Which Fund Attributes Matter for Goals-Based Investors?

By Sunder R. Ramkumar, CFA®, P. Brett Hammond, PhD, and Clyde Bell

In the world of financial advising, we are seeing a welcome trend toward goals-based investing. This focuses on the goals that investors want to achieve with their savings—such as future retirement security, college tuition, or purchasing a house—and uses these goals to build and monitor financial plans. Goals-based investing may seem like an obvious concept, but it represents a departure from the typical risk-tolerance framework, where common-sense goals play second fiddle to determining whether a client has a conservative, moderate, or aggressive orientation to investment risk.

Goals-based wealth management has the potential to improve client outcomes, but the industry focus thus far has been largely behavioral, emphasizing client engagement and alignment with the advisor. There has been little evolution in portfolio construction. Most financial professionals still use benchmark-driven or style-box approaches that establish expected returns and volatility for various asset classes and then seek an optimal asset allocation that provides a superior risk-adjusted expected return. Financial professionals then select passive and/or active funds that are managed to individual geographic, size, and style benchmarks to express the desired asset allocation and adhere closely to it. In turn, this process is rooted in the widely held belief that investment value is driven primarily or even exclusively by asset allocation rather than fund design and security selection (Nuttall and Nuttall 1998).

Unfortunately, we believe this is a misinterpretation of seminal research on the value of asset allocation (Brinson, Hood et al. 1986; Brinson, Singer et al. 1991), which focused on the variation or volatility of fund returns, not on the level of fund returns, and did not evaluate investor outcomes at all. In fact, subsequent research has shown that about three-quarters of a fund's returns come from its exposure to the overall market. Of the remainder, half is due to asset allocation and the rest can be attributed to active management (Xiong et al. 2010, Assoe et al. 2006).

In this article, we investigate portfolio construction for goals-based investors and seek to identify fund attributes that best align with investors' evolving goals across the life cycle. Although the benchmark-driven approach to portfolio construction can yield important insights, we believe metrics other than standard deviation, expected return, and risk tolerance are needed to adequately model and fulfill investor goals. We consider four goals-related fund attributes—lower risk, higher alpha, lower down-capture, and higher long-horizon return—and simulate portfolio outcomes for investors at different points in the saving cycle. We find that these goals-based attributes meaningfully drive investor outcomes and that the relevance of each attribute depends on the specific investor goal. Higher long-horizon returns are most beneficial for investors with long holding periods who are focused on appreciation; investors looking for prudent growth and sustainable income benefit most from lower down-capture. Interestingly, skillful active management (higher alpha) can improve average wealth and also control downside risk, particularly for investors with longer holding periods. Our research suggests that financial professionals may be able to improve outcomes by evaluating a broader set of fund attributes and by de-emphasizing style-box investing in favor of objective-based mandates that align with investor goals, incorporate more flexibility, and demonstrate the right attributes.

Which Attributes Matter?

To better understand how fund attributes help achieve goals, we consider three investors at different stages of life, as described in table 1.

The Young Worker is 25. He is just starting to save and contributes 10 percent of his $40,000 salary annually toward retirement. He has a long time horizon and seeks capital appreciation over the next 30 years. The Older Worker is 55 and already has saved $500,000. She is conscious of her impending retirement in 10 years and seeks to protect and prudently grow her savings in the years

<table>
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<th>Table 1: Demographic Profiles in Simulation</th>
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<td><strong>Goal</strong></td>
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<td>Goal</td>
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<td>Age</td>
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<td>Initial assets</td>
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<td>Saving (spending)</td>
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leading up to retirement. She, too, contributes 10 percent of her $80,000 salary annually, but this represents a smaller proportion of her investments. Finally, the Retiree is 65 and just beginning retirement. He no longer works or saves but instead seeks to sustain an annual income of $40,000 over the next 20 years from his $1-million accumulated savings. To make the examples realistic, we assume that earnings/desired incomes grow by inflation every year.¹

Next we turn to investment choice. Beginning with the capital asset pricing model (Sharpe 1964), beta and alpha have been used as the primary dimensions to evaluate investment risk and return. Beta represents a fund’s sensitivity to market returns and measures the impact of asset allocation; alpha represents the additional risk-adjusted return and measures the impact of security selection. Subsequent research has identified other factors that may drive investor success. First, investors are averse to large losses and investments often exhibit different behavior in up and down equity markets (see e.g., Pettengill et al. 1995). Therefore, it is important to consider down-capture—or proportion of market declines experienced—to understand results in difficult economic environments.²

Second, investors have different time horizons and so do investment opportunities. This is clear in the bond market (e.g., two-year bonds versus 30-year bonds) and in illiquid investments (e.g., private equity with a 10-year lockup), and this is equally true for companies, where some may pursue longer-term opportunities than others (see e.g., Lettau and Wachter 2007). Therefore, it is important to evaluate the volatility of fund returns (or risk) over different holding periods, not just using monthly data. Accordingly, we consider four investment options, each of which reflects a different attribute relative to the passive market index, and simulate fund-level returns. For each attribute, we select values that correspond to typical behavior observed in the markets. For example, top-quartile active equity funds may reasonably generate 1-percent alpha net of fees, and lower-risk equity funds may have a beta of 0.8. This is summarized in table 2, in the appendix, and in our discussion below.

The base case assumes an investment in a broad, market-cap-weighted, passive equity index that earns a 5-percent annual expected equity risk premium with 15-percent volatility.

- “Lower risk” assumes a more conservative investment approach with 20-percent lower exposure to equities (i.e., 20-percent lower beta) in favor of cash. This results in 20-percent lower volatility but also proportionally lower expected return.
- “Higher alpha” assumes an actively managed approach where portfolio managers selectively overweight and underweight companies relative to the passive index. We assume investment skill leading to 1-percent higher expected return, with similar volatility as the base case.³
- “Lower down-capture” also assumes a conservative investment style. Here portfolio managers selectively emphasize defensive companies with stable earnings and good prospects, but which are expected to be more resilient in periods of economic stress. In particular, we assume that the lower down-capture fund experiences 20-percent lower declines when the market index suffers losses but offers more attractive upside, participating in 85 percent of market gains (i.e., 0.85 up-beta and 0.80 down-beta). This asymmetric market participation results in a right-skewed distribution that has similar expected return as the market but with a lower volatility, similar to the lower risk fund.
- “Higher long-horizon return” assumes a fund where portfolio managers selectively seek to invest in companies that can substantially grow revenues and earnings. Because these companies often reinvest their capital in new opportunities, they are more sensitive to short-term changes in the economic environment—such as funding costs or sentiment—that we assume resolve over longer periods of time. We assume 20-percent greater sensitivity to market moves (i.e., 1.2 beta), resulting in 1-percent higher expected return and 20-percent higher short-term volatility. We also assume 10-percent mean reversion. This implies a greater likelihood that high positive or negative returns subsequently reverse than for the market, and long-term volatility that is only modestly higher.⁴

Armed with investor profiles and fund attributes, we use Monte Carlo simulations to evaluate outcomes. Figure 1 describes tradeoffs facing the Young Worker. The y-axis describes the expected terminal wealth (i.e., at the end of the Young Worker’s 30-year assumed horizon), measured as the median across 50,000 Monte Carlo simulations. Similarly, the x-axis describes the downside terminal wealth, measured as the average of the worst 5 percent of simulated outcomes. This effectively forms a goals-oriented analog of the familiar average return/standard deviation chart where the y-axis represents expected reward and the x-axis represents risk. An investor should seek investments that plot high and to the right, with higher wealth in the average and downside scenarios.

### Table 2: Investment Characteristics in Simulation

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<th>Fund</th>
<th>Investment Characteristics</th>
<th>Measure</th>
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<tr>
<td>Base case: passive</td>
<td>Market exposure</td>
<td>5% expected equity risk premium with 15% volatility</td>
</tr>
<tr>
<td>Lower risk</td>
<td>Lower expected return and lower volatility</td>
<td>20% less beta</td>
</tr>
<tr>
<td>Higher alpha</td>
<td>Higher expected return and similar volatility</td>
<td>1% expected alpha; 4% tracking error</td>
</tr>
<tr>
<td>Lower down-capture</td>
<td>Similar expected return and lower volatility</td>
<td>20% less down-beta; 15% less up-beta</td>
</tr>
<tr>
<td>Higher long-horizon return</td>
<td>Higher expected return and similar long-term risk</td>
<td>20% more beta; 10% mean reversion</td>
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In the base case, the Young Worker ends the 30-year period with an expected wealth of $607,000, but he ends with only $214,000 in the downside scenarios. The impact of fund attributes on expected wealth is intuitive: Attributes associated with higher expected returns—such as higher alpha and higher long-horizon results—translate into equivalently higher expected wealth than the base case. The lower risk fund results in lower expected wealth given its lower expected return, and the lower down-capture fund, which has asymmetric beta, generates about the same expected wealth as the base case. However, the relative magnitude of the improvement from the higher expected-return strategies varies significantly. A 1-percent higher expected alpha or long-horizon return improves expected returns similar to the base case. Similarly, the higher expected alpha strategy improves downside outcomes by 13 percent. Interestingly, the lower down-capture option has the greatest impact on downside outcomes, improving downside wealth by 20 percent. Overall, the latter three strategies dominate both the base case and lower risk options. For a younger worker, the higher expected-return strategies would be the most natural fit, unless the investor is very risk-averse.

Figure 1 lays out similar expected vs. downside wealth tradeoffs for the Older Worker, who has a 10-year time horizon. The base case implies an expected wealth of $1.2 million at the end of this period—an amount that falls to $490,000 in the downside scenario. This highlights the material risk of losses that investors face over shorter time periods. Here, too, higher expected return strategies improve expected wealth, as we saw with the Young Worker. However, the improvement is more modest at 10 percent, given the shorter horizon. Interestingly, and in contrast to the Young Worker, these higher return strategies are not particularly helpful in improving downside wealth.

The Retiree faces the most difficult investment choice and the greatest uncertainty, as figure 3 illustrates. Although the base case implies that his expected wealth will double in 20 years (even after taking $40,000 annual, inflation-adjusted withdrawals), he faces a substantial risk that his income will not be sustainable. In fact, in the downside scenarios, he may find himself out of money in year 18 and need to borrow $116,000 to sustain his income requirements. This wide dispersion of potential outcomes is far greater than that for either of the other two investors who are accumulating assets and is caused by the sequence-of-returns risk. In retirement, investors making regular withdrawals face market risk as well as the risk of experiencing poor returns during early retirement. This pattern of returns causes withdrawals to become an increasingly larger portion of the falling asset balance and depletes savings beyond recovery, even if subsequent returns are high. Figure 3 illustrates a high degree of uncertainty between the expected and downside outcomes and also demonstrates how changing fund attributes can materially alter investor outcomes. For example, a 1-percent greater return in retirement (in either the alpha or long-horizon return...
approaches) improves expected wealth by more than 30 percent. Investors have their greatest wealth invested for the longest period of time at the onset of retirement. Although the Young Worker has a longer time horizon than the Retiree, the Retiree starts with much greater wealth. As a result, fund attributes with higher expected returns generate greater incremental expected wealth for the Retiree than for the other two investor types.

The Retiree has a longer time horizon of 20 years compared to the Older Worker, so high expected-return strategies continue to meaningfully improve downside wealth. Lower risk also enhances downside wealth, but what stands out is the impact of lower down-capture. In contrast to the other strategies, which all run out of money in the downside scenario, the lower down-capture strategy lasts the entire 20 years of retirement and also results in a $120,000 surplus. Overall, the simulations highlight how retirees seeking periodic withdrawals face the greatest risks and should pay the most attention to fund attributes. Retirement can be a long period, and active and long-term return strategies should not be ignored. However, down-capture should be the increasing focus of retirement-portfolio construction.

Table 3 summarizes the relative rankings of how each attribute improves outcomes for each investor type. While the rankings by impact on expected wealth are quite stable, table 3 illustrates an important variation in the impact of attributes on downside wealth. Risk is not the same as volatility, and conventionally safe, low-volatility options actually can result in quite unattractive downside wealth, as in the case of lower risk for the Young Worker. In contrast, while higher expected alpha and higher long-horizon returns usually are considered risky, they can be quite effective downside-protection strategies, particularly for investors with long time horizons.

**Conclusions and Implications for Financial Professionals**

We have considered a very simple thought experiment. As investors increasingly seek...
First, fund attributes really matter and can meaningfully drive investor outcomes. Conventional wisdom may suggest that asset allocation—or the mix of stocks and bonds—explains more than 90 percent of investment outcomes, but our simulations support the research literature that suggests otherwise. Asset allocation is still an important contributor to investor outcomes, but our analysis demonstrates that a modest change in expected alpha, beta, down-capture, or long-horizon risk can have a large impact on investing results, particularly when compounded through typical investor horizons. This is quite starkly represented for investors taking withdrawals (such as our Retiree), but it applies also to investors seeking capital appreciation and prudent growth.

Second, conventional practice has focused on volatility as the key measure of risk, but our simulations demonstrate a more complex relationship between risk and volatility. Goals-based advisors must go beyond simple measures of return and volatility or alpha and beta and instead evaluate real-world characteristics such as holding-period risk and down-capture. Investors with especially long time horizons should consider investments that have correspondingly long investment periods; these investments may have short-term volatility but also higher long-term returns that mean-revert through time. This can result in lower downside risk than a fund with lower short-term volatility and correspondingly lower returns. Similarly, investors in retirement should differentiate between results in normal and stressed markets, and seek assets that offer the potential for lower down-capture to enhance income longevity. These metrics have been confined so far to academic discourse but should start to become more mainstream.

Finally, although the investment industry has moved toward increasingly narrow style-based mandates, goals-based advisors may be better served by objective-based funds. Rather than simply attempting to track a market-cap-weighted benchmark, objective-based funds emphasize broad mandates such as appreciation, income, or preservation that explicitly align with common-sense investor goals. Crucially, because the investment objective is tied to broader life goals, objective-based mandates are inherently broader and more flexible than asset-class/benchmark-driven mandates. For example, an appreciation mandate may invest in equities in general but may emphasize a value approach at a certain point in time or mid-cap stocks at another, depending on which approach offers the most opportunity for attractive returns. Similarly, an income mandate may invest in high-yield bonds but also mature dividend-paying companies that historically have demonstrated greater stability in down equity markets. Future research should seek to identify specific strategies and investment styles that achieve the desired attributes; this is out of the scope of this article. However, the alignment with investor goals and the flexibility to add value likely will be important ingredients for investor success.

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Appendix

We model hypothetical fund log-returns using a modified version of the capital asset pricing model (CAPM). As with CAPM, we specify fund returns based on
The risk-free rate, its systematic exposure to the market (beta), and an uncorrelated residual return (alpha). We make two modifications to CAPM. First, we incorporate conditional beta factors (up-beta and down-beta) that measure the fund's sensitivity to positive and negative excess market returns. This allows us to model fund skew and down-capture. Second, we incorporate an autoregressive process to simulate risk over different holding periods. In practice investments may exhibit complex autoregressive properties, but we use an AR(1) model with monthly serial correlation as the simplest representation of time-varying risk.

Figure A1 lays out key parameters and assumptions for each fund's return distribution, in log-terms. We assume the market risk premium follows a normal distribution with 5-percent mean and 15-percent standard deviation. We also assume a risk-free rate and inflation of 15-percent standard deviation. We also simulate returns assuming 5 percent and simulate returns assuming a risk-free rate and inflation of approximately 10 percent over a 20-year horizon. A 10-percent mean reversion lowers volatility by approximately 10 percent over a 20-year horizon.

The calculations assume investors borrow at the risk-free rate. We focus on the most important investor characteristics (age, time horizon, cash flows) and assume for simplicity that the goals remain constant through the investment period. Other factors (e.g., occupation, labor flexibility) may influence portfolio choice and investors may have more complex, dynamic goals, but these are beyond the scope of our current research.

Endnotes
1. We focus on the most important investor characteristics (age, time horizon, cash flows) and assume for simplicity that the goals remain constant through the investment period. Other factors (e.g., occupation, labor flexibility) may influence portfolio choice and investors may have more complex, dynamic goals, but these are beyond the scope of our current research.
2. Losses may be challenging from an investor behavior perspective and also may result in a permanent ero-

References

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