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Human Capital, Asset Allocation, and Life Insurance

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Abstract

Financial planners and advisors increasingly recognize that human capital must be taken into account when building optimal portfolios for individual investors. But human capital is not simply another pre-endowed asset class; it contains a unique mortality risk in the form of the loss of future income and wages in the event of the wage earner's death. Life insurance hedges this mortality risk, so human capital affects both optimal asset allocation and demand for life insurance. Yet, historically, asset allocation and life insurance decisions have been analyzed separately. This article develops a unified framework based on human capital that enables individual investors to make these decisions jointly.

Academics and practitioners increasingly recognize that the risk and return characteristics of human capital—such as wage and salary—should be taken into

account when building portfolios for individual investors. A unique aspect of an investor's human capital is mortality risk, the loss of the family's human capital in the event of the wage earner's death. Life insurance has long been used to hedge against mortality risk. Typically, the greater the value of human capital, the more life insurance the family needs.

Intuitively, human capital affects not only optimal life insurance demand but also optimal asset allocation. However, these two important financial decisions—how much life insurance to buy and what the optimal asset allocation is—have consistently been analyzed separately in theory and practice. Popular investment and financial planning advice regarding how much life insurance one should acquire is seldom framed in terms of the riskiness of one's human capital. And conversely, optimal asset allocation has only lately been framed in terms of the risk characteristics of human capital. Rarely is this decision integrated with the life insurance decision.

We argue that these two decisions must be determined jointly because they serve as risk substitutes when viewed from the perspective of an individual investor's portfolio. Life insurance is a perfect hedge for human capital in the event of the wage earner's death; that is, term life insurance and human capital have a negative 100 percent correlation with each other in the “alive” (consumption) state versus the “dead” (bequest) state. If life insurance pays off at the end of the year, human capital does not, and vice versa. Thus, the combination of the two provides great diversification to an investor's total portfolio.

Motivated by the need to integrate these two decisions, we developed a framework that merges these traditionally distinct lines of thought. The framework is based on human capital. We investigated the impact on the optimal combination of life insurance and traditional asset classes of the magnitude of human capital, its volatility, and its correlation with other assets, investor preferences regarding bequests, and subjective survival probabilities. We use five case studies in the article to illustrate implementation of our model.

Our analysis validates some intuitive rules of thumb but also provides additional results that are not immediately obvious:

- Investors need to make asset allocation decisions and life insurance decisions jointly.

- The magnitude of human capital, its volatility, and its correlation with other assets significantly affect the two decisions over the life cycle.
- Bequest preferences and a person's subjective survival probability have significant effects on the person's demand for insurance but little influence on the person's optimal asset allocation.
- Conservative investors should invest relatively more in risk-free assets and buy more life insurance.

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