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ABSTRACT

The baby boom generation faces added uncertainty on their investments and perhaps lower realized rates of return on all components of their retirement savings, primarily because of their large number. Effects will be felt in the Social Security system and by pension plans and private investors. Individuals, employers, pension fund managers, and public policy makers should consider these factors in planning now. Policy makers should consider easing the regulations limiting pension contributions, structure Social Security more viably, and inform the public about the advantages of saving. Employers with defined benefit plans should examine their programs' funding status and assumptions about future return rates on assets. Employers sponsoring defined contribution plans should examine the adequacy of their contribution rates and those of employees. All tax-preferred savings opportunities that the government allows should be made available by employers. Individual baby boomers must become better informed about the uncertainties ahead, preferably increasing savings and diversifying investments. (MSE)

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The Retirement Security of the Baby Boom Generation

The American baby boom generation will start to retire in less than twenty years. As younger retiring boomers join the older ones, the ratio of retirees to workers will grow rapidly. The expected effects of this swollen retired population on the largely pay-as-you-go Social Security program have already drawn the attention and concern of economists, public policy makers, and benefit administrators.

Less attention, however, has been given to the possible effects of the vastly increased retired population on private and public pension plans. U.S. pension plans are now instruments of net savings. But in the future they may become net sellers of assets as they write their monthly pension checks for a rapidly expanding retired population.

How the expected demographic developments could affect pension plans, investment rates of return, retiring baby boomers, and current financial planning for future security is the subject of the following paper. It was written especially for Research Dialogues *by John B. Shoven, Charles R. Schwab Professor of Economics, and Dean, School of Humanities and Sciences, Stanford University.*

The Aging of the Baby Boomers

The baby boom birth cohort — people born between 1946 and 1964 — is the demographic event of the twentieth century. In fact, it is most likely to be the demographic event of the first half of the next century as well. The age structure of the U.S. population has been continually changing over the last forty years as this cohort moves through age categories like a big meal through a python.[1] And as the baby boomers have matured, their sheer number has put new pressures on many of our social and economic institutions.

Elementary schools were among the first to feel the impact, when enrollments grew by 70 percent between 1951 and 1954 and then remained high for the next fifteen years. Surging enrollments followed in secondary schools and colleges and universities.

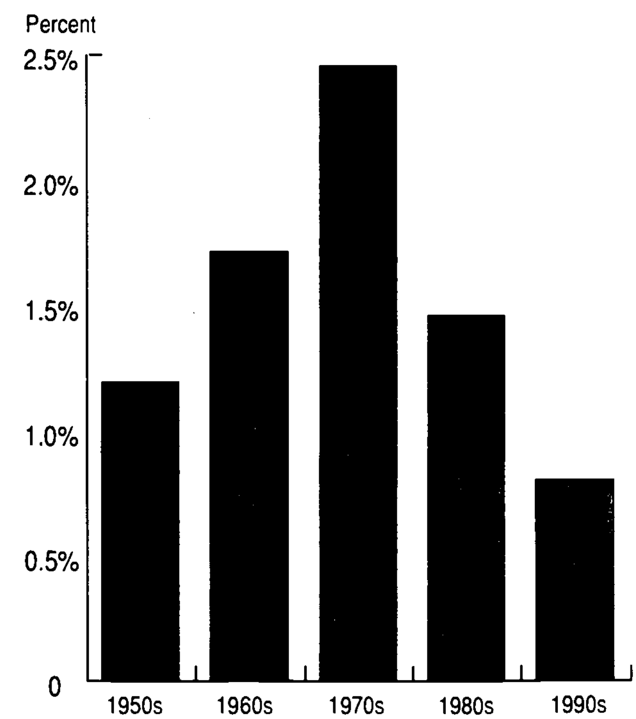
The U.S. labor market also felt the strain of the huge baby boom population. As Figure 1 shows, the maturation of the baby boomers caused the labor force to grow most rapidly in the 1970s. In that decade the labor force (including resident armed forces) grew at a rate of almost 2.5 percent per year. In contrast, in the first four years of the 1990s the labor force grew at only 0.81 percent. It is almost certainly not coincidental that the growth of real wages was low during the period in which labor markets were asked to absorb so many new entrants.

Yet another major economic development that may be attributable to the number of baby boomers was the rise in housing prices in the 1970s. Some authors have asserted that the baby boomers were the primary cause of the increase in the relative price of housing.[2] Certainly the timing was consistent, as it occurred just as the baby boomers were entering their home-buying years.

What's next? The big development to look for is the retirement of the baby boomers. For retirement, households generally rely on three separate sources of income. The first leg in the traditional three-legged stool is Social Security. The second is an employment-based pension and the third, individual saving. But

Figure 1

Annual Rate of Growth of U.S. Labor Force



particularly because of their huge numbers, baby boomers face an extra measure of uncertainty with respect to all three components of retirement income.

Social Security Will Have to Be Changed

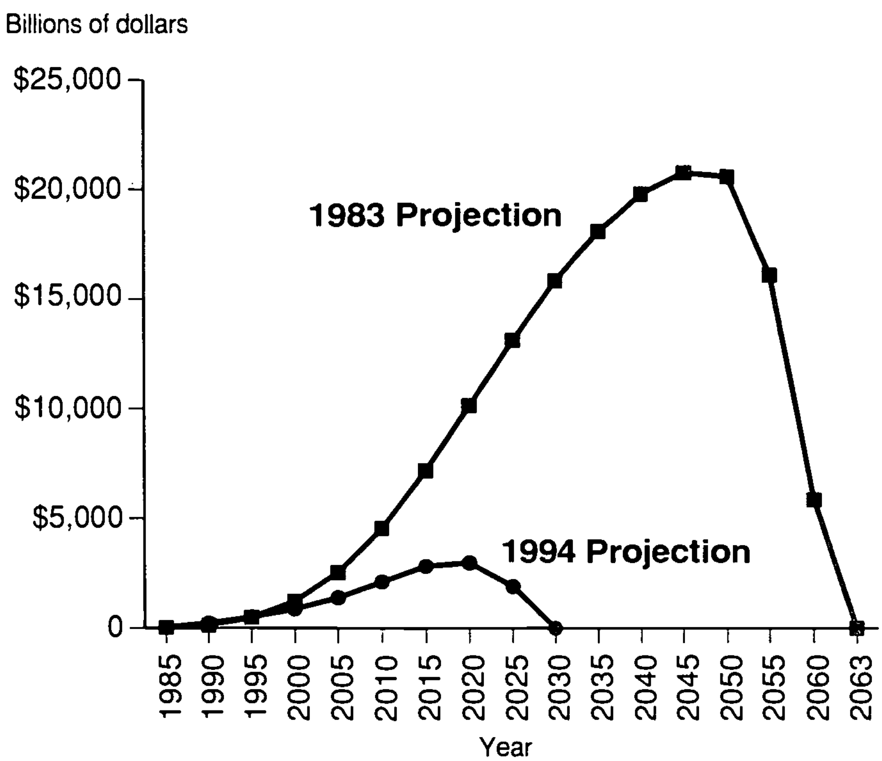
The Social Security system, which is nearly unique among government agencies in that it forecasts seventy-five years into the future, has been concerned at least since 1983 about the rapid growth in the retired population that will begin in the second decade of the twenty-first century. In 1983, Congress adopted Social Security amendments suggested by the Greenspan Commission. At the time, it was thought the changes would keep Social Security solvent until 2063, when the youngest of the baby boom survivors would be almost 100 years old.

The idea behind some of the amendments was that the baby boom generation would prefund a portion of their own retirements. The Social Security system departed from being almost completely pay-as-you-go and adopted a plan that collected more taxes than were needed to pay contemporaneous benefits, at least during the work lives of most of the baby boomers.

The initial forecasts in 1983 were that the system would accumulate a massive $20.5 trillion trust fund by roughly 2040, which would then be decumulated, finally being exhausted in 2063. Even though the system would ultimately require increased taxes or reduced benefits, 2063 was sufficiently distant that it could be legitimately claimed that the Social Security system was set for the long run.

Unfortunately, as Figure 2 shows, the 1994 forecast for the trust fund accumulation is a mere shadow of the 1983 forecast. The latest intermediate projections of the Social Security Trustees (Figure 2) are that the accumulation will peak at roughly $3 trillion in 2020 and that the money will be exhausted by 2029, when the youngest baby boomers are merely 65 years old.

Figure 2
Projected OASDI Trust Fund Accumulations in Current Dollars by Year of Estimate



Source: Harry C. Ballantyne, "Long-Range Projections of Social Security Trust Fund Operations in Dollars," Social Security Administration, *Actuarial Notes*, no. 117 (October 1983), 2, and *1994 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds* (April 1994), 178.

The staggering difference between the 1983 and the 1994 outlook clearly shows that we cannot conclude that the system is fixed for the long run. In fact, revenues to the retirement and disability fund are forecast to fall about one-third short of benefit payments when the trust fund is exhausted. This gives an idea of the minimum adjustment to benefits and taxes that will be necessary to bring the system into fiscal balance.

Hopefully — and most likely — the program will be revised in the remaining years of this century to put it once again into long-run equilibrium. The revisions could include a further advancing of the necessary age for the collection of full benefits, a lifting of the income levels subject to OASDI taxes, increases in the tax rates themselves, or a straight reduction in the benefit formula, particularly for those who would currently qualify for relatively generous amounts. If the necessary adjustments are made sooner rather than later, they can be less draconian, and sufficient time will be available for baby boomers to adjust their saving for their retirement.

The need to modify Social Security was further highlighted with the release of the 1994 Annual Report of the Social Security Trustees in April 1994. The date they estimate the retirement and disability trust fund will be exhausted has moved up from their 2036 projection in the 1993 report to the current forecast of the year 2029.

Pensions Will Change from Being Net Buyers to Net Sellers of Assets

Some of the forces causing Social Security's financial difficulties are likely to impinge on other forms of retirement accumulations as well. Part of the "problem" is the improvement in the mortality experience of elderly

Americans. The life expectancy of 65-year-old American men and women has increased by a little over two years just since 1970. While this is clearly good news, it does mean that it is more expensive to finance lifetime retirement annuities, whether the financier is the employer, the individual, or the government. This aspect of the problem is exacerbated by the general trend toward earlier retirement. Several authors, including John H. Biggs in *Research Dialogues* and Phillip Levine and Olivia S. Mitchell, have speculated that the trend toward younger retirement ages might reverse as talented younger workers become relatively scarce and as the age required for full Social Security retirement benefits gradually rises from the current 65 years to 67 years by 2022.[3]

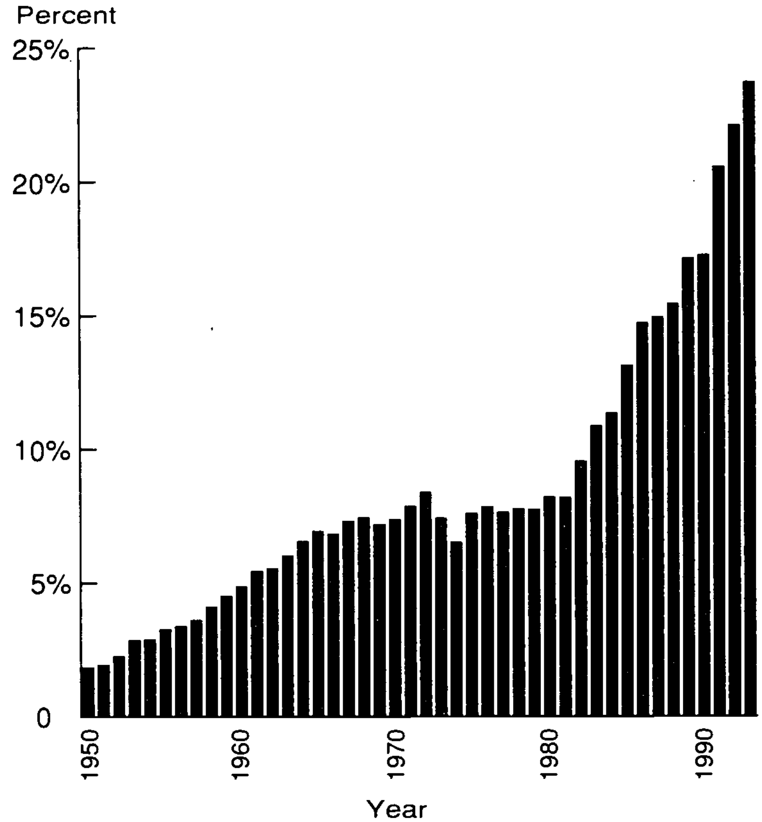
Another problem, which may be most severe for defined contribution pension plans and for personal saving for retirement, is due to the huge number of baby boomers. In the whole period since World War II, the funded pension systems in the United States have been large net buyers of financial securities such as stocks and bonds. Pension assets have grown more rapidly than any other form of wealth, now totaling approximately $4.5 trillion. To put that number in some perspective, it is of the same order of magnitude as the value of all the residential real estate in the country. As shown in Figure 3, pension assets have grown from less than 2 percent of national wealth in 1950 to almost 25 percent by the end of 1993.

By many measures, the net accumulation of assets by pensions has provided the bulk of the net national saving in the entire economy. However, when the baby boomers begin to retire in large numbers, the aggregate pension system may for the first time become a net seller of assets.

In a series of articles, Sylvester J. Schieber of the Wyatt Corporation and John B. Shoven of Stanford University have produced a seventy-five-year outlook for the private pension system comparable to the Social Security Trustee forecasts.[4] Using the same demographic and economic projections as Social Security, Schieber and Shoven have estimated the net inflows or outflows of funds to the pension system.

Figure 3

Pension Assets as a Percent of National Wealth



Source: Author's calculations based on Federal Reserve flow of funds balance sheets.

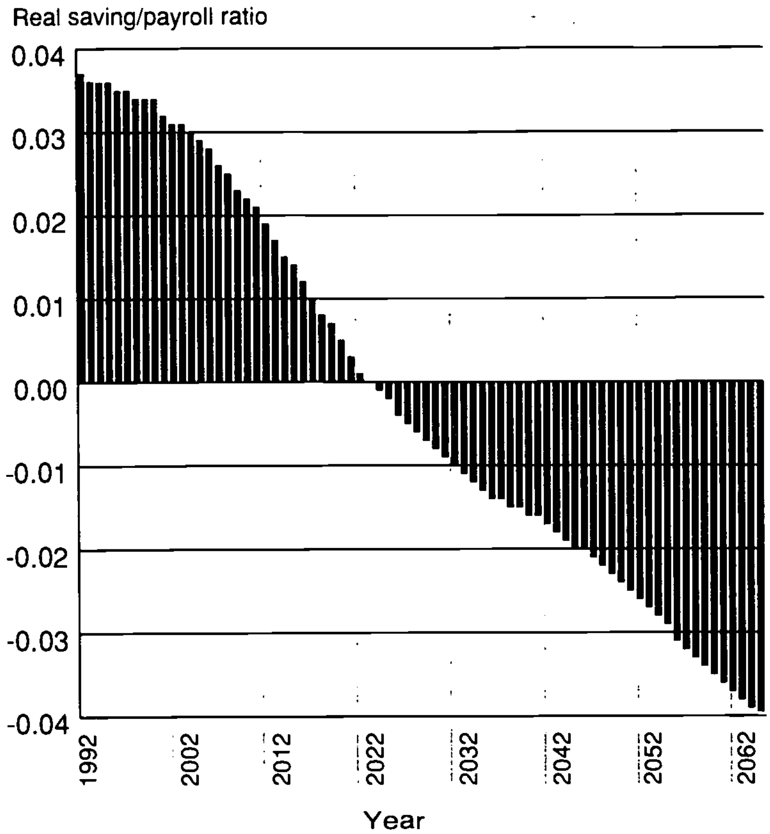
Figure 4 shows the ratio of the net saving of the private pension system to the total payroll in the economy if current employer and employee contribution rates are maintained and if the benefit formulas of defined benefit plans are left unchanged. In this sense, these projections are just like the Social Security numbers. They are not truly forecasts of what is likely to happen: They are simply "what if" calculations. If the contributions and benefits were to remain the same as today and if asset returns turn out to be as assumed (Schieber and Shoven assume real rates of return somewhat below the average realized over the past seventy years), then this is what would happen.

What Figure 4 shows is that the private pension system in the United States can be expected to continue as a major source of saving for the economy for the next fifteen years or so. The real saving of the system will gradually decline as a fraction of the aggregate wage bill, but even that fall could be delayed under alternative plausible assumptions about employee and employer contributions and the rates of return earned by assets.

Probably the message to take from Figure 4 is that pensions will remain an engine of saving (i.e., a net purchaser of financial assets) for at least the next fifteen years. The reason is simple — the members of the baby boom generation will still largely be in the workforce, and

Figure 4

Potential Real Saving of Private Pensions Relative to Total Private Payroll, 1992-2065 (Assuming Persistence of Current Plan Characteristics and Contribution Rates)



they will be in their peak earning years. But after about 2010, the saving generated by the pension system will begin to fall precipitously. By 2024, according to the assumptions of Schieber and Shoven, the net saving of the private pension system will cease, and after that it will increasingly become a net seller of assets. Sponsors of defined benefit plans may find their plans seriously underfunded. Qualitatively, the projections suggest that the private pension system faces the same tough choices as Social Security — contributions must be increased (particularly for defined benefit plans) or pension benefits must be lowered.

The above analysis is based on real rates of return on stocks, bonds, and Treasury bills, which are only modestly conservative relative to long-run averages, which are shown in Table 1. In the analysis leading to Figure 4, Schieber and Shoven assumed a 5 percent real rate of return on stocks, a 2 percent real rate on long-term corporate bonds, and a zero real rate on money market instruments such as Treasury bills. It is possible, of course, that the prospective massive swing from pensions as large accumulators of financial assets to net liquidators will affect asset prices negatively. This could mean that the return on stocks and long-term bonds will actually turn out to be considerably less than has been assumed.

The question that begs to be answered is, who is going to be buying the assets that the pension funds are selling, and at what prices? We know that globally the demand for investment funds must match the supply of saving. If U.S. pension funds change from being big savers to being big dissavers, what will the final impact be?

The answers are not obvious. Probably all one can say is that there is extra uncertainty about asset prices during this period. It doesn't seem too much of a stretch to think that something like the housing-price increase of the 1970s will be played out in reverse in the second and third decades of the twenty-first century, although this time the assets affected could be stocks, long-term bonds, houses, and perhaps even gold. The point is that while some of the adjustment will almost certainly come from reduced investment demand, some of it will come through inducing people to save by offering assets on newly attractive (i.e., reduced-price) terms.[5]

It should be emphasized that all of this is speculative in the extreme. There has been very little study of the determinants of long-run asset returns. In fact, such analysis is inherently impossible because of the requirement of data over several generations and the likelihood that the fundamental structure of the economy has completely changed over the last half-century or so.

We can only note that pension funds are going to be attempting to sell large quantities of assets to finance the retirements of the baby boomers and that it is difficult to identify the buyers of those assets. Some will undoubtedly be purchased by the so-called Generation-X members, but they are, of course, less numerous than the baby boomers. Some of the assets may be bought by households in other countries, but most developed countries (particularly in Europe and Japan) will also be experiencing an unprecedentedly large cohort of elderly. Since the other developed countries may well have the same problem on their hands, they can't be relied on to come to our rescue by purchasing our pension assets at high prices. Maybe the economies of China and Eastern Europe will be a source of world saving and they will be buying the financial assets that pensions will be offering on the market, but that seems an unlikely bet. The U.S. govern-

Table 1
Geometric Average Annual Rate of Return, Inflation-Adjusted
1926-1993

Standard & Poor's 500 stocks	7.2%
Small company stocks	9.2%
Long-term corporate bonds	2.5%
Long-term government bonds	2.2%
U.S. Treasury bills	0.6%

Source: Ibbotson Associates, *SBBI 1994 Yearbook*, Chicago, Illinois, p. 31.

ment, which is currently a big seller of financial assets in order to finance deficits, could help by running a surplus, but that too doesn't sound terribly plausible. Similarly, firms could reduce their need for external financing by increasing retained earnings. None of these possible offsetting scenarios seem likely.

What seems most plausible is that the assets the pension systems will be selling will have to be discounted until enough demand is generated from younger American cohorts to sufficiently clear the financial markets. In other words, savings will be scarce, driving up real interest rates, and thereby cutting the prices of all real and financial assets, particularly those with long maturities.

Individual Savers May Have to Cope with Lower Realized Rates of Return

It is important to note that individual members of the baby boom generation who are providing for a portion of their retirement resources by saving on their own (either through an Individual Retirement Account or a Keogh, or by directly saving via the purchase of stocks, bonds, and real estate) could face the same problem. The potential phenomenon isn't caused by the pension system. It will simply be the result of a large number of retired people trying to sell assets at the same time. The likely impact on asset prices is familiar to all of us.

It is also only prudent to caution that there will be many other developments that will have an impact on the value of financial assets. These could include a change in the regulatory atmosphere, the tax system, or the rules of international trade, or a new wave of mergers and acquisitions. Even the demographic forecasts are subject to error: Future birth rates or mortality rates could fail to follow the current intermediate predictions of the Social Security Administration, or the country might decide to change its immigration policies significantly. Still, the age structure of the population will almost certainly affect aggregate saving in the economy, and the potential for asset price effects is clearly present.

A potential source of confusion about all of this is that realized rates of return may be disappointing precisely because real interest rates may be subject to upward pressure. If there are more sellers than buyers in financial markets, the only solution is to offer the assets on better terms, i.e., at lower prices and therefore higher long-run yields. The seller, having to offer better terms, in fact realizes a lower rate of return. One positive way of looking at this if it should come to pass is that the generation behind the baby boomers, who will in all likelihood face high tax rates to support the large elderly population, will at least be able to accumulate assets for their own retirement on attractive terms (i.e., low prices).

But what is the appropriate response by members of the baby boom generation to this analysis? If there is a distinct possibility that Social Security benefits will be reduced before the baby boomers begin to collect, and if there is a chance that stocks, bonds, and real estate will have depressed prices when they want to sell, what can or should they do about it?

The fundamental dilemma is whether one should save more or less with these considerations in mind. First, to ease tension regarding this question, there is no right or wrong answer. It would be perfectly rational to do either, although it is likely that most people would choose to save more. There is no easy way to avoid the effects on asset prices that may occur due to the size of the baby boom cohort. All asset categories, with the exception of short-term money market instruments and Treasury bills, could be affected.

Normally, the "right" thing to do when you correctly anticipate that interest rates are going to rise is to sit on the sidelines of the financial markets in short-term instruments. But the generational effect that we are now discussing is likely to last for several decades; one can't easily sit this one out. At the very least, we know it has never before been profitable to remain in Treasury bills this length of time and therefore it does not seem a particularly attractive solution to the problem. For most people, as with most defined benefit plans, the correct thing to do when the anticipated rate of return declines is to increase the rate of contribution or saving so as to assure yourself a comfortable retirement in spite of the situation. It would also be quite sensible to defer retirement somewhat to offset these effects.

Baby Boom Participants of College Retirement Systems

How will the baby boomers among TIAA-CREF participants be affected by all of this? Of course, college teachers and other TIAA-CREF members of the baby boom generation will be selling assets in the same financial markets as others. Nonetheless, as a group, the long-term faculty of colleges and universities will fare better than most. The primary reason is simply that most college and university plans involve higher contribution rates than elsewhere in the economy. Typical total (employer plus employee) contribution rates range from 10 to 15 percent of salary in higher education, a range that is higher than in most other sectors of employment. Most colleges and universities offer voluntary supplemental plans in addition to their basic plan. An advantage TIAA-CREF accumulations share with other defined contribution pension systems is that benefits are portable between employers. Therefore, people who have short careers or who move to several different institutions are not penalized relative to those who have a long tenure with a single employer.

Despite the fact that retired academics are more likely than those with other careers to enjoy a standard of living closer to what they experienced during their work life, the baby boomer academics may do less well than those in their profession who are retiring today. Further, if they have begun to expect that rates of return on financial assets will match the levels achieved since 1982 (which have been substantially in excess of the long-term results reported in Table 1 above), they may be disappointed in the outcomes and in the annuities they'll be able to purchase upon retirement.

These issues should be of concern both to individual participants and to college and university administrators who want their faculty members to feel they can afford to retire when they want to or when they begin to lose enthusiasm for their jobs. One role for higher education administrators may be to inform their employees about the advantages of supplemental contributions and about the past record of long-run performance of different classes of assets.

Conclusion

The point of this paper has been to argue that the baby boom generation faces extra uncertainty on their investments and perhaps lower realized rates of return on all components of their retirement savings, primarily as a result of their sheer numbers. The effects are likely to be felt in the Social Security system and by pension plans and private investors. Individuals, employers, pension fund managers, and public policy makers should therefore take these considerations into account in their planning now. Policy makers should consider easing the regulations that limit pension contributions; they should restructure Social Security so that it is viable over the long run; and they should also help inform the public about the advantages of saving. Employers with defined benefit plans should examine the funding status of their programs and their assumptions about future rates of return on the assets in the plans. Employers sponsoring defined contribution plans may need to examine the adequacy of their contribution rates and those of their employees. It is important that employers make available, at least on a voluntary basis, all the tax-preferred saving opportunities that the government allows.

Individual members of the baby boom generation need to become better informed about the uncertainties they face. It seems only prudent for them to increase their saving rate as a precaution against the kind of possible outcomes discussed above. Not only does it seem wise for the boomers to save more, but the added uncertainties make it more crucial than usual for them to hold their wealth in a very diversified pattern. By now, those born between 1946 and 1964 should have gotten used to the fact that their huge numbers tend to disrupt social and economic institutions in each phase of their lives. With this in mind, it makes sense for them to begin to look forward to their retirements with their eyes open to the uncertainties and risks that await them. □

Endnotes

1 See "Implications of Demographic Change for the Design of Retirement Programs," *Research Dialogues*. no. 39 (February 1994).

2 See N. Gregory Mankiw and David N. Weil, "The Baby Boom, The Baby Bust, and The Housing Market," *Regional Science and Urban Economics* 19 (1989): 235-58.

3 "Implications of Demographic Change," *Research Dialogues*, no. 39 (February 1994); Phillip Levine and Olivia S. Mitchell, "Expected Changes in the Workforce and Implications for Labor Markets," in *Demography and Retirement: The Twenty-First Century*, ed. Anna M. Rappaport and Sylvester J. Schieber (Westport, Connecticut: Praeger, 1993), 87.

4 See, for example, Sylvester J. Schieber and John B. Shoven, "The Consequences of Population Aging on Private Pension Fund Saving and Asset Markets," National Bureau of Economic Research Working Paper, no. 4665 (Cambridge, Massachusetts: National Bureau of Economic Research, March 1994).

5 The rational-expectations theorists assert that predictable occurrences such as the aging of the baby boomers are completely taken into account by market participants. If they are correct, then asset prices already reflect the fact that pension funds will be large net sellers beginning in about twenty years. Further, realized rates of return and asset prices would not be further depressed when the expected selling occurs. While it is likely that markets are forward-looking, it is quite doubtful that they are as forward-looking as in the models of the rational-expectations theorists.

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