The benefits from “good” financial-planning decisions are difficult to quantify. For any given portfolio, investment decisions generally can be decomposed into two primary components: beta and alpha. Beta can be defined as the systematic risk exposures of the portfolio (usually achieved through asset allocation), and alpha is the residual (skill or luck-based) component associated with the various flavors of active management, such as tactical asset allocation, security selection, and more. Alpha and beta are at the heart of traditional performance analysis; however, their impact on a successful retirement can be far less important than other financial-planning decisions.

In this article, we introduce a concept called “Gamma,” which is designed to measure the additional expected retirement income achieved by an individual investor making intelligent financial-planning decisions. Gamma is the third letter in the Greek alphabet (preceded by alpha and beta), and within financial economics, it is sometimes used as the variable denoting an investor’s degree of risk aversion. Given that Gamma is relatively unclaimed within financial literature, we seek to give it new meaning.

Gamma varies for different investors as well as for investors in different lifecycles (for example, the accumulation stage versus retirement). For those who find it hard to break from traditional (and inadequate) performance measurements, Gamma is a metric that is somewhat comparable to alpha, or excess return, but even more than that, it is the return that an investor...
experiences based on optimal financial decision-making.

In calculating Gamma, we focus on five important financial-planning decisions and techniques: a total wealth framework to determine the optimal asset allocation, a dynamic withdrawal strategy, the incorporation of guaranteed income products, tax-efficient allocation decisions, and a portfolio optimization that includes liabilities.

Each of these five Gamma components creates value for retirees, and when combined, they can be expected to generate 29% more income on a utility-adjusted basis when compared with a simplistic static withdrawal strategy, according to our analysis. This additional income is equivalent to an arithmetic “alpha” (the Gamma equivalent alpha) of 1.82% and thereby represents the potential of a significant increase in portfolio efficiency (and retirement income) for retirees.

**Alpha and Beta: Defining Value**

The notions of beta and, in particular, alpha have long fascinated financial advisors and their clients. Alpha allows a financial advisor to demonstrate the excess returns generated in an investment portfolio, which can help justify fees. In contrast, beta helps explain the risk factors of a portfolio relative to the market (that is, the asset allocation).

If an advisor is paid solely to manage a portfolio of assets and offers no additional advice regarding anything other than the investment of the client assets, the concepts of alpha and beta should be good measures of the advisor’s value. However, in a more-complex engagement in which the advisor provides financial-planning services to clients, value cannot be defined in such simple terms as alpha and beta because the objective of an individual investor is typically to achieve a goal, and that goal is most likely saving for retirement.

A financial advisor could invest a client’s money in very expensive mutual funds that underperform but still provide other valuable services that enable the client to successfully save for retirement. While this advisor may have failed from a pure alpha perspective, the underlying goal was accomplished. This is akin to losing the battle but winning the war.

Individual investors invest to achieve goals (typically an inflation-adjusted standard of living). Doing the things that help an investor achieve these goals is a different type of value than that which can be attributed to alpha or beta alone and is in many ways more valuable. Therefore, metrics such as alpha and beta are an incomplete means of measuring retirement-strategy performance.

**Gamma Factors**

In this article, we examine the potential value, or Gamma, that can be obtained from making “intelligent” financial-planning decisions during retirement. A retiree faces a number of risks during retirement, some unique to retirement planning and not concerns during accumulation. We will explore five factors that can provide Gamma to a retiree’s portfolio:

1. **Total Wealth Asset Allocation**

   Human capital is a person’s future potential savings. Financial capital is a person’s investment portfolio. Most techniques used to determine the asset allocation for a client focus only on the investment portfolio and are relatively subjective; they focus primarily on “risk preference,” which means an investor’s aversion to risk, rather than “risk capacity,” which is an investor’s ability to assume risk. In practice, however, we believe asset allocation should be based on total wealth (a combination of human and financial capital) and on a combination of risk preference and risk capacity, with an emphasis on risk capacity. We determine an investor’s risk capacity (or target equity allocation) by evaluating his or her total wealth. We can then either use the market portfolio as the target aggregate asset allocation for each investor (as suggested by the Capital Asset Pricing Model) or build an investor-specific asset allocation that incorporates an investor’s risk preferences. In both approaches, the financial assets are invested to achieve an optimal asset allocation for total wealth.

2. **Dynamic Withdrawal Strategy**

   The majority of retirement research has focused on static withdrawal strategies where the annual withdrawal amount during retirement is based on the account balance at retirement and increased annually for inflation. For example, a “4% withdrawal rate” would really mean a retiree can take a 4% withdrawal of the initial portfolio value and continue withdrawing that amount each year, adjusted for inflation. If the initial portfolio value was $1 million and the withdrawal rate was 4%, the retiree would be expected to generate $40,000 in the first year. If inflation during the first year was 3%, the actual cash flow amount in year two (in nominal terms) would be $41,200. We use a different approach. Originally introduced by Blanchett, Kowara, and Chen (2012), our approach determines the withdrawal amount annually based on the likelihood of a portfolio’s survivability (because of market performance) and expected investor longevity.

3. **Annuity Allocation**

   Outliving one’s savings is perhaps the greatest risk for retirees. A study by Allianz Life noted that the greatest fear among retirees is not death (39%) but rather outliving one’s resources (61%) (Bhojwani, 2011). Annuities allow a retiree to hedge away this risk and can, therefore, improve the efficiency of a retiree’s portfolio. The benefits, risks, and costs of an annuity in the context of a total portfolio must be considered before determining the appropriate amount and annuity type.

4. **Asset Location and Withdrawal Sourcing**

   Tax-efficient investing for a retiree can be thought of in terms of both “asset location” and intelligent withdrawal sequencing from...
accounts that differ in tax status. Asset location is typically defined as placing (or locating) assets in the most tax-efficient account type. For example, it generally makes sense to place less tax-efficient assets (those where the majority of total return comes from coupons and dividends taxed as ordinary income, such as bonds) in retirement accounts and more tax-efficient assets (those where the majority of total return comes from capital gains taxed at a rate less than ordinary income, such as stocks) in taxable accounts. When thinking about withdrawal sequencing, it typically makes sense to withdraw money from taxable accounts first and from more tax-efficient accounts later.

5 Liability-Relative Optimization

Asset-allocation methodologies commonly ignore the funding risks, such as inflation and currency, associated with an investor’s goals. By incorporating liabilities into the portfolio-optimization process, it is possible to build portfolios that can better hedge the risks faced by a retiree. While these “liability-driven” portfolios may appear to be less-efficient asset allocations when viewed from an asset-only perspective, we find they are actually more efficient when it comes to achieving a sustainable retirement income.

These five Gamma concepts can be thought of as valuable actions and services that financial planners can provide. Bennyhoff and Kinniry (2010) called them “advisor’s alpha,” and Scott (2012) labeled them “household alpha.” However, Bennyhoff and Kinniry do not attempt to quantify the benefit of these actions. We aim to provide some perspective on, as well as to quantify, the potential benefits that can be realized by an investor, especially a retiree, from using a Gamma-optimized portfolio.

Gamma Defined

First, let’s define Gamma. The Gamma of a retirement-income strategy is defined in the equation below, where Y is the utility-adjusted income generated from a given strategy. Utility is an approach to quantify the satisfaction derived from some set of goods or services. In this case, we assume that the utility of income is an increasing concave function; the higher the level of income, the lower the increase in utility of additional income. Thus, the amount of utility an investor gets for each dollar of income is not equal.

\[ \text{Gamma(Strategy)} = \frac{Y(Strategy) - Y(Benchmark)}{Y(Benchmark)} \]

Gamma Results

If we add the results from the five Gamma factors tested, we find a Gamma of 28.8%, meaning $1.29 for every $1 generated by the base set of assumptions. The base case is retirees (males and females both aged 65) who follow the static 4% withdrawal scenario and invest in a 20% equity/80% fixed-income portfolio. (The performance of the portfolio is determined by Ibbotson capital market assumptions and Monte Carlo simulation.) We display this concept in Exhibit 1, which shows the incremental and total income generated by each of the Gamma tests.

An increase in certainty-equivalent (utility-adjusted) income of 28.8% is an impressive improvement in retirement income, but how does it relate from a traditional alpha perspective? To determine how much additional annual return, or alpha, is equivalent to the 28.8% Gamma, we conducted an additional analysis. We determined the median income generated for the initial withdrawal rate (4%) and compared it with the median income generated for portfolios with returns that are either higher or lower than the base portfolio by negative 2%, negative 1%, 0% (no change), positive 1%, positive 2%, and positive 3%. We show these results in Exhibit 2. It demonstrates that a 10% increase in median retirement income is equivalent to an extra 1% annualized return (or Gamma-equivalent alpha) in the base portfolio. A 28.8% increase is equivalent to a 1.82% annualized alpha.

Exhibit 3 shows how we attribute this Gamma-equivalent alpha among the five Gamma factors. This is likely to be significantly higher than any type of portfolio alpha that a financial advisor would be able to generate through fund selection or market-timing. Also, while traditional portfolio alpha is a negative-sum game (because everyone cannot, on average, outperform the market), our results show that Gamma is not a zero-sum game and can be achieved by any investor who takes a smarter approach to generating retirement income.

Gamma’s Appeal

In this article, we introduced a new concept called Gamma. We define Gamma as the additional value achieved by an individual investor who makes more-intelligent financial-planning decisions. While Gamma varies for different types of investors, we focus on five types of Gamma relevant to retirees: a total wealth framework to determine the optimal asset allocation, a dynamic withdrawal strategy, the incorporation of guaranteed income products, tax-efficient allocation decisions, and liability-relative portfolio optimization. Among the five types of Gamma tested, the use of a dynamic withdrawal strategy was determined to be the most important, followed by tax-efficient allocation decisions. (Each of these five components is either currently being used or in development to be used in Morningstar Retirement Manager and Ibbotson’s Wealth Forecasting Engine.)

In the aggregate, we estimate a retiree can generate 29% more income on a certainty-equivalent utility-adjusted basis using a Gamma-efficient retirement-income strategy.
when compared with our base scenario of a 4% withdrawal rate and a 20% equity allocation portfolio. The additional income is equivalent to an average annual return increase of 1.82%. This Gamma-equivalent alpha represents a significant improvement in portfolio efficiency for a retiree. The appeal of Gamma is that it is much easier to achieve than standard portfolio alpha. All it takes is using a smarter approach to generating retirement income.

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References