%), the ratio of the reduction of tracking error to increased absolute volatility varies from 1-5x. Note that as we move further and further into increased leverage (bigger overlays), the slope of equi-equity allocation curves flattens—at some point the overlay is just adding volatility with no tracking error benefit.

Sponsors who do want to reduce tracking error without changing absolute volatility do have some options. For example, the 80/20 portfolio with fixed income in intermediate bonds has very similar absolute volatility (11.3% vs 11.0%) to the 40/60 portfolio with a 50% overlay – essentially a 21-year duration portfolio – but tracking error drops from 16.4% down to 6.7%. The question is what the sponsor is willing to give up in expected returns to achieve the risk reduction. The 40/60 portfolio with 21-year duration is very similar to something that a few sponsors implemented in the late eighties and we are seeing more and more commonly with clients and a few consulting firms. For *some* clients it may best suit their needs, but it is not optimal for everyone.

If pension funding law and accounting are both moving towards a focus on tracking error, do we still need to care about absolute volatility? Absolutely when we are managing a leveraged asset base! Remember that while pension benefits are economic liabilities, they are not tradable financial liabilities. If interest rates rise sharply, liabilities may go down but they cannot be liquidated for gain. Making good on a levered hedge to satisfy margin collateral calls requires liquidating financial assets. If assets collateralizing the overlay sell off sharply at the same time, it can mean a world of hurt despite falling liabilities.

It is important to remember that the plan in and of itself is a form of economic leverage. This is explicitly recognized in a regulatory framework such as the Dutch FTK or alternatively any modern banking or insurance capital regulation. The sponsor is long the assets and short the liabilities. The surplus represents the residual excess of assets over liabilities and is the only thing that may not be leveraged. Without a surplus (i.e., any underfunded plan), the entire position is leveraged. Even a plan with a funding ratio of 100% or 120% or more can be in fact highly leveraged if one looks through the assets (and possible overlays) to establish the core underlying economics.

Drop Ceiling

Moves to hedge exposure to asset-liability mismatches in pensions, whether through direct purchases of long bonds or derivative overlays, could keep a ceiling on the long-end of the yield curve. The return of the 30-year Treasury on February 9 finally brings some meaningful additional supply of long bonds after a five-year issuance hiatus. However even an anticipated \$30 billion per year issuance by the Treasury will likely

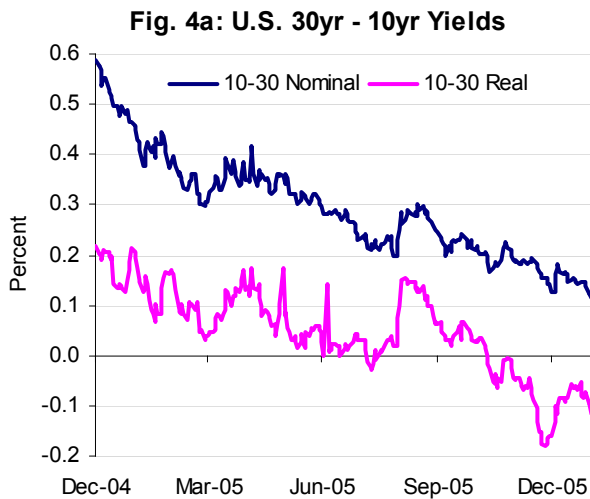
Publication

March 2006

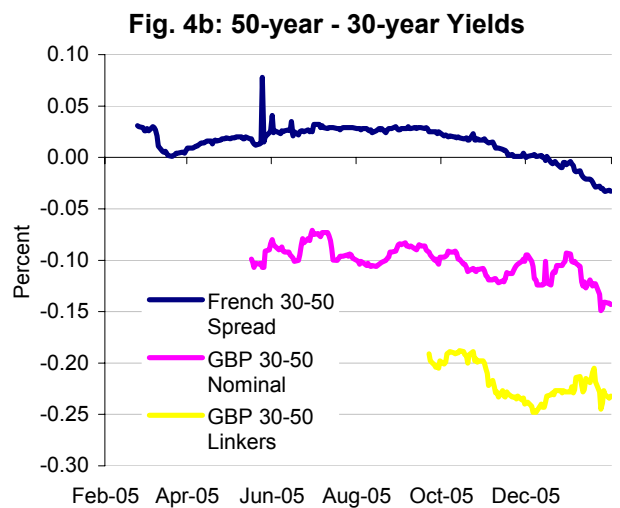
not completely meet increased demand. According to a member survey by CIEBA⁹, 70% of member plan sponsors expect to extend duration of fixed income portfolios. If sponsors extend duration to match that of liabilities, this translates into roughly a demand of \$70-\$80 billion worth of 30-year equivalents annually over each of the next five years. If sponsors make the additional decision to move toward an asset allocation of 50% duration matched fixed income, demand for long bonds would double. This assumes nothing about demand from public pensions, life insurers, or other investors.

Treasury could follow the lead of France, the UK, and others by issuing debt longer than 30 years. France and Britain both initiated 50-year issuances last year to strong demand. These long-long bonds are prized both by pensions and life insurers for their greater stream of cash flows to better match liabilities and by investors seeking convexity. Comparing the French OAT's of 2035 to the issue maturing in 2055, duration increases by roughly one-third, extending from 17 years to 23 years. Convexity nearly doubles. Because it is prized, it is priced. At issuance last February, the 50-year OAT yielded 3 basis points more than its 30-year counterpart. Today it yields 3 basis points less. The story is similar for the UK issues, which have richened by 4 basis points for both 50-year nominal and index-linked bonds versus 30-year counterparts. In fact, demand for long paper in the UK is so strong and the cost of funding so advantageous for the Crown that there is conjecture that the UK's debt management office will issue nearly two-thirds of debt sold in 2006 at 30 years or longer.

The figures below show the flattening of the long-end of U.S., French, and UK yield curves for 2005 and January 2006. Figure 4a. shows the flattening in the 10's – 30's yield spread in the United States. Figure 4b. shows this for the recently created 30's – 50's yield spread in France and the UK.



Source: Bloomberg



Source: Bloomberg

⁹ Committee on Investment of Employee Benefit Assets. See press release at: http://www.afponline.org/pub/pdf/PressRelease-Impact_of_Pension_Reform_final_0905.pdf

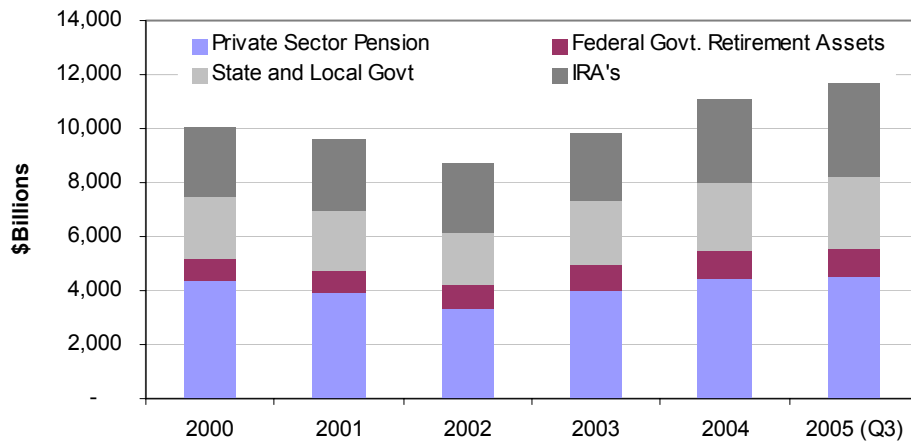
Publication
March 2006

Damned if We Do, Damned if We Don't?

Whether we compare the assets of the PBGC to its known liability streams, or projected FICA tax receipts to scheduled Social Security benefit payments, a similar pattern is seen. Between fifteen and twenty years hence, crossover occurs and benefits exceed the resources set aside to cover the obligations. This happens right as the last wave of baby boomers hits what we now think of as their normal retirement years. If the societal retirement income safety nets are showing strain, one would expect to see a pick-up in other sources of retirement savings to mitigate the risk. Alas, this has not been the case.

Figure 5 shows the collected growth of dedicated U.S. retirement assets since 2000. Over those five years, private sector retirement assets—defined benefit and defined contribution balances—are virtually unchanged. Total dedicated retirement assets are up only 15.9% over the last five years or 3.0% annually. Only IRA balances, which grew at 5.6% annualized, exceeded the annual nominal growth rate in GDP of 5.1%. This looks even worse when the cumulative growth in IRA's, \$824 billion, is compared to cumulative net inflows of \$1.3 trillion. In fact if we assume an asset mix of 60% S&P 500 equities and 40% Lehman Aggregate bonds as a rough proxy for asset returns over the period, actual retirement savings—new money set aside for retirement—are actually negative, averaging -\$18 billion per year, an annual draw of 0.2%.

Fig. 5: U.S. Dedicated Retirement Assets



Source: Federal Reserve – Flow of Funds

To put this in perspective, Moore and Mitchell estimated that for an average household nearing retirement to maintain the same level of consumption pre- and post-retirement, annual savings of 16.1% of income would be required to retire at 62 and 7.3% would be required for an age 65 retirement.¹⁰ While the authors' forecasts under-estimated

¹⁰ James Moore and Olivia Mitchell, "Projected Retirement Wealth and Savings Adequacy," Ch.3 in *Forecasting Retirement Needs and Retirement Wealth*, University of Pennsylvania Press, 2000.

Publication

March 2006

growth in equity markets attributable to the late-nineties run-up and the subsequent rise in housing prices, these gains are at least partially offset by decreases in real interest rates and increased longevity. Looking at these numbers, it is hard to believe any argument that Americans in aggregate are saving adequately for retirement

Another trend that gives cause for concern is the abandonment of the defined benefit plan. The days of corporate paternalism, where companies felt a duty to provide lifelong income for their employees, are mostly gone. Now the manner of the day is for risk to be borne by the employee. As risk is a form of cost, we would expect companies who cut defined benefit plans to trumpet the expected cost savings over the next five years or next ten years as they have done when announcing the curtailment of defined benefit plans. But is the savings real or illusory?

Defined benefit plans have value because they offer things that are not generally available elsewhere at reasonable cost:

- A tax-deferred savings mechanism with a direct tie to service and salary.
- Mutualization of mortality risk that ensures that a participant will not outlive his assets.
- A standard benefit form that provides a steady and reasonably dependable income stream.
- The benefit to shareholders of a selection mechanism that rewards low-discount employees - those who are generally long-serving and loyal.

Defined contribution (DC) plans do have their place. However, we worry that the problems we see in the future—from a generation who cannot afford to retire on the assets they chose not to save, or did save and subsequently mismanaged their DC plan—will have many longing for good old DB plans.¹¹ For the plan sponsor, in the long run, abandonment of defined benefit plans may remove fiscal uncertainty but it could translate into longer-term labor force problems. First suppose that we enter an era of 20% equity returns for ten years or more. Those individuals who did save are now sitting on substantial 401(k) balances and want to retire early. To entice them to stay, sponsors will see their wage bills rise. Now take a more pessimistic case, suppose equity markets go nowhere for ten years or more. Those individuals who expected to retire at 65 cannot afford to. They delay retirement and the employers cannot fire them even though they may have too many employees, for fear of litigation or headline risk. Extend this across the workforce and a case can be made that a world of defined contribution plans extends and magnifies economic cyclicity.

The effects of lower returns on invested assets and demutualization of longevity risk have been commented on by many. President Bush deserves kudos for drawing the country's attention to impending issues with retirement savings even as many in Congress seek to stay well clear of the so-called third rail of politics. However, it may be the sharp barb of satire that brings the point home most poignantly such as an article in the January 25 issue of *the Onion*, self-proclaimed as "America's Finest News

¹¹ See *Coming Up Short: The Challenge of 401(k) Plans*, Brookings Institution Press, 2004 for a thorough treatment on the economics of defined contribution plans.

Publication

March 2006

Source.”¹² The article entitled “More Companies Phasing Out Retirement Option” paints a picture of a world where “many businesses have opted to freeze their workers’ employment status and keep them on the job through their sunset years.”

All this raises some interesting questions about how these factors will filter into the economy and asset prices. Many of us at PIMCO have commented on the American consumer carrying the U.S. and much of the global economy over the past five years. If we return to the parsimony of our parents and grandparents so that we can afford to retire, barring someone else picking up the slack, more aggregate savings and less consumption will slow the economy and presumably act as a headwind to equity returns. If we do not save, retirement will have to be postponed, possibly indefinitely. Neither choice appears too appealing. It is also unlikely that the corporate sector will cover the shortfall in spending as they still have a bill to pay for benefits promised that have yet to be fully funded.

Conclusion

The notion of retirement is really a twentieth century concept. For many of our grandparents or great grandparents there was no such thing. The productivity gifts of the industrial revolution, modern transportation and communication, and computing, plus improvements in healthcare and nutrition, have enabled us all to live longer and better lives. But it is not written in stone that life will be progressively easier with longer and longer time spent in leisure as we move forward.

The coming decades will present many with choices – save more, consume less, work harder, or work longer. The different choices made and increasing reliance on the individual to make those choices for themselves and bear the consequences, will almost certainly lead to greater heterogeneity in living standards among the elderly. Nevertheless, the choices will have to be made with most individuals choosing some mix of the four options. This will not be our parents’ retirement. But whatever set of actions is chosen, the choice needs to be made sooner rather than later. Otherwise, in ten years or twenty, without our notice, retirement may have just slid away.

*“We work our jobs, collect our pay,
Believe we’re gliding down the highway,
When in fact we’re slip slidin’ away.”*

About the Author:

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¹² See <http://www.theonion.com/content/node/44679>

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Figure 3: The assumed 14% volatility represents an average of long-term S&P 500 volatility of 16.5% over the past 20 years and the implied, forward looking volatility from options of 11.5%.

Portfolios may use derivative instruments for hedging purposes or as part of the investment strategy. Use of these instruments may involve certain costs and risks such as liquidity risk, interest rate risk, market risk, credit risk, management risk and the risk that a portfolio could not close out a position when it would be most advantageous to do so. Portfolios investing in derivatives could lose more than the principal amount invested.

The Standard & Poor's 500 Composite Index (S&P 500) is an unmanaged index of U.S. companies with market capitalizations in excess of \$4 billion. It is generally representative of the U.S. stock market. Lehman Brothers Aggregate Index (LBAG) is an unmanaged index, considered generally representative of investment-grade fixed income securities issued within the U.S. The MSCI EAFE (Morgan Stanley Capital International Europe, Australasia, Far East Index) is an unmanaged index of over 900 companies, and is a generally accepted benchmark for major overseas markets. Index weightings represent the relative capitalizations of the major overseas markets included in the index on a U.S. dollar adjusted basis. The Moody's Long-term AA corporate index is an index of AA-rated corporate bonds with 20 years to maturity or longer.

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