STOCK RETURNS FOR DUMMIES

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Any proposal to include stock market investment as part of Social Security must include projections for long-term stock market returns. Without such projections, it is simply not possible to compare these proposals, and their potential benefits, to the present system. Yet surprisingly, none of the proposals put forth have included the necessary projections for long-term stock market returns. This is especially unusual when one considers that the Social Security trustees publish projections each year for real wage growth, inflation, life expectancy, unemployment, and all the other economic and demographic variables that affect the finances of the present program, over the entire 75-year planning period.

Projecting long-term stock returns is a relatively simple task, if the rate of growth of profits can be taken as given -- as is the case with the projections that already appear in the Social Security trustees' report. Stock returns have only two parts, dividends and capital gains.[1] By definition, the return on stock must be equal to the sum of these two components. This means that we just have to project returns for each of these two components in order to project stock returns.

[1] Firms often pay out money to shareholders in the form of share buybacks. For purposes of the present calculations, such buybacks can be treated in the same way as dividend payments. See Baker, D. 1999, "Letter to Martin Feldstein," May 15, 1999, (www.cepr.net/Social_Security/letter_to_feldstein2.htm) and Diamond, P. 1999. "What Stock Market Returns to Expect for the Future?" Boston College Retirement Research Center, Boston, MA: (http://www.bc.edu/bc_org/avp/csom/executive/crr/ib2.htm).

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Dividends

The projection for dividend returns is quite simple. Currently the ratio of an average share of stock to its peak after-tax earnings is about 25 to 1.[2] In other words, earnings are approximately 4 percent of the price of a typical share. At the peak of the market, the price to earnings ratio was over 30 to 1, which means that earnings were just over 3 percent of the typical share price. Companies generally pay out between 50 to 60 percent of their profits as dividends or share buybacks. Therefore the dividend yield is currently between 2.0 and 2.4 percent (50 to 60 percent of the earnings, which are 4 percent of share price). It is not possible for companies to pay dividends that are significantly larger than 60 percent of earnings, because they would then have insufficient money left to finance new investment. This means that we can set the annual dividend yield in a range between 2.0 and 2.4 percent.

Capital Gains

Projecting returns on capital gains is almost as simple. The trustees' report implicitly includes a projection of profit growth, because it gives a projection of GDP growth, and explicitly assumes that the wage and capital shares stay constant. This implies that profits grow at the same rate as GDP.[3] Given this growth rate of profits, it is easy to project a growth rate for capital gains.

There are three logical possibilities:

1) stock prices can grow more rapidly than profits, which means that the price to earnings ratio always grows;

2) stock prices grow at the same rate as profits, which means that the price to earnings ratio stays constant; and

3) stock prices grow less rapidly than profits, which means the price to earnings ratio falls.

It is easy to reject the first possibility, since it is implies a stock bubble. To see this point, imagine that the price to earnings ratio continued to grow, so that after a long time it was 100 to 1. At that point, the dividend yield would have dropped to just 0.5-0.6 percent (50 to 60 percent of 1 percent). This means that virtually the whole return from holding stock was coming from the expectation that its price would continue to rise. To maintain a fixed rate of return (e.g. 6 percent) the price to earnings ratio would have to rise ever more rapidly. This would push the

[2] This peak refers to profits in 2000, the peak year of the business cycle—nnot their current recession level.

[3] Profits of U.S. corporations could grow somewhat faster than domestic GDP, due to returns on foreign investment. However, under plausible assumptions about the size and rate of return on foreign investment, these profits will not significantly alter growth projections over the Social Security system's 75-year planning horizon. See Baker, D. 1999, "Letter to Martin Feldstein," May 15, 1999, (www.cepr.net/Social_Security/letter_to_feldstein2.htm).

price to earnings ratio to 200 to 1, 300 to 1, and higher. At some point, the market would have to collapse since stock prices would rest on nothing but the expected increase in stock prices.

The second case assumes that the current ratio of stock prices is corporate earnings is approximately right for long-run balance. In this case, the average capital gain is exactly equal to rate of growth of real GDP. The Social Security trustees project that growth will average 1.5 percent over the next 75 years.[4] If stock prices rise at the same rate, then capital gains will average 1.5 percent a year. Adding this to the dividend yield of 2.0 to 2.4 percent gives a total stock return of 3.5 to 3.9 percent annually.

The third case effectively assumes that stocks are currently over-valued, and that the price to earnings ratio will have to decline in order to reach a long-run equilibrium. This is a plausible story, since the price to earnings ratio has averaged less than 15 to 1in the past. To model this scenario, it is necessary to decide which price to earnings ratio should be viewed as the long-run equilibrium one, and then select a path by which the market gets there. For example, if the assumption is that the long-run equilibrium ratio is 15 to 1, then it can be assumed that the stock market gets there immediately by falling 40 percent from its current level over the next week. Alternatively, it can be assumed that the market will get to this equilibrium level over some longer period of 10 to 20 years. These assumptions would have very different implications for money invested in the stock market in the near future.

Once the market has fallen to a lower level, it will be possible for it generate higher returns. For example, if it falls back to its historic price to earnings ratio of just under 15 to 1, its earnings will be equal to roughly 7 percent of the share price. At that point, the annual dividend yield will be between 3.5 and 4.2 percent (50 to 60 percent of 7 percent). Therefore, if there is a sharp decline in the market, it will be possible for stock returns to again fall within their historic range.

Since the time path to a lower price to earnings ratio makes a very large difference for investors in the near term future, it is essential that the expected path of the markets decline be written out explicitly. That would allow experts to both evaluate the plausibility of the assumption and also assess the impact on workers who invest in the market, as it is declining to its equilibrium level.

While there are different plausible paths for the stock market, none of the proponents of investing Social Security money in the stock market have yet to write down their assumptions on this issue. Therefore, there is no way for experts to assess the credibility of their proposals.

[4] This growth rate is measured against the CPI, which is the relevant price index, since Social Security benefits are tied to the CPI. The trustees expect that the CPI will grow on average 0.2 percentage points more rapidly than the GDP deflator (Social Security Trustees Report, 2001, Table V.B1).