Characteristics of a Sound Goals-Based Investing Method

By Peter Mladina

We believe goals-based investing is the future of wealth management because it holistically solves the investor's main challenge of optimizing assets to efficiently fund lifetime goals. There are different approaches to goals-based investing. But regardless of the approach, goals-based investing should be built on first principles and foundational research. The purpose of this article is to propose that any sound goals-based asset allocation method should contain the following four characteristics:

1. An anchor to portfolio theory
2. Incorporation of liabilities (goals) and time
3. An intuitive definition of risk preference
4. Integration of recourse decision-making and adaptive trade-offs

Portfolio Theory

A significant body of published academic research is available to guide developers of goals-based methods. Portfolio theory is important to understanding asset allocation methods, underlying assumptions, and key issues. A lack of anchoring to portfolio theory leads to a greater risk of suboptimal outcomes and unforeseen consequences. This is crucial because asset allocation is the primary driver of portfolio return and risk.

The early financial economics literature formed a foundation in our understanding of asset allocation. This literature includes the mean-variance theory of Markowitz (1952) and the capital asset pricing model (CAPM) of Sharpe (1964). But neither of these models incorporates goals and time. A basic goals-based method can be constructed from Markowitz's mean-variance theory or Sharpe's CAPM, but related methods intentionally bring goals and time into the optimal asset allocation solution.

When considering time horizon in asset allocation, one must be aware of the important work of Samuelson (1969). Samuelson disproved time diversification under the assumption of independent asset returns. This means that investors with the same return-to-risk preference will have the same static asset allocation regardless of time horizon. Building on Samuelson's work, Bodie et al. (1992) showed that asset allocation can change through time when labor income (human capital) is taken into account. Just three conditions justify a dynamic asset allocation based on time horizon: changing human capital, mean-reverting risky assets (i.e., returns are not independent), and the changing character of liabilities with time. In contrast, most asset allocation glide paths that support retirement or college savings were not constructed in consideration of these technical issues.

Contemporary intertemporal CAPM theory considers liabilities and time (Waring and Whitney 2009; Cochrane 2014). It provides a solid theoretical foundation for goals-based asset allocation, and it can be adapted to accommodate multiple goals. Another goals-based approach related to Markowitz's mean-variance theory incorporates multiple goals with unique risk preferences, using shortfall probability as the definition of risk (Das et al. 2010).

Goals and Time

An investor's assets should serve a purpose —to fund a lifetime of financial goals. Goals are liabilities on a lifetime balance sheet. At the highest level, goals include consumption and gifts. If assets serve the purpose of funding lifetime goals, then optimal lifetime asset allocation should be goals-based and multi-period. From this perspective, maximizing return per unit of risk is not a goal but a means to achieving a goal.

Not all goals are the same. Behavioral economists have argued that investors view their portfolios to comprise different underlying mental account subportfolios, with each subportfolio having its own purpose (Thaler 1985; Shefrin and Statman 2000). Mental accounts can include goals such as retirement, education, and bequests. Different goals can have different priorities ranging from high-priority and near-term to aspirational and long-term. The risk profile of each subportfolio that funds its respective goal should be risk-aligned. Fortunately, Sharpe et al. (1999) and Das et al. (2010) show that the total portfolio is mean-variance efficient when each mental account subportfolio also resides on the efficient frontier.[1]

Standard mean-variance theory is single-period optimal (typically one year), whereas goals are multi-period and funded over a lifetime. The timing of goals, their magnitude, and risk preferences can all affect asset allocation through time. Optimal lifetime asset allocation requires explicitly incorporating goals and time.

For many investors, a lifetime of annual-consumption needs represents their largest and most important goal. Nontradable assets such as human capital and pensions occur at different times of the lifecycle and

naturally fund part of this consumption. These nontradable assets need to be incorporated into the optimal asset allocation solution.

An Intuitive Definition of Risk Preference

Risk is multi-dimensional. Risk is volatility. It is tail risk. It is the permanent loss of capital. Risk is a failure to meet financial goals. In reality, these definitions are all closely related. Although standard deviation and conditional value-at-risk (CVaR) are excellent measures of risk for the statistically informed, they are not intuitive for most private investors. This opens the door for misalignment between portfolio selection and the investor's true risk aversion. There are more-intuitive ways to express risk preference that can be translated into the language of portfolio theory.

Loss aversion is the behavioral tendency to prefer avoiding losses over acquiring gains. This behavior probably is related to the marginal utility of wealth. A diversified multi-asset-class portfolio should offer an approximately symmetrical return distribution. Under this condition, a rational investor would consider risk to be the variance around the expected mean return. However, loss aversion suggests the investor weighs the negative returns more heavily than what is implied by the variance around the expected mean return.

Loss aversion has been incorporated in goals-based investing to provide a more intuitive definition of risk preference for portfolio selection. For example, high-priority goals can be aligned with the intertemporal risk-free asset (or a close proxy) to guarantee funding of those goals when they arrive in time. In another goals-based approach, portfolios that fund discrete goals can be selected using shortfall probability as the definition of risk. Shortfall probability is the probability that a portfolio will not achieve the required return to meet a goal threshold. Historical stress tests (and subsequent recovery) and simulation can help capture and communicate risk in relation to goals in tangible ways, so that private investors can more precisely select portfolios that are aligned with their goals and risk preferences.

We note there are issues to using shortfall probability as the definition of risk for portfolio selection in a multi-period framework. The main criticism relates to the arguments of Samuelson (1963, 1969) on the law of large numbers and time diversification when returns are independent, where a high average return can contribute to a lower perceived risk to goal funding (i.e., a lower probability of shortfall).

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Recourse Decision-Making and Adaptive Trade-Offs

The future always will be uncertain. With the progression of time, the expected outcome is overruled by the realized outcome. Goals evolve. Longevity expectations change. Returns are realized—above or below prior expectations. In reality, we must adapt to new information. Recourse decisions are made in the future based on information that becomes available only in the future.

Goals-based methods should intentionally incorporate recourse decision-making and adaptive trade-offs into the asset allocation process. New information affects both the inputs to the asset allocation process and adaptive trade-offs that are often necessary to achieve goals efficiently. Adaptive trade-offs can include goal reprioritization and modifications to goal thresholds, risk preference, time horizons, and expected returns.

The method should adapt to evolving conditions, empowering investors to make informed economic and personal trade-offs with fresh and relevant information.

Optimal lifetime asset allocation is optimal today and in the future, based on information available today. But the optimal lifetime solution should quickly adapt to new information by systematically incorporating it to produce a revised optimal lifetime asset allocation.

We believe goals-based investing is the future of wealth management because it holistically solves the investor's main challenge of optimizing assets to efficiently fund lifetime consumption and gifts. There is more than one way to structure a goals-based investing program. But all approaches should be anchored to portfolio theory, incorporate goals and time, offer an intuitive definition of risk preference, and provide for recourse decisions and adaptive trade-offs.

These features provide a framework for more-informed decision-making, which leads to more-rational investing. This in turn should lead to better outcomes. Such a framework helps mitigate documented behavioral biases that can result in suboptimal strategies and outcomes. In addition to loss aversion and mental accounting, other behavioral biases that affect asset allocation include recency bias (overweighing the importance of recent observations) and the illusion of control (overestimating one's ability to control events). These behavioral biases are mitigated by changing the investor's focus from short-term return and volatility (which the investor cannot control) to a decision-making framework based on lifetime goals, funding status of the goals, and adaptive trade-offs (which investors can control).

In terms of practical implementation, all goals-based methods begin by inventorying lifetime goals and total assets. At the highest level, goals can be categorized into either consumption or gifts. But more-granular categorization is certainly possible, all the way down to the level of line-item goals. A basic goals-based method can be constructed from Markowitz's

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mean-variance theory, where an investor specifies some shade of conservative-to-aggressive per goal or goal category along a mean-variance efficient frontier. But more-advanced methods explicitly incorporate time, an intuitive definition of risk preference, and adaptive trade-offs in the goals-based implementation, all the while remaining anchored to contemporary portfolio theory (Mladina 2016).

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Endnote

1. This condition holds when short selling is permitted. With a long-only constraint, the loss of efficiency is only a few basis points.

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