



LIVING ON A (RISK) BUDGET

Long-term risk management versus short-term decisions.

The 1990s saw vast improvements in investment risk management tools and software while stocks and bonds had their best returns in a century. So why did most defined benefit (DB) plans come out of the 2000 market bust under-funded?

The short answer is that DB plans had not thought through all the implications of living on a risk budget. There is a serious disconnect between long-term investment risk management and the short-term decision focus of sponsors and plan members in negotiating benefits and contributions. Risk management assumes that investment gains from fat years are available to balance losses in lean years. DB sponsors and members typically assume that any excess of assets over liabilities can safely be used to improve benefits or reduce contributions. Most plans would have been okay if only they had left benefits and contributions alone. Moreover, few sponsors or plan members appreciate that living longer and wanting to retire earlier has made pensions inherently more expen-

growth raises costs by about a third (column [2]). Every 2% real investment return cuts costs almost in half (columns [3]-[5]). Not indexing pensions (column [6]) reduces costs, as long as one understands that 2.5% inflation cuts the real value of a pension in half after 30 years.

In 1950, 40 years of 11.3% contributions invested in government bonds earning 2% above inflation funded 10 years of retirement. By 1990, pensions had to last 20 years, but government bonds offered 4%+CPI, keeping annual pension costs at 11.5%. In the 1990s, real stock and bond returns over 6% and contributions of 12.6% for 30 years seemed to allow us to retire at 55.

However, the returns of the 1990s were not normal. Long-term government bonds have historically yielded today's 2%+CPI. Stocks have averaged 6%+CPI but with big swings, implying periods of poor performance significant enough to have a negative impact. With 2% real bond and 6% real equity returns, a DB plan with a 50-50 stock-bond portfolio faces at least a one in four chance of becoming 30% under-funded after 30 years.

PENSION CONTRIBUTION NEEDED AS % OF SALARY TO REPLACE 50% OF FINAL PRE-RETIREMENT INCOME									
				[1]	[2]	[3]	[4]	[5]	[6]
Real Asset Return				0%	0%	2.00%	4.00%	6.00%	6.00%
Real Wage Growth				0%	2.0%	2.0%	2.0%	2.0%	2.0%
Pension CPI Indexation				100%	100%	100%	100%	100%	0%
	Career Years	Retired Years	Retired/Working						
1950	25-65	65-75	1 to 4	12.5%	18.1%	11.3%	6.8%	4.0%	3.6%
1990	25-65	65-85	1 to 2	25.0%	36.2%	20.6%	11.5%	6.2%	5.1%
Dream	25-55	55-85	1 to 1	50.0%	66.3%	37.7%	21.7%	12.6%	9.8%

sive, and that taking on more investment risk raises the odds of becoming under-funded because that risk may not yield a return for extended periods.

The cost of replacing 50% of pre-retirement real (CPI-indexed) income has more than doubled in 50 years, since working from 25 to 65 is now typically followed by 20 years of retirement, versus 10 in 1950. The table here shows the annual contribution cost of a 50% real pension as a percentage of salary. Factoring in 2% annual real wage

In life insurance, regulators would insist on a funding ratio of at least 120% for the risk in the typical DB asset mix, but pensions are managed to a 100% funding ratio, and tax laws perversely prescribe a 110% *maximum* funding ratio. Ultimately, taking more risk places a larger burden on sponsors to cover deficiencies when their ability to do so has diminished; pension liabilities have grown much faster than sponsor balance sheets, and now often add an incremental 50% risk to sponsor operations. ■