

Hedging Human Capital

M.A. Milevsky

October 2004

I'm often asked – especially by consumers with little formal training in finance -- whether simple life insurance is a “good investment” and whether it provides a “high rate” of return, compared to mutual funds or stocks. And, although the question reveals an innocent ignorance of the purpose and motive behind life insurance, I have developed a habit of responding that **yes**, it is a great investment but **no**, it does not provide a high rate of return on premiums. In other words the expected financial gain from buying term life insurance is negative – especially once you factor in commissions, profits and expenses – but life insurance can still be a great investment.

Confused? Most people are. But, the key to understanding the seemingly paradoxical role of insurance within a personal financial portfolio is to go back to basics and focus on “the correlations”. In this article I will argue that many of the insurance decisions that you or your clients face during their life can be phrased in terms of risk, return and -- most importantly -- the hedging motive, a.k.a. “the correlations”.

Recall that according to modern portfolio theory (MPT) -- upon which, by the way, most of today's mutual fund industry is based – the benefit from holding a large portfolio of individual companies comes from the undeniable statistical fact that some stocks *zig* while other stocks *zag*. We buy investments not only because we expect them to make money in the long-run, but also to diversify our portfolio in the short run. In other words an astute fund manager might very well add a “name” to their portfolio just to smooth out the bumps created by other holdings, even if on their own merits they do not provide the greatest long-term investment. As an example, think of commodity futures, hedge funds and other alternative asset classes which have been promoted recently. They might not provide great

investment returns, but they definitely smooth out the rough edges in equity-laden portfolios. In fact, the “holy grail” amongst institutional fund managers is to discover investments with negative correlations to the rest of their portfolio, which is statistical parlance for investments that buck the trend and go up, when others go down, and vice versa.

Now let us get back to insurance as an investment. Recall that the primary role of life insurance is to protect the human capital of the breadwinner, which is a concept I have elaborated on in earlier articles for *Advisor's Edge* (November 2003). Now, think about what happens to the financial value of your client's life insurance at the end of the policy term, i.e. when the contract expires. If the individual is still alive and healthy their human capital has earned “above average returns” and their life insurance has earned “below average returns”. If, in contrast, the individual is unfortunately no longer alive, the human capital earns well below average returns – negative 100% returns to be exact -- while the insurance contract earns well above average returns. Ergo, the life insurance diversifies and hedges the client's human capital. Even if the expected investment return is negative, it is still a great financial decision.

The enclosed figure provides a stylized illustration of how asset allocation, life insurance and human capital interact over the course of the human life-cycle. Early on in life, there is substantial uncertainty about how our careers and employment fortunes will evolve. Our human capital -- which forms the great bulk of assets -- is risky, and perhaps our relatively small financial portfolios should be safer. Later, as we age and convert human capital into financial capital we can afford and tolerate to take more financial risk with our investments. Along the same vein, the face-value of life insurance should be less than the present value of our human capital, which is in line with a traditional expense approach to life insurance needs. Finally, once we reach our pre-retirement years and have accumulated substantial financial capital there might be little if any need for life insurance.

Of course, the picture is idealized and some advisors might have clients with a family and children that must be protected with insurance well into the client's 60s, while others can dispense with the coverage earlier in life. Likewise, income taxes and estate planning motives add a wrinkle to the argument for "no insurance once human capital is spent" argument.

What about income taxes?

Once you throw income taxes into the equation, life insurance gains yet another favorable dimension within an asset allocation framework. As most financial advisors already know, the investment gains inside of an insurance policy "build up" without attracting or generating an income tax liability until the policy is surrendered. And, although all gains upon will be taxed at the client's highest marginal tax rate once the policy is surrendered, the compounding gains along the way can offset the higher tax liability. Furthermore, if the client can avoid ever cashing-in by borrowing against the cash-value of the policy at retirement, the after-tax returns can be event greater. I often like to call this a "tax arbitrage" and let me provide a simple example to explain how life insurance can in fact produce mediocre pre-tax returns, but excellent after-tax returns.

Imagine your client invests \$10,000 (non RRSP) in a bank's 5-year Guaranteed Investment Certificate (GIC) and the GIC pays 5% every year. If your client is in the 50% marginal tax bracket, then the annual interest of \$500 will only leave him or her with \$250, which can be reinvested in another GIC and left to grow over time. For the sake of argument, let's say they can re-invest the gains, again at 5%. The same process happens next year, whereby they have to pay half of the interest income in taxes and then the remainder can be reinvested. At the end of the five-year period, the effective after-tax rate of return will be 2.5% per annum. Sure, pre-tax they earned 5%, but after tax it was only 2.5%. Do the math yourself and you get that in 30 years they have \$20,975. Technically, the

calculation is done by raising 1.025 to the power of 30, and then multiplying by the initial \$10,000 (the 1.025 number comes from the total after tax return).

Here is where things get interesting with life insurance. With permanent (non-term) life insurance policies, a portion of the periodic premium that goes towards the savings component, grows tax deferred. Now, since the inside buildup is tax free, at the end of 30 years they have 1.05 – and not the much lower 1.025 number -- raised to the power of 30, which is \$43,220 before taxes are paid, and is a gain of \$33,220. Then, they must then pay tax at 50%, which leaves them with \$26,610.

Compare the numbers and you will get my point. They have \$5,635 (\$26,610 - \$20,975) more from the tax-free inside build-up than from the alternative product. This is about 50% more on an initial \$10,000 investment. Now scale this up to \$100,000, or even \$500,000 and you get a sense of the magnitude of this after-tax benefit.

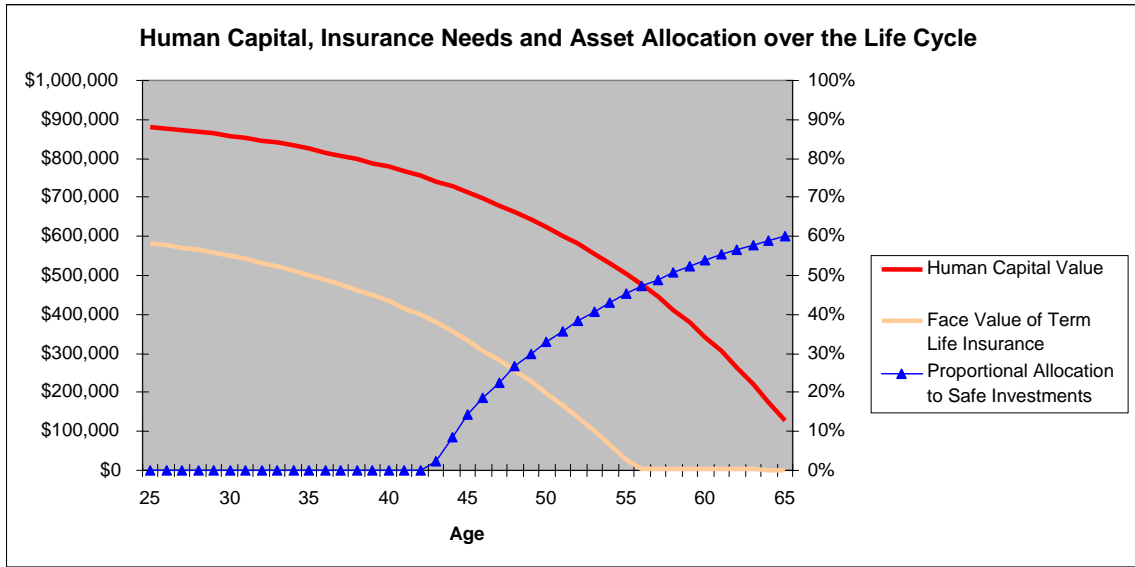
The point is that in addition to providing a solid hedge against the loss of human capital (a.k.a. the family breadwinner) an insurance policy can also provide an after-tax rate of return that far exceeds the investment return from competing products that are not entitled to this beneficial tax treatment. Life insurance is part of the family's diversified portfolio and total asset allocation.

Longevity Insurance

The same line of thought can also be extended to insurance protection towards the end of the human life-cycle, when the risks we and our clients face run in the exact opposite direction. As we age and progress thru the human life-cycle, the value of our human capital dwindles and all we have to support ourselves during our extended retirement years is the financial capital we have amassed during the working years. At that point of our life, it is our future consumption *liabilities*

that are uncertain and unpredictable. We may be fortunate enough and live a very long life well into our 90s, or we be unlucky and barely reach a typical retirees life-expectancy of 80. This uncertainty can be hedged or diversified away, by being a member of a Defined Benefit (DB) pension plan or by voluntarily purchasing a life annuity with our RRSP/RRIF that provides a higher rate of return, the longer we live. So, although our liabilities might increase beyond what was expected if we reach our 90s, so too will the investment return from a life annuity, or what I like to call longevity insurance.

In sum, the conceptual framework behind **total** asset allocation is to position all the financial decision we and our clients face over the human life-cycle in terms of investment returns, risks and hedges. A decision or investment might not make sense from a pure expected return perspective, but once we examine it's correlation (a.k.a. hedging properties) it quickly redeems itself.



Source: Ibbotson Associates, 2004