

The Market Value of Accrued Social Security Benefits

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One measure of the health of the Social Security system is the difference between the market value of the trust fund and the present value of benefits accrued to date. An important question is how one should evaluate or quantify those future Social Security liabilities in current value terms. The Office of the Chief Actuary in the Social Security Administration computes several different measures, including a discounted present value of expected future benefits. These estimates are used for a variety of purposes, including calculating the total cost of transitioning to a personal account system (“maximum transition cost”) and calculating the difference between the present value of expected inflows and outflows (“the actuarial imbalance”). The magnitude of these SSA estimates already has, and will continue to have, enormous influence on the perceived need for social security reform, and indeed on the contours of that reform.

In this study, we use an alternative approach to quantifying Social Security liabilities. Our aim is to estimate a market value of Social Security liabilities, taking account of future risks and uncertainties in a way that investors would do if they regarded Social Security payments as dividends on assets, or liabilities of their own business. The market value of current social security liabilities turns out to be quite different from the expected present values calculated by the SSA.

A key issue in estimating a market valuation is the adjustment for risk. The traditional actuarial approach is to ignore risk and compute expected value. However, if benefits are risky and this risk is “priced” by the market, then the actuarial estimates will differ from market value. Unlike the actuarial estimates compiled by SSA, market valuation uses a discount rate that incorporates a risk premium.

The adjustment for risk or uncertainty requires a careful examination of the stream of future benefits. One of those uncertainties is the path of future wages. Social Security benefits are “wage-indexed”, adjusting over time to an economy-wide average wage index. We assume in our calculations that there is a positive long-run correlation between average labor earnings and the stock market. We use derivative pricing methods that are standard in the finance literature to compute the market price of individual claims on future benefits, and then aggregate the market value of benefits across all cohorts to arrive at a total market value for all Social Security liabilities.

We find that the difference between market valuation and SSA’s “actuarial” valuation is large, especially when valuing the benefits of younger cohorts. Overall, the market value of accrued benefits is only 3/4 of that implied by the actuarial approach. Ignoring retirees (for whom the valuations are the same), market value is only 2/3 as large as that implied by the actuarial approach.

We make the case that market value is the more appropriate way to measure both assets and liabilities of the Social Security system, because it adjusts correctly for the uncertainties of the future, rather than applying a risk-free discount rate. In continuing work, we plan to estimate other measures of accrued

benefits, and also other measures of the solvency of Social Security. In particular, most cash-flow based measures of solvency incorporate future tax inflows as well. Since future taxes are also linked to economy-wide wages, and thus to the stock market, these future taxes would also require a risk adjustment.

The full working paper is available on our website, www.nber.org/programs/ag/rrc/books&papers.html as paper NB07-18.

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This research was supported by the U.S. Social Security Administration through grant #10-P-98363-4 to the National Bureau of Economic Research as part of the SSA Retirement Research Consortium. The findings and conclusions expressed are solely those of the author(s) and do not represent the views of SSA, any agency of the Federal Government, or the NBER.