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A Personal of the Defined-Benefit Plan

A radio ad announces that every day “10,000 baby boomers retire.” I wonder, is that correct? A check of annual births for those born from 1946 to 1964 shows a range from approximately 3.5 million to 4.5 million. A quick calculation from the RP2000 tables yields a probability of survival to 65 of 89 percent for males and 92 percent for females.

But the numbers have been increased by immigration. And finally, not everyone can or wants to retire. I find approximately 2.7 million retirees claimed Social Security (SS) benefits in 2012, but not everyone collects SS; and some of those retirees were born before 1946. My tentative conclusion:

The 10,000-per-day number may be a bit high, but it is in the ballpark.

THE PREVALENCE AND ATTRACTIVENESS OF DB PLANS HAVE DECLINED OVER THE PAST 35 YEARS. WHAT DOES THE FUTURE HOLD? BY RICHARD BERGER

History



1978



Inflation hit **9 percent** and rose to **13 percent** the next year.

1980



The electronic calculator was the only tool to use for calculations done on paper spreadsheets.



What did the previous exercise demonstrate? One, that I am far from unique, in my generation and in the ranks of retired actuaries. Two, habits of analysis were ingrained in me as a consulting actuary. I retired after 35 years as a consulting actuary, specializing in single-employer defined-benefit (DB) plans. I look back at my career not to recap the highs and lows of my professional life but to revisit the forces that have shaped retirement today and the past and future of the pension actuary.

I graduated from college with a Bachelor of Arts in economics. I wanted to be an economist and soon realized that graduate school was necessary; I was in the process of applying when serendipity struck. Through an acquaintance of my then-girlfriend (soon-to-be spouse), I was led to a recruiter who asked me if I had taken mathematics in college. I had, and he asked me if I was familiar with the actuarial field; I was not. I interviewed at an actuarial consulting firm, took a mathematical aptitude test, and was hired as a trainee at a significant pay cut from my then-job (transit bus driver).

The year was 1978, and a revolution in pension actuarial practice had occurred just two years before with the Employee Retirement Income Security Act (ERISA). ERISA introduced a new set of minimum funding rules, accelerated vesting requirements and a new agency to insure the benefits of participants whose employers had become insolvent. Even under ERISA, the actuary had wide discretion in choice of assumptions including

the discount rate and funding method. There was a minimum contribution and a maximum contribution, both using the same assumptions and methods. There were no quarterly contribution requirements, and contributions were typically made after the plan year ended and just before the Schedule B was due. Accounting requirements were flexible—no mandated assumptions or methods. The actuarial report reflected this simplicity, unlike current reports with their building blocks of interlocking and interrelated calculations and overrides.

In the same year, section 401(k) was added to the Internal Revenue Code. The conventional wisdom at the time was that my generation (then in our 20s and 30s) would not be interested in a pension starting at 65 but would take to the immediate benefit of a 401(k) plan. This proved to be true, but also demonstrated our lack of foresight.

The U.S. economy was in turmoil. Inflation hit 9 percent in 1978, and it would rise to 13 percent the next year. Rates on 30-year Treasury bonds also hit 9 percent in 1978. The start of the long bull market in U.S. equities was still several years away. The investment return assumption for the typical private pension plan was more likely to be 6 percent, but would also be rising to reflect higher returns in the 1980s.

THE 1980s

Actuarial valuations were run on mainframe computers, large jobs were scheduled

overnight and on weekends, and computer time was charged as an expense to clients. The electronic calculator was our workhorse; when the office was quiet, the clicking of plastic keys was like the sound of white-collar crickets. Many calculations were recorded on paper spreadsheets, performed by hand.

The decade brought laws known by their acronyms: TEFRA, DEFRA, REA, TRA86, OBRA. Each law was followed by regulations, plan amendments and questions. Among the changes made were:

- Reduction in maximum DB and defined-contribution (DC) benefits
- Age 70 ½ distribution rules
- Restriction on the elimination of optional benefit forms (anti-cutback rules)
- Qualified domestic relations orders (QDROs)
- Effective elimination of a popular plan design (the integrated plan) that took SS benefits into account
- Limits on the compensation that can be taken into account in the plan's formula
- Nondiscrimination rules that required testing on a controlled group basis

1981

The IBM PC was introduced.

Rates on 30-year Treasuries peaked at 14.7 percent in October 1981, then bounced up and down during the decade, ending at 8.3 percent in January 1990.

- Increase in Pension Benefit Guaranty Corporation (PBGC) per-participant premiums to \$16 and a variable rate premium based on the unfunded liability
- Cap on maximum deductible contributions and introduction of quarterly contributions

These changes made DB plans more difficult to understand and more costly. After TRA86 eliminated the safe harbor for so-called integrated plans, consultants were engaged to analyze new formulas that would mirror, as closely as possible, the formulas that were now “illegal.” These studies boosted the revenues of consulting firms, but employers could only see the cost as an unnecessary expense to change a plan formula that they had no desire to change.

Nondiscrimination rules also required complicated “busy work.” Plans that were designed to cover a specific location, such as headquarters, were suddenly suspect even if that choice had been purely a practical business decision. Because these new rules provided numerous options, it was almost always possible to demonstrate compliance. Compliance came with consulting fees but



1990

The Internet had a revolutionary impact on culture and commerce, including the rise of near-instant communication by electronic mail.

had little value to the client. The cap on compensation had two harmful side effects: The qualified plan became less attractive as a retirement benefit for top management, and it reduced advance funding of plans by capping the level of projected salaries.

In the mid-1980s, the Financial Accounting Standards Board (FASB) decided to revamp pension accounting with Statement of Financial Accounting Standard No. 87 (SFAS87). The new standard made the determination of accounting expense completely different from the funding determination. Many clients wanted to understand the relation between contributions and expense, but the simple answer was, “Don’t bother.”

The 1980s were a good time for markets. In January 1980, the Standard & Poor’s (S&P) index stood at 111. Ten years later it had increased to 340, for a compound return of almost 12 percent without dividend reinvestment (16.6 percent with reinvestment). Inflation declined from 13.5 percent in 1980 to 1.9 percent in 1986 (rebounding to 5.4 percent in 1990 before resuming its decline). Rates on 30-year Treasuries peaked at 14.7 percent in October 1981, then bounced up and down during the decade, ending at 8.3 percent in January 1990. All of these factors were favorable to plans and plan sponsors.

The IBM PC was introduced in 1981, but there were initially few in service (my firm had two for an office of 500 in 1983). Prices of PCs dropped and their use spread in

actuarial firms. By the end of the decade, every staff member had one on his or her desk. Mainframe computers still existed, but their use was coming to an end. Electronic spreadsheet programs had supplanted the old paper sheets. Overhead projectors and acetates were abandoned, and the Power-Point era started.

THE 1990s

The S&P 500 rose from 340 at the beginning of the decade to 1,426 in 2000; the compounded rate of return was 18.2 percent (with dividend reinvestment). Inflation averaged slightly less than 3 percent over the decade, so real returns were very generous. The 30-year Treasury rate declined from 8.3 percent to as low as 5 percent in October 1998, before finishing at 6.6 percent in January 2000.

The assets of the typical pension portfolio (60 percent equity/40 percent fixed income was very common) rose even without contributions. Interest rate declines boosted the market value of the fixed income allocation on one hand, but also increased liabilities (especially on the accounting measures). Net, it was a good time for pension plans.

The development of intranets centralized information within the firm and made it accessible to all users. The Internet first enabled electronic communication within actuarial firms and then with clients via email; the pace of dialogue accelerated. Outsourcing of benefit calculations and



2000

2002

The S&P peaked at 1,527 in March of 2000 and fell to 800 by September 2002.



other functions through websites took off. Files could be transmitted quickly; data was exchanged electronically; and reports and letters were expected not overnight, but later that day.

Low-cost PCs became so powerful that actuarial valuations were now done on the desktop—the incremental cost of a valuation was essentially zero. Spreadsheets and databases allowed the development of standardized tools and sophisticated projection models, which was fortunate as the increasing complexity of regulatory requirements necessitated more extensive calculations.

Legislative developments continued, but not at the same pace as in the 1980s. One important law, commonly known as GATT, installed new rules to boost contributions to underfunded plans and restricted the interest and mortality rates used for certain contribution calculations. This was a foretaste of more stringent restrictions to come.

AFTER 2000

The financial euphoria of the 1990s came to an abrupt end in the first few months of 2000. The S&P peaked at 1,527 in March of 2000 and fell to 800 by September 2002. The 30-year Treasury rate slowly declined (coming back after the bonds were not issued for four years in 2001–2005), hitting a record low of 2.9 percent in December 2008 before rebounding into its current range of 2.5 to 3.0 percent. The long decline in interest rates that began in the early 1980s was ending, and gains in the

market prices of bonds due to falling interest rates are much less likely. The principle that pension liabilities should be measured based on current bond rates had been firmly established; liabilities based on bond rates ballooned and plan sponsors lost control of their pension costs.

By August 2006, the S&P had risen almost 500 points and interest rates had settled in a range around 5 to 6 percent. Enter the Pension Protection Act (PPA) of 2006. The main purpose of the PPA was to strengthen the PBGC. This was to be accomplished by:

- Increasing PBGC premiums
- Mandating discount rates, mortality tables, and the use of a single actuarial cost method (accrued benefit) for calculating plan liabilities and contributions
- A seven-year period for curing any underfunding
- Even faster funding for severely underfunded plans

The PPA was designed to protect pension benefits, but not necessarily pension plans' existence. As of FYE 2006, the PBGC's financial position showed a deficit of \$18.9 billion. In retrospect, it might have been much less disruptive to simply write a check to the PBGC.

Before PPA became effective, the great financial crisis hit. By March 2009, the S&P 500 had fallen below 700. Long-term corporate

interest rates (used for accounting expense and now cash contributions and liabilities) held up for a while longer, but slipped in 2010 and nosedived in 2011 and 2012. The double hit in assets and liabilities drove funding ratios down and contributions up.

After PPA, discretion and flexibility in funding a DB plan were sharply curtailed as the most important assumptions (discount rate and mortality table) and the actuarial method are mandated. Funding ratios can only be managed safely with additional cash contributions and adjusting asset allocations so that assets and liabilities track each other more closely. Unfortunately, reducing or eliminating the accrual of additional benefits is one of the few sponsor options that will definitely reduce plan costs.

Although the goal of PPA is to reach a fully funded status over seven years, I doubt that many plans have gotten there in this eighth year of PPA. The PPA is tilting plan sponsors toward a fixed income investment strategy to avoid a mismatch between assets and liabilities. With lower expected returns (compared to equity investments), the cost of retirement benefits is increased. Because the PPA funding regime has made a DB plan more costly, it has made a DC plan more attractive. Participants can afford to be more enterprising with their own investments in DC plans and thus can generate more retirement income from each dollar contributed. An objection can be made that the extra return is coming by accepting greater risk

President George W. Bush signed The Pension Protection Act of 2006 to strengthen the PBGC.

and volatility, but that should be a trade-off that each individual should be free to make.

Over the last 35 years, the prevalence and attractiveness of DB plans have sharply declined. Although it is impossible to separate out demographic and economic causes of this decline, legislative and regulatory changes have had a major role. They reduced the attractiveness of sponsoring a DB plan, making them more costly and complex to administer. I believe sponsors realized that a DB plan was a long-term commitment that made them vulnerable to the whims of lawmakers and economic forces. This vulnerability discouraged the formation of new plans, and increased attrition among existing sponsors.

WHAT NEXT?

What will the future of DB plans be? If you are a new actuarial student, what are your prospects in this field? Imagine the following scenarios:

Conditions Favor Termination of DB Plans

Some combination of interest rate increases and market gains brings many DB plans to full funding. Plan sponsors decide to close their plans down. After the wave of terminations has passed, the private DB plan universe is much smaller, maybe 10 to 20 percent of its current size. The termination process is complicated, with extensive data clean-up and benefit calculations; it would require a significant amount of consulting work by actuaries. Bids will need to be solicited from insurance companies for annuity



purchases (and actuaries will be needed in the insurance companies to develop bids). The PBGC is likely to be overwhelmed if there is a rush to the exits. Even if the attainment of full funding occurs very quickly, years will pass before the work is done.

Economic Status Quo

Interest rates remain low for the foreseeable future, and the only way to reach full funding is for DB plans to make significant additional contributions. Plan sponsors decide to dig in for the long run and emphasize efficient administration, diligent asset allocation/management, and constant monitoring of changes in conditions. Plans will gradually shrink in size and will be ready for termination when circumstances change. Because of the size of the remaining DB plans, considerable work remains.

Regulatory Climate Changes to Revitalize DB Plan Market

The switch to a DC retirement system has its own well-known problems: Individual participants may not be temperamentally or intellectually prepared to be investment managers, and there is the common failure to appreciate the necessity of beginning

saving early in your career. Unfortunately, the funding flexibility that used to offset the fixity of the DB promise has been replaced with funding rigidity. To revive the DB plan market, flexibility will have to be reintroduced, perhaps by allowing the benefit to be variable in reaction to investment returns or converting retirement plans into whole lifetime vehicles for a range of needs. The regulatory framework needs to be cut back and left alone for an extended period (or allow plan sponsors to exit their DB plans if future changes prove burdensome).

The future is likely to be different from what we can expect (ask any actuary!), but the likelihood is that there will be a role for actuaries in the DB world for quite a while. In addition, the supply of actuaries is likely to shrink as those who grew up with ERISA ride off into the actuarial sunset. No profession is a guarantee of employment and prosperity, so flexibility and adaptability are essential if you decide to be a DB actuary. **A**

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