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Executive Summary

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AN ASSESSMENT OF LIFE-CYCLE FUNDS

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Life-cycle funds, sometimes referred to as target retirement date funds, which gradually decrease stock holdings with age, offer an intuitive approach to retirement investing. Households are told that at younger ages “you have many years to withstand market volatility, so you can benefit from investing in a high percentage of stocks.” In retirement, households are told that “your asset mix should now have a tilt towards income.” This life-cycle strategy has considerable intuitive appeal. Although the return on stocks can be quite volatile in the short-term, they have historically outperformed bonds in the long-term. Accordingly, the traditional view has favored substantial investments in equity for young savers who could benefit most from the growth in wealth offered by the appreciation of stocks. As people enter retirement, this view counsels the shifting of wealth into bonds, because retirees have a greater need for the relatively stable income provided by bonds. Their intuitive appeal notwithstanding, the empirical and theoretical support for life-cycle funds is mixed, with strong arguments on both sides of the debate.

There have been two approaches to looking at optimal asset allocation. The first approach uses historical data to describe the performance of alternative strategies. The second approach uses dynamic optimization techniques to evaluate the optimal asset allocation over the life cycle. According to the former approach for optimizing returns, if people wish simply to maximize their expected wealth at age 65, their optimal life-cycle allocation of assets includes only stocks (the top line in Figure 2). This strategy, however, does not factor in the risk of the investments, an important aspect of the decision made by individual investors. By allocating all their assets to stocks, investors bear considerably more risk than they would by holding a mix of stocks and bonds.

Another problem with the first approach is that historical optimization might not be an appropriate guide for investors today. Returns in the future will not necessarily resemble those of the past. Furthermore, the nature of the stock market has changed enormously over the past 135 years. In the late nineteenth century, it was dominated by railroads and utilities, and during much of the twentieth century the characteristics of capital market instruments continued to evolve. Finally, the conduct of macroeconomic policy may have improved so that we are unlikely to experience a repetition of the Great Depression, which favored the performance of bonds relative to stocks, or the substantial inflation of the 1970s, which harmed bonds more than stocks.

This paper focuses on the latter approach, dynamic optimization, which introduces a utility function that accounts for the individual's taste for bearing risk. It also analyzes the role of human capital (in the form of earnings) in making the optimal allocation decision. To begin, our baseline model assumes that the household allocates its financial assets between stocks and long-term bonds. Under this baseline model, the optimal portfolios vary little over the life cycle — between 35 and 55 percent of assets are allocated to stock, depending on the risk tolerance of the individual.

In furthering our experiment, we introduce exogenous earnings using career-earnings profiles from the Office of the Actuary of the Social Security Administration. With earnings, individuals allocate a substantial share of their assets to equity when they are young and their optimal allocation declines as they age (Figure 4). These simulations assume that the individual has no labor market uncertainty. In practice, however, individuals experience employment shocks, the effects of which can be quite persistent. Simulations with a positive correlation between earnings and stock returns caused individuals to be for more conservative early in their investing, while applying a negative correlation led to individuals taking on more risk early on. Many economists believe that there has recently been a narrowing of the equity and, to a lesser extent, the bond risk premiums. When this belief is accounted for in the model, as might be expected, the gains from holding an all-equity portfolio diminish, but the shape of the optimal allocation remains

The life-cycle simulations generally support the use of target retirement date funds once human capital is taken into account. These funds, however, might come with a high price tag for individuals. In our analysis of this, we found that a difference of twenty basis points between the life-cycle strategy and the flat allocation strategy would most likely completely erode and gains made by the lifecycle fund.

Finally, we analyze whether individuals and investment professionals are following the asset allocation patterns suggested by life cycle funds. We used the Survey of Consumer Finance (SCF) to assess the allocation choices of individuals. In sum, the evidence from the SCF suggests that households are, at best, following a relatively flat asset allocation over the life cycle. When we examine the asset allocation of pension funds to monitor investment professionals, our analysis depended on the age profile of the pension beneficiaries. Data on asset allocation of pension plans have two advantages over household survey data. First, the asset allocation decision in pension funds is generally made by investment managers who are likely to be more financially savvy than individuals. The second advantage is technical. Data on pension plans does not have the limitations imposed by the cohort and year effects in household survey data. Defined benefit plans are getting older: the proportion of retirees to participants went from about 30 percent in 1989 to nearly 50 percent in 2004. But as these plans grew older, they invested a larger part of their portfolio in stocks — contrary to the life cycle funds prescription. It is possible, however, that the increase in exposure to equities was more of response to secular trends than a strategic move in response to the aging of the plan. In sum, the evidence does not seem to suggest a strong decline in the portfolio exposure to stocks over the life cycle. Ultimately, an appropriate asset allocation depends on individuals' objectives and the opportunities for achieving those objectives available in financial markets.

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