An hourglass-shaped graphic with a globe inside. The top bulb is dark blue, and the bottom bulb is light blue. The globe is a darker shade of blue. The hourglass is centered on the page.

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*Investing Social Security Funds in the Stock Market: Some
Economic Considerations*

Brian W. Cashell, Government and Finance Division

April 12, 2005

Abstract. Investing in the stock market could be a significant change in public policy. It would affect the overall distribution of assets and income, and the allocation of risk. There is also a question of what will happen to stock prices if and when retiring baby boomers begin to sell off their assets. This report explores the economic consequences of investing Social Security receipts in the stock market, as well as the possible consequences for equity markets when the baby boomers retire.

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Investing Social Security Funds in the Stock Market: Some Economic Considerations

Updated April 12, 2005

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Investing Social Security Funds in the Stock Market: Some Economic Considerations

Summary

For the time being, Social Security receipts are more than enough to fund current benefits. But beginning in 2017, under current law, benefits are projected to exceed Social Security receipts. At that point, if not before, either benefits will have to be cut, taxes will have to be raised, or the shortfall will have to be made up either by tapping non-Social Security revenues, which would reduce the unified federal budget surplus, or by an increase in federal borrowing.

Any current proposal to extend the financial life of Social Security is likely to include increases in taxes, cuts in benefits, or both. In addition to those possibilities, is the notion of allowing beneficiaries to contribute some of their Social Security payments directly into personal accounts. Because equity has historically yielded a higher rate of return than have Treasury securities, it is argued that allowing individuals to invest some of their contributions in the stock market would offset at least some of the effects of either tax increases or benefit cuts in any package of reforms.

Between 1926 and 2003, the average annual total rate of return on large corporate stocks was 7.2%, after adjusting for inflation. That was 4.9 percentage points higher than the average real return of 2.3% on long-term government bonds over the same period. But there is substantial variation in rates of return, which diminishes as the holding period grows longer. Even with relatively long holding periods there are still instances of below-zero rates of return. The longest holding period with a below-zero return for stocks was 18 years and 11 months. Although, longer holding periods have historically reduced the volatility of stock returns that does not necessarily mean that the risk associated with holding stocks falls as holding periods lengthen.

A recent subject of speculation has been the risk that the retirement of the baby-boom generation will coincide with a substantial sell-off of assets. Sometimes referred to as the “asset market meltdown hypothesis,” the concern is that as increasing numbers of retirees sell the assets they have accumulated over their working lives in order to continue the lifestyles to which they have become accustomed, asset prices will decline. Theory alone seems insufficient to predict what might happen to asset prices when the baby boom generation begins to retire. There are reasons to believe that they will sell some of their assets, but there are also reasons to believe that those sales will not be so large as to disrupt financial markets or cause a precipitous drop in the prices of assets traded in those markets. This report will not be updated.

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Investing Social Security Funds in the Stock Market: Some Economic Considerations

Social Security was first established in 1935 as a foundation on which to secure the income of the retired population. It does so by transferring income from the working population to those who are no longer in the labor force because of retirement or disability. Those currently working thus support the retired population with the expectation that future workers will, in turn, provide for their retirement benefits. It also serves a social welfare function, by replacing relatively more income to retirees who were low-income earners, and their survivors and dependents.

For the time being, Social Security receipts are more than enough to fund current benefits. But beginning in 2017, under current law, benefits are projected to exceed Social Security receipts.¹ At that point, if not before, either benefits will have to be cut, taxes will have to be raised, or the shortfall will have to be made up either by tapping non-Social Security revenues, which would reduce the unified federal budget surplus, or by an increase in federal borrowing.

On paper, the cumulative excesses of Social Security receipts over benefits have been deposited in a trust fund, which has been entirely invested in Treasury securities. While the trust fund accounts show considerable assets, in fact those receipts have been used to fund the general operations of the federal government. Because of the availability of surplus Social Security receipts, the federal government has had to borrow less in the past leaving the outstanding federal debt held by the public less than it otherwise would have been.

Because projected receipts are expected to fall short of what will be needed to fund benefits, concern that changes must be made to ensure the long-run integrity of the system is spreading. Any proposal to extend the financial life of Social Security is likely to include increases in taxes or cuts in benefits, but in addition to those possibilities is the notion of allowing beneficiaries to contribute some of their Social Security payments directly into personal accounts. Because equity has historically yielded a higher rate of return than have Treasury securities, it is argued that allowing individuals to invest some of their contributions in the stock market would offset at

¹ In 2017, the trust fund would still have a balance of \$4.7 trillion credited to it. The trust fund balance is projected to fall to zero in 2041. Thus, without any changes, the trust fund would have to raise \$4.7 trillion to finance projected benefit payments between 2017 and 2041. To do that, under current law, the securities held by the trust fund would have to be redeemed by the Treasury. Technically speaking, they are “non-marketable.” See *The 2005 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds*, Mar. 23, 2005, available on the Social Security Administration website at [<http://www.ssa.gov/OACT/TR/TR05/tr05.pdf>].

least some of the effects of either tax increases or benefit cuts in any package of reforms.

Investing in the stock market could be a significant change in public policy. It would affect the overall distribution of assets and income, and the allocation of risk. There is also a question of what will happen to stock prices if and when retiring baby boomers begin to sell off their assets. This report explores the economic consequences of investing Social Security receipts in the stock market, as well as the possible consequences for equity markets when the baby boomers retire.

The Equity Premium

An important fact motivating those who favor allowing Social Security funds to be invested in the stock market is that, historically, stocks have yielded a higher rate of return than have Treasury securities, or bonds. The difference between the yield on stocks and relatively less risky investments such as Treasury bonds is known as the equity premium.

Treasury securities are generally considered to be the least risky asset in any portfolio, because they are backed by the “full faith and credit” of the federal government. Moreover, owners of Treasury securities can expect a relatively predictable return on their investment. Owners of corporate stocks, on the other hand, face less predictable returns on their assets.

The return on a corporate stock depends on the earnings of the company, both present and future. Dividends paid out depend on present earnings, and the value of the stock itself depends on investors’ expectations about future earnings. As earnings fluctuate with overall economic conditions and with conditions in various sectors of the economy, companies tend to adjust the dividends they pay out. As the outlook for a company’s prospects varies, investor demand for a share of its future dividends will vary and hence so will the value of stock in that company.

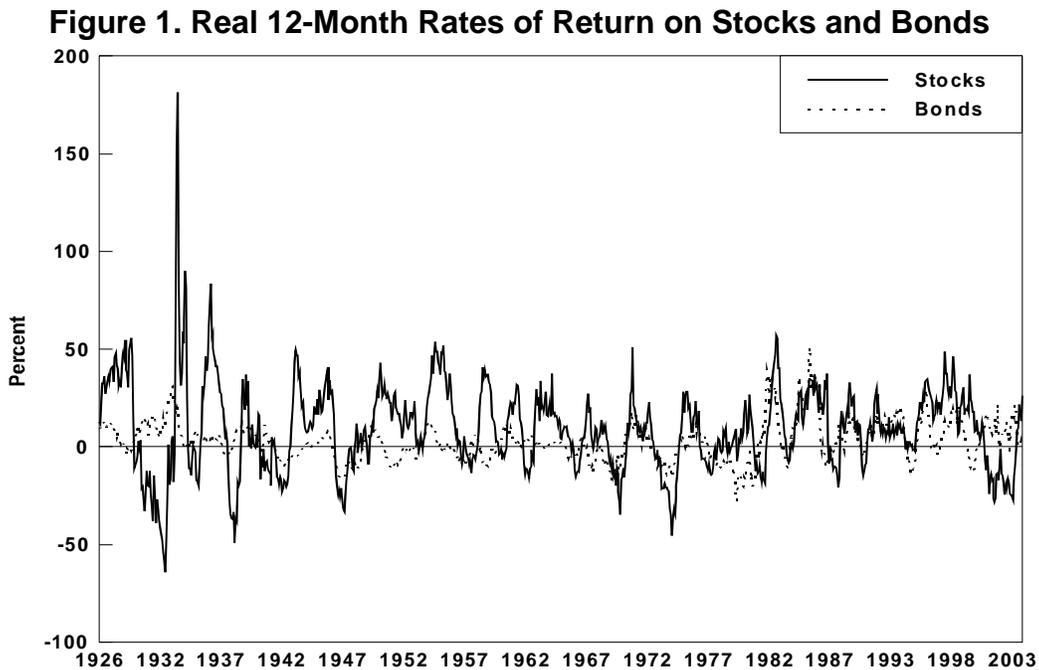
Because of the potential for variation in the return on equity investments, which includes the possibility that the value of an equity investment can fall to zero, investors demand a premium, relative to the return on safer assets, to compensate them for the additional risk they assume.

Between 1926 and 2003, the average annual total rate of return on large corporate stocks was 7.2%, after adjusting for inflation. That was 4.9 percentage points higher than the average real return of 2.3% on long-term government bonds over the same period.²

Those figures may, however, be misleading, since averages do not account for the substantial variation in returns for both types of assets over shorter periods of time.

² These are estimates of total return, which assume that dividends and interest are reinvested. Corporate stock returns reflect the S&P 500 (which prior to 1957 included only 90 stocks). The source data are from Ibbotson Associates.

Figure 1 plots the 12-month real rates of return on stocks and long-term government bonds, monthly since 1926.

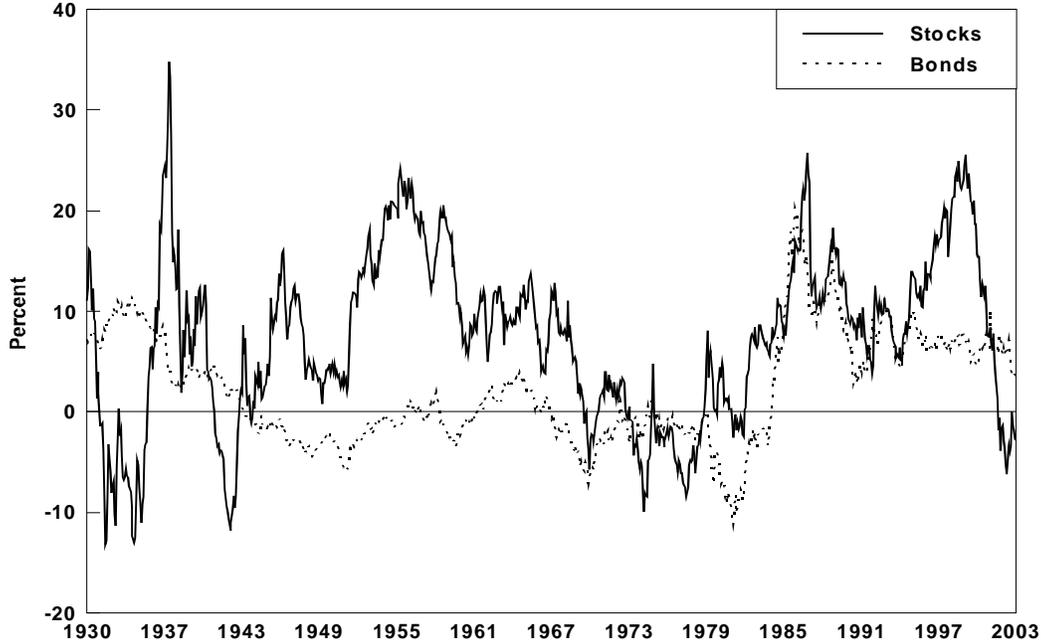


Source: Ibbotson Associates.

Clearly, over successive 12-month periods there was a large variation in the returns to holding stocks or bonds. With the notable exception of the end of the Great Depression, the real rate of return to holding stocks frequently approached 50%, and there were more than a few periods of substantial losses as well. Returns on bonds appear to have been less volatile and to have fluctuated within a narrower range.

When it comes to planning for retirement, however 12 months is probably not an appropriate holding period for evaluating risks and returns. **Figure 2** shows the real rates of return over successive five-year holding periods, plotted monthly.

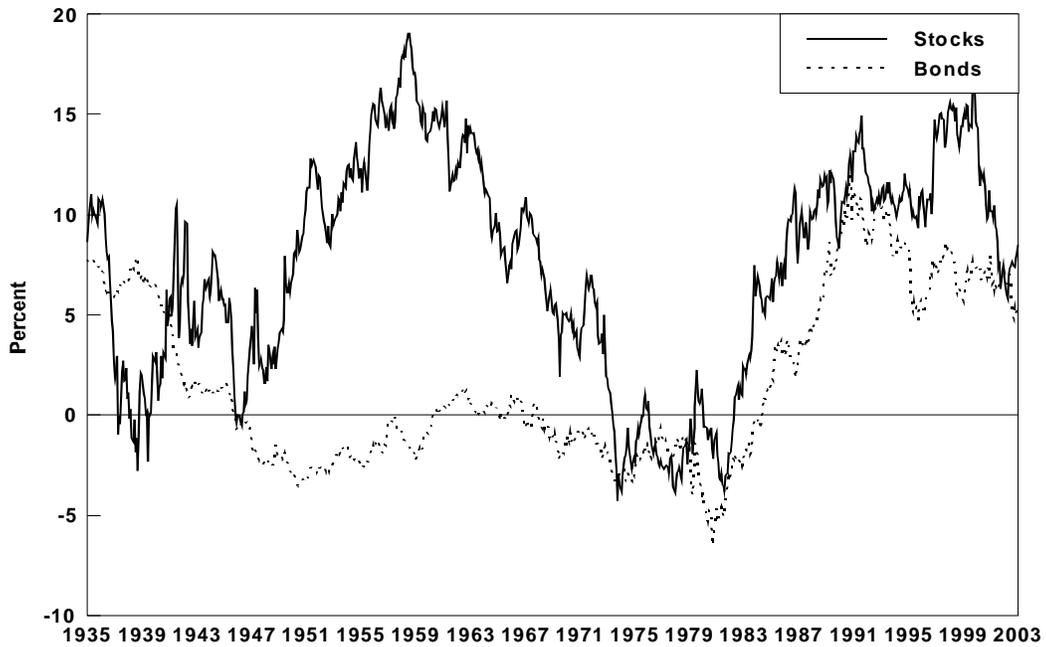
Figure 2. Real 5-Year Rates of Return on Stocks and Bonds



Source: Ibbotson Associates.

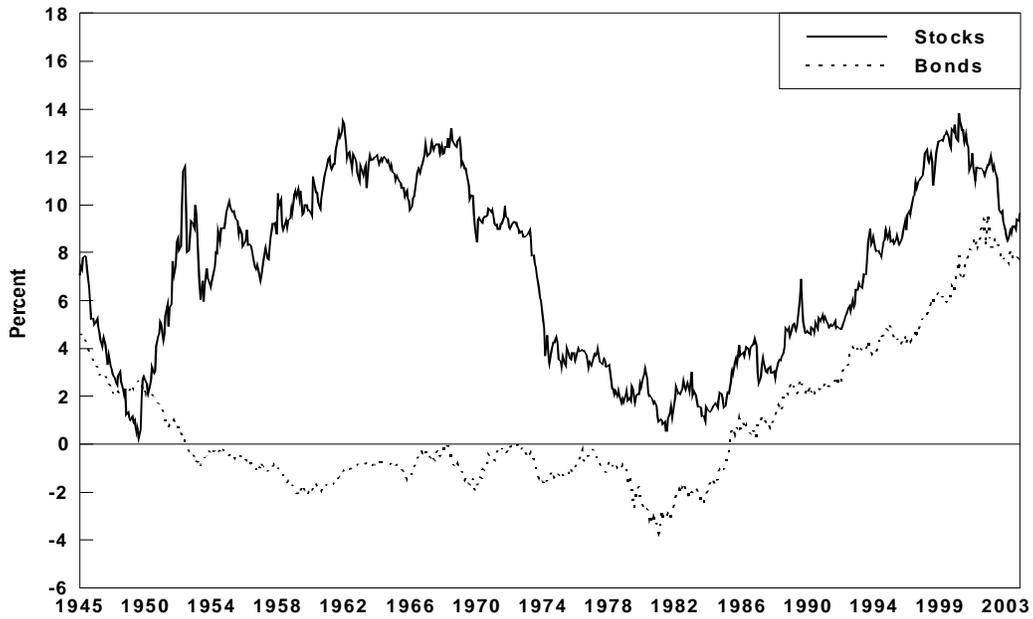
The variation in the rates of return for five-year holding periods is, as might be expected, substantially less than was the case with a 12-month holding period. **Figures 3, 4, 5, and 6** illustrate the real rates of return for longer holding periods.

Figure 3. Real 10-Year Rates of Return on Stocks and Bonds



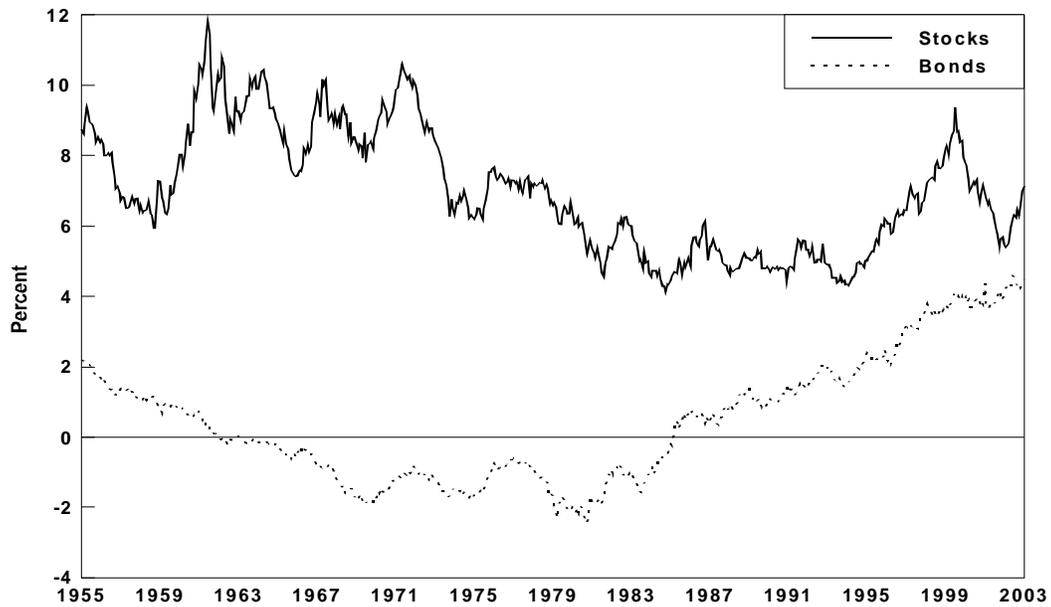
Source: Ibbotson Associates.

Figure 4. Real 20-Year Rates of Return on Stocks and Bonds

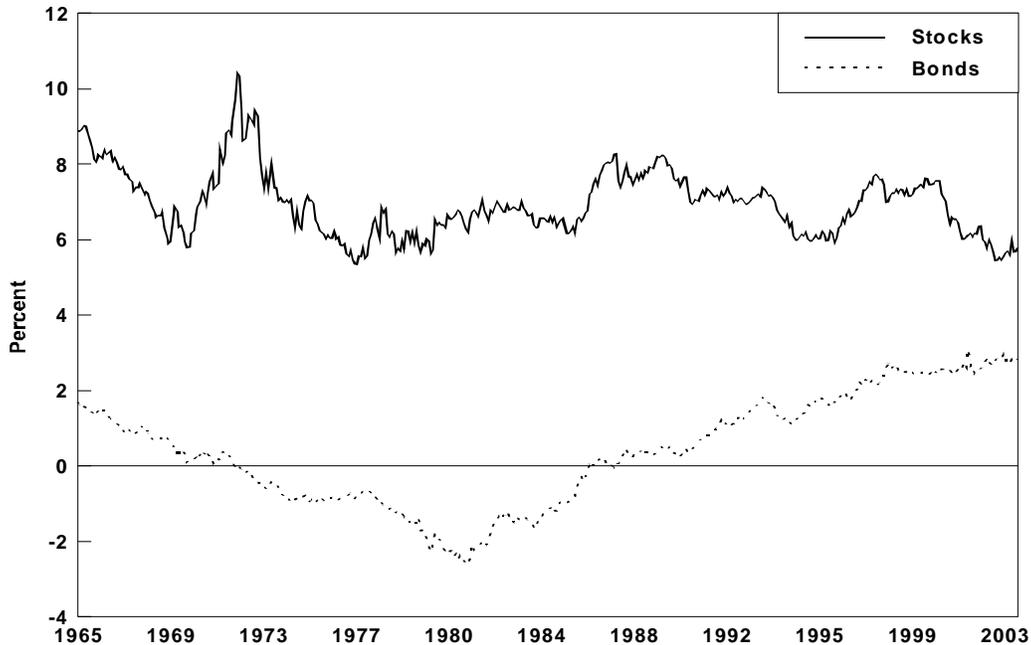


Source: Ibbotson Associates.

Figure 5. Real 30-Year Rates of Return on Stocks and Bonds



Source: Ibbotson Associates.

Figure 6. Real 40-Year Rates of Return on Stocks and Bonds

Source: Ibbotson Associates.

It is clear that the variation in rates of return diminishes as the holding period grows longer. But even with relatively long holding periods there are still instances of below zero rates of return. The longest holding period with a below-zero return for stocks was 18 years and 11 months.³ Even with a 40-year holding period, there was still a long period of below-zero returns on government bonds. **Table 1** presents data showing the range and variance in rates of return for selected holding periods.⁴

Table 1. Average Annual Real Rates of Return for Selected Holding Periods, December 1925 to December 2003

Holding Period	Large Corporate Stocks			Long-Term Government Bonds		
	Maximum	Minimum	Variance	Maximum	Minimum	Variance
1-year	181.5	-64.0	501.6	51.0	-27.7	102.8
5-year	34.8	-13.2	69.6	20.4	-11.3	29.1
10-year	19.1	-4.3	30.4	11.9	-6.5	17.8
15-year	15.8	-2.1	22.1	10.1	-5.0	13.0
20-year	13.8	0.3	14.0	9.6	-3.7	8.7
25-year	12.8	2.1	7.0	6.0	-2.9	4.5
30-year	11.8	4.1	3.0	4.6	-2.4	3.1
40-year	10.4	5.4	0.8	3.1	-2.6	2.1

Source: Ibbotson Associates; calculations by CRS.

³ From Aug. 1929 to July 1948, based on CRS calculations using Ibbotson data.

⁴ Variance is a statistical measure that describes the extent to which a set of observations differs from its mean.

It appears to follow from these data is that those who invest in equities at a younger age, and who presumably look forward to a longer holding period, face less risk than those who are older at the time they make their investment. But that is not necessarily the case. Samuelson has pointed out that as long as the stock market is efficient, and stock prices reflect all available information, then equity prices are not any more likely to rise in the future just because they have fallen in the past. While longer holding periods may give investors more time to recover from a market crash, they also offer more opportunities for crashes.⁵

Bodie argues that risk actually increases as holding periods lengthen. He finds evidence in the options market that it is more expensive for investors to hedge against any risk associated with owning stocks the longer the holding period is.⁶

One development that is apparent is that the difference between the return on stocks and the return on bonds has declined. Interestingly, the puzzle has been, not why did the premium on stocks decline, but rather why had it been so large in the first place. A risk premium of over four percentage points is larger than can be explained by most models of consumer behavior, and thus explaining the size of the equity premium has been a challenge to economists.⁷ The reason this is important is that if there is no obvious rationale to explain the large historical difference in the yields on stocks and bonds, then it might not be prudent to expect that large difference to persist.

Personal Accounts

Reducing Social Security taxes to fund personal retirement accounts would increase the federal government's budget deficit. As long as it was mandatory that any reduction in Social Security taxes be invested in these personal accounts, this decrease in government saving would be offset by an increase in household saving. Unless households responded by reducing other kinds of saving, there would be no net consequences for the national saving rate. It is possible, though, that if individuals expected higher returns from their retirement accounts, they might feel free to reduce other forms of saving.

If, instead, personal accounts were introduced without any cuts in Social Security taxes, and were made mandatory, that would likely yield an increase in both household and national saving. The net increase in household saving, however, would likely be less than the amount deposited in the accounts because, in some

⁵ Paul A. Samuelson, "The Long-Term Case for Equities," *The Journal of Portfolio Management*, Fall 1994, pp. 15-24.

⁶ Zvi Bodie, "On the Risk of Stocks in the Long Run," *Financial Analysts Journal*, vol. 51, issue 3, May/June 1995.

⁷ Such a large premium implies an unbelievable aversion to risk on the part of investors. Siegel and Thaler put it this way: the risk aversion indicated by historical risk premia suggests that investors would be willing to pay 49% of their wealth to avoid a 50% chance of losing half of their wealth. See Jeremy J. Siegel and Richard H. Thaler, "The Equity Premium Puzzle," *Journal of Economic Perspectives*, vol. 11, no. 1, Winter 1997, pp. 191-200.

cases, saving that would have occurred anyway will simply be shifted into the new accounts.

Expanding the Social Security system to include personal accounts would give individuals discretion as to whether or not to invest some of those funds in the stock market. Social Security as it stands is a defined benefit program. If the system were expanded to include personal accounts, some accounts might do better than others. Thus, Social Security would take on some of the characteristics of a defined contribution, as opposed to a defined benefit retirement plan. This means that Social Security benefits could vary significantly, even for individuals with similar career earnings.

There is another aspect of risk that might be addressed with the introduction of personal accounts. There are more than a few who now have doubts as to whether or not they will ever receive the retirement benefits Social Security currently promises in the absence of any changes. Substituting assets held in personal accounts for those held in the trust fund that represent the promise of future benefits might reduce perceived risk, even in the case of a personal account invested in equity.

A related type of risk inherent in Social Security, the way it now stands, is that the rate of return within Social Security can differ substantially from one person to another, even those of the same age. Since it is a defined benefit plan, those who live a long time after retirement receive substantially more, and thus earn a higher return on their contributions, than do those who only live a relatively short time after retirement. This is especially so in the case of single individuals.⁸

Depending on how personal accounts were designed, money invested in them might be passed on in the form of a bequest. If so, the introduction of personal accounts would alleviate some of the income redistribution associated with different life spans.⁹

Social Security also, through its benefit formulae, redistributes some income from high to low wage earners as a way of reducing the risks of the elderly falling below the poverty line. Any switch from a defined benefit to a defined contribution retirement plan might tend to reduce the amount of redistribution and thus tend to increase any inequality in the distribution of income among the elderly.

⁸ Similarly, those near retirement at the inception of Social Security received a very high rate of return, since they made few contributions, but nonetheless received benefits. The same thing happens anytime taxes and benefits are simultaneously increased. The first person to receive monthly benefits from the Social Security program paid a total of \$22 in Social Security taxes and ended up collecting over \$20,000 in total benefits. See Kevin Lansing, "Can the Stock Market Save Social Security?," Federal Reserve Bank of San Francisco, *Economic Letter*, 98-37, Dec. 11, 1998, p. 5.

⁹ If these bequests were funded by a cut in Social Security benefits, there would be a transfer, relative to current law, from married couples to singles, because of the reduced survivor's benefits.

What Happens to Stock Prices When the 'Baby Boom' Retires?

There are many factors that determine the ups and downs of the stock market, but a recent subject of speculation has been the risk that the retirement of the baby-boom generation will coincide with a substantial sell-off of assets. Sometimes referred to as the “asset market meltdown hypothesis,” the concern is that as increasing numbers of retirees sell the assets they have accumulated over their working lives in order to continue the lifestyles to which they have become accustomed, asset prices will decline.¹⁰ A dramatic decline in the value of financial assets would be a problem for pension funds whose funding status might be jeopardized just when they are faced with increasing obligations. It would also threaten any advantage personal accounts invested in the stock market might have.

From a theoretical standpoint, two common presumptions might support that conclusion. First, at the center of most economic models of personal saving is the assumption that individuals seek to avoid substantial fluctuations in their living standards over the course of their lifetimes. Second, is the observation that individual incomes tend to rise during the course of their working lives and then decline after retirement. Taken together, these two considerations lead to the prediction that most people will tend to save relatively less when they are young and when they are retired, and save more when they are in their peak earning years.

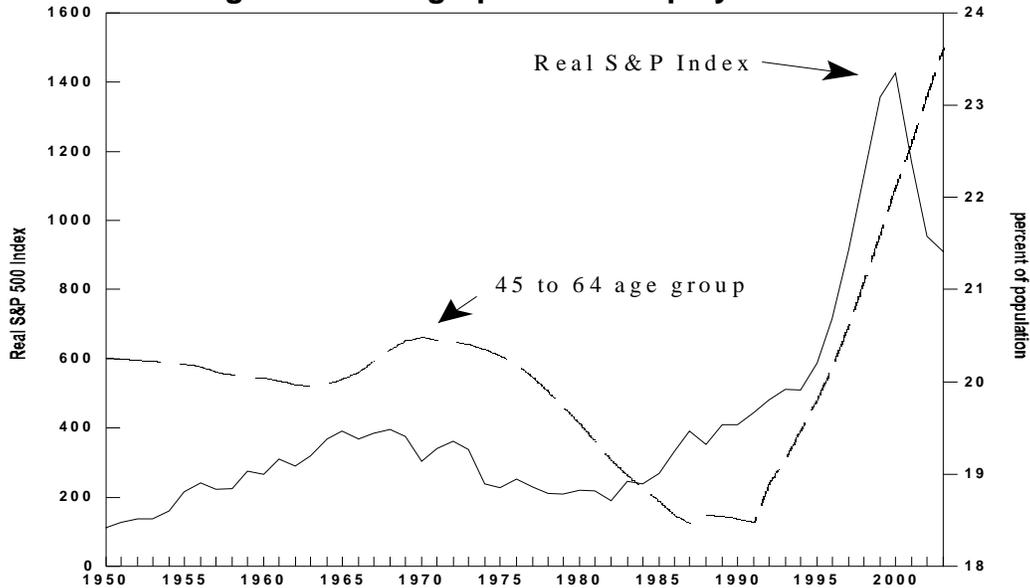
In this simple model, as baby boomers reach their peak earning, and thus their peak saving, years, it might be reasonable to expect an increase in the demand for financial assets. But as they age, it might be presumed that on retirement they will gradually draw down their holdings of assets to finance consumption in order to maintain their standard of living. Thus, if there is a surge in retirements as the baby-boom generation ages, the increased sales of financial assets might be expected to drive down their prices substantially.

Figure 7 plots the proportion of the overall population aged 45 to 64 since 1950. Also shown is the Standard and Poor’s index of 500 stock prices, adjusted for inflation. The unadjusted S&P 500 index is set at 10 for 1941 to 1943, and here it is adjusted for inflation using the price index for gross domestic product. Anyone looking for evidence that there was a relationship between the two might not be disappointed. As the figure shows, it appears that, at times, the two series move together.¹¹

¹⁰ See, for example, Andrew B. Abel, “Will Bequests Attenuate the Predicted Meltdown in Stock Prices When the Baby Boomers Retire?,” Federal Reserve Bank of Philadelphia, Working Paper no. 01-2, Jan. 2001, pp. 16.

¹¹ The correlation coefficient between the two series is 0.603.

Figure 7. Demographics and Equity Prices



Source: Department of Commerce; Standard and Poor's.

Although there appears to be some correlation between real stock prices and the age distribution of the population, there remains more to consider in the simple model of saving behavior described above. There are other factors motivating saving in addition to smoothing consumption over the course of one's lifetime. Some may save in order to insure against events less predictable than the drop in income experienced at retirement. In other words, some may save for precautionary reasons. To the extent that they do, if they have a run of bad luck, or are faced with unexpected out-of-pocket medical expenses, those expenses need not force a cut in consumption. Those with children may have the additional motive of leaving a bequest. To the extent that these two motives influence saving behavior, wealth holdings might not be expected to decline after retirement.

Recent developments also give reason to doubt a unique connection between the age distribution and the saving rate. Between 1990 and 2003, the share of those aged 45 to 64 and presumed to be in their peak saving years, increased by about five percentage points. Over that same period, the personal saving rate fell from 7.0% to 1.4% of disposable income. If anything, it is clear that knowledge of prospective changes in the age distribution alone is insufficient to make predictions about saving behavior or asset prices.

Cross section data confirm that saving rates do more or less follow the pattern suggested by the life cycle model. One source for saving data by age group is the Consumer Expenditure Survey, published by the Bureau of Labor Statistics of the Department of Labor. **Table 2** presents these estimates of saving rates by age for 2002. Because saving data are residuals, in that saving is simply the difference between income and expenditures, and because of the size of the sample on which the estimates are based, there is considerable uncertainty associated with these estimates. Keeping possible statistical uncertainty in mind, the cross-sectional data

confirm the idea of a tendency of the saving rate to vary over the course of individual lifetimes.

Table 2. Saving Rates by Age Group, 2002

Under 25	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 and Over
-19.9%	14.0%	17.3%	20.0%	11.9%	3.9%	-1.5%

Source: Bureau of Labor Statistics, Department of Labor.

A second source of saving data by age is the Survey of Consumer Finances (SCF), conducted by the Board of Governors of the Federal Reserve. Among the questions asked in this survey is whether or not the responding family saved during the previous year. **Table 3** shows the results for the 2001 survey. These data also confirm the expected hump in the cross-section, with fewer of those families at the ends of the age distribution saving than those in the middle of working age. However, they also indicate that many families at the upper end of the age distribution are still saving and not necessarily selling assets they accumulated over their working lives.

Table 3. Percentage of Families Who Saved, by Age of Family Head, 2001

Less Than 35	35 to 44	45 to 54	55 to 64	65 to 74	75 and Over
52.9	62.3	61.7	62.0	61.8	55.5

Source: Board of Governors of the Federal Reserve System.

The data seem to confirm the main idea of the life cycle model which is that saving declines in retirement. However, these measures of saving are calculated by simply subtracting expenditures from income. That may be an overly simple approach. If the reason for saving is to accumulate wealth, either to finance retirement or as a rainy day fund, then changes in wealth may be a more useful measure of saving. **Table 4** shows estimates of net worth by age group based on the results of the 2001 SCF. The mean is the average wealth holding of each age class, and the median represents the mid-point of the wealth distribution for each age class, with half of each group having more than the median and half having less.

Table 4. Household Wealth by Age Class, 2001

Age of Head of Household	Net Financial Assets		Net Worth	
	Mean	Median	Mean	Median
20 to 24	\$26,330	\$-340	\$44,075	\$3,300
25 to 29	11,649	50	52,282	11,895
30 to 34	32,806	940	88,514	20,500
35 to 39	46,504	6,300	122,712	37,000
40 to 44	75,099	13,540	204,488	68,711
45 to 49	99,240	14,000	240,273	74,301
50 to 54	181,181	30,130	369,670	103,700
55 to 59	210,908	33,450	455,729	134,130
60 to 64	207,848	24,000	421,902	109,700
65 to 69	156,288	28,525	346,338	119,790
70 to 74	205,077	32,800	409,932	133,840
75 and up	174,308	27,835	310,900	114,000

Source: James Poterba, *The Impact of Population Aging on Financial Markets*, NBER Working Paper 10851, Oct. 2004.

As with any survey, there are errors associated with these estimates, the more so because of size of the age cohorts in the sample. Nonetheless, the figures show that both net financial assets and total net worth rise up through the group aged 55 to 59 and then drop off somewhat. What may be more significant, though, is that the drop-off in wealth for those groups that have largely retired is not as large as might have been expected. There is a sizable drop between the 60-to-64 and 65-to-69 cohorts, but the fact that net worth increases for the 70-to-74 age group suggests that some of that apparent drop may be due to sampling errors.

These data lend support to the idea that retirees finance their retirement, in part, by drawing down their wealth. But the more remarkable characteristic of these data may be that the decline in wealth of the very elderly is not as great as might be expected. That suggests that bequests and precautionary saving may be as important motives to save as retirement. That would make it less likely that there would be a massive sell-off of assets as the baby-boom generation retires.

In a study published by the Urban Institute, Rogers, Toder, and Jones examined the consequences of the aging population on both private and public saving. They point out that the increase in the proportion of the population that is aged is only part of the story. They point to two other shifts that may also influence private saving. One is a near-term increase in the share of the population that will be in their peak

saving years. The other is a decline in the share of young adults in the population. Young adults are typically dis-savers so that would tend to raise the saving rate, or at least offset any decline due to other shifts. As a result of the shifting age distribution, the authors project that the private saving rate would rise through the year 2010, but after that the increasing numbers of aged would push it back down although it would remain above the rate at the beginning of the projection.¹²

The data in **Table 4** also hint at a wealth distribution that is significantly unequal. The ratio of mean to median is an indication of the degree of inequality in a given distribution. An increase in the share of total wealth held by the richest households in the distribution will increase the ratio of the mean to the median. In the case of net financial assets the ratio is 6 or 7 for most of the age classes, while for total net worth it is 3 or 4. That indicates that the distribution of net financial assets is more unequal than the distribution of total net worth. Part of the reason for that difference is the equalizing affect of including home equity.

Wealth is more unequally distributed than income. **Table 5** presents data from the 2001 SCF showing the degree to which the distribution of wealth is concentrated. The data show that those households in the top 1% of the wealth distribution account for nearly one-third of all wealth. The top10% accounts for over two-thirds of total wealth.

Table 5. Percent of Net Worth by Percentile Group, 2001

Wealth Distribution Percentile	0 to 49.9	50 to 89.9	90 to 94.9	95 to 98.9	99 to 100
Percent of Total Wealth	2.8	27.4	12.1	25.0	32.7

Source: Board of Governors of the Federal Reserve System.

Note: Data reflect only assets held directly by households and do not include those held by pension funds and other institutions.

It would seem plausible that at least those households at the top of the distribution might not have to sell a large fraction of their assets in order to maintain their standards of living upon retirement. The more that is the case, the less reason there would be to expect a large increase in sales of assets as the baby boom generation begins to retire.

There is at least one reason to expect at least some asset sales as retirements increase that does not require predictions of individual behavior. A substantial number of workers are covered by defined benefit pension plans. A defined benefit plan is one under which pension payments are determined by such variables as age

¹² Diane Lim Rogers, Eric Toder, and Landon Jones, *Economic Consequences of an Aging Population*, The Retirement Project at the Urban Institute occasional paper number 6, Sept. 2000, 24 pp.

at retirement and length of employment. Firms that manage these pensions must maintain a fund from which to pay future pension benefits. As the baby-boom population entered the work force and the number of workers covered by these plans grew the funds accumulated more and more assets. As those baby-boomers who are covered begin to retire the funds will increase sales of assets to meet their pension obligations. At the end of 2004, private pension funds accounted for 9.8% of the total market value of corporate equities. State and local retirement funds accounted for an additional 7%.

There is another consideration that might not affect the holdings of assets as much as how they allocated. A frequently heard rule of thumb for investors is that as they get older they should rearrange their assets in order to increase the overall liquidity of their portfolios. That might, for example, involve a shift away from equities and into bonds or cash. Whether or not it is a wise investment strategy, to the extent that investors do rearrange their portfolios as they age it is possible that an aging population could affect the relative prices of assets.

It has also been pointed out that if investors are rational and “forward-looking,” then whatever drop in asset prices might be in the cards would be anticipated and be reflected in current asset prices.¹³ Otherwise, investors could profit by short-selling those assets well in advance of any expected sell-off as baby-boomers retire.

Thus far, only cross-section data have been presented. Those data indicate how saving and wealth vary by age group at a single point in time. But they may not be sufficient to project how individuals will behave as they move up the age distribution. There may be important reasons *other than age* that determine how individuals approach the decision how much to save and how much wealth to accumulate and hold over the course of their lives. For example, it may be that those who grew up during the Great Contraction beginning in 1929 developed a different attitude about the importance of thrift from those who make up the baby-boom generation. If that is true it would be unreasonable to use the behavior of the current elderly population to predict the future behavior of baby-boomers.

Aside from the question of what baby boomers will do with their assets when they retire is also the question of who will buy those assets when and if there is a significant sell-off. If investors do not anticipate a large scale liquidation when the baby boom retires and buyers are hard to come by, then a substantial decline in asset prices is a possibility. But in this circumstance it might be remembered that if there is not a domestic market for those assets one may be found overseas. Whether overseas buyers absorb any increase in the supply of financial assets will depend on overall macroeconomic conditions both here and abroad, not to mention the fact that the effects of demographic factors on financial markets may not be limited to the United States.

Theory alone seems insufficient to predict what might happen to asset prices when the baby boom generation begins to retire. There are reasons to believe that

¹³ James Poterba, *The Impact of Population Aging on Financial Markets*, National Bureau of Economic Research, Working Paper 10851, Oct. 2004, 48 pp.

they will sell some of their assets, but there are also reasons to believe that those sales will not be so large as to disrupt financial markets or cause a precipitous drop in the prices of assets traded in those markets. Consequently, there have been numerous empirical studies attempting to model the effects of changes in the age distribution of the population on asset markets.

Recently, Poterba examined the relationship between the age distribution of the population and returns on financial assets.¹⁴ He found that the evidence for a connection between an aging population and the financial market was weak. He also points out that it may be much more important how an aging population affects fiscal policy and what the consequences are for future budget deficits.

Bosworth, Bryant and Burtless examined the literature concerning the economic effects of the aging of the baby boom generation including those studies that focused on the effects of changes in the age distribution on the prices of financial assets.¹⁵ Some of those studies are limited to the United States and some examine the effect of demographic changes in different countries. Overall, the authors found that the evidence for a substantial effect on asset prices is fairly weak. The authors note that part of the difficulty is that studies that cover different time periods yield different results. Another difficulty with any study involving longer-term shifts in asset prices is accounting for all of the relevant variables that may be influential. Moreover, in some countries studies found that changes in the age distribution had the opposite effect on asset prices from that which the life-cycle model would suggest.

Other things being equal, the retirement of the baby-boom generation seems likely to result in at least some decline in the household saving rate. At the same time, in the absence of either changes to Social Security as it now stands or cuts in other categories of federal spending or tax increases, the increase in outlays for benefits and the relatively smaller payroll tax base mean that there will be substantial budget deficits as the baby boomers reach retirement age. Moreover, because Social Security is mostly a pay-as-you-go program it represents a substantial income transfer from workers to retirees. That means that a larger share of total income will accrue to those with relatively lower saving rates and a smaller share will be accounted for by those with relatively higher saving rates. If both household and government saving rates fall, the aggregate national saving rate will as well.

Policy Considerations

Investing personal accounts in stocks has the potential to yield greater returns than are currently provided by Social Security. But along with those higher returns there is greater risk. While longer holding periods have historically exhibited less variation in returns, there have been instances where holding periods as long as nearly 19 years left investors worse off than when they started.

¹⁴ Ibid.

¹⁵ Barry P. Bosworth, Ralph C. Bryant, and Gary Burtless, *The Impact of Aging on Financial Markets and the Economy: A Survey*, Center for Retirement Research at Boston College, Oct. 2004, pp. 59.

If large numbers of participants decide to invest in equities, and Social Security taxes are reduced, that may have an influence on the relative rates of return on stocks and government bonds. Any increased demand for stocks will tend to push up their prices and thus reduce their rates of return. If Social Security taxes are reduced, then the federal government will have to borrow more. The increased supply of Treasury securities would push down their price and increase their yield. The introduction of personal accounts could result in a lower equity premium.

To the extent that retiring baby boomers sell off assets that they accumulated during their working lives that might push down the prices on those assets. It might not be a dramatic decline but it does add to the risks faced by those who invest personal accounts in the stock market.

There is at least one other possibly significant policy consideration. If personal accounts are established and the government encourages those with accounts to invest in the stock market, the government may have increased interest in the performance of the stock market. The performance of equity markets might become more than an economic indicator, it might become a policy goal.