Revisiting the Asset Allocation Challenge Through a Behavioral Finance Lens

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The importance of strategic asset allocation is by now very well accepted. That it should cover all the multiple locations[1]—or structures—through which a wealthy family holds their assets and be formulated through a multi-period process driven by after-tax results[2] are also becoming the goal toward which many strive. Yet, many investors observe that they still find the process very hard to understand, as one element that has been lagging is the strategic asset allocation interaction between advisers and investors and how it is managed.

Behavioral finance teaches us that individuals must deal with numerous biases and prejudices, which led Brunel [2002] to suggest that investors ought "to travel on the road to optimality."[3] We also know that investors must refrain from being prescriptive, and rather focus on describing their individual needs, goals, aspirations, fears, constraints, and preferences.[4] Yet, the standard interactions between advisers and investors during the strategic asset allocation process remain often driven by the output from a number of models, replete with tables and graphs: the modeling becomes an end in itself, rather than the means to an end. Thus, the process fails because it forces the investor into a framework, rather than help him or her through a tailored approach designed to deal with individual circumstances, including both needs and levels of understanding of capital market and related realities.

In this article, we introduce a simple framework, which though replicable across a number of different individual circumstances, would allow each investor to feel that relevant insights have been brought to bear on the strategic asset allocation process. In fact, we "field tested" with a few families, with exciting results. We start with a brief discussion of critical behavioral finance findings and then turn to review of the four fundamental investment goals that an investor might consider. We then move onto a description of the possible features of five sub-portfolios, each designed to meet a specific investment goal.[5] Having then briefly discussed the process by which these sub-portfolios are combined in a single strategic asset allocation, we discuss two important, but unintended peripheral benefits and conclude with an admonition to advisers to recognize that the behavioral finance grounding of the approach should neither preclude the use of sophisticated investment tools to verify the optimality and suitability of the resulting portfolio, nor the commonsense steps normally built into a sensible strategic asset allocation process.

BEHAVIORAL FINANCE FINDINGS

Meir Statman says, "Traditional finance assumes that we are rational, while behavioral finance simply assumes we are normal."[6] Therein lies the fundamental difference between the two branches of finance, and the reason why it is so important for advisers

working with individuals to make sure their approach recognizes the need to deal with individual idiosyncrasies. Individuals indeed suffer from a number of cognitive biases which make them singularly unsuited to deal with processes often directly transplanted from the world of tax-exempt institutions. The latter view their strategic asset allocation effort in an asset/liability-matching mode, as discussed in Brunel [2002]. The rigor associated with that exercise imparts a discipline and lasting impact on their strategic asset mix. Individuals have no such requirement, and are thus easy prey for biases and prejudices that behavioral finance tells us they inject into the process.

For a strategic asset allocation to be useful, it must be such that individuals will stick with it through thick and thin, recognizing, as proposed by Kahneman and Tversky [1979], that losses of a given magnitude produce a pain more acute than the satisfaction produced by gains of a similar magnitude (the disutility of losses is much greater than utility of gains).[7] Yet, strategic staying power is very difficult to achieve with a limited framing and hindsight biases, which leads investors to overconfidence and thus often exposes them to feeling favorably disposed toward the recently best performing strategy, and leery of the recently worst performing asset class. Regrets may also lead them to want to change an otherwise excellent strategic mix, at a time when it has not met their expectations (and yet may be about to, if—and when—mean reversion does occur). Finally, prejudice may lead them to view certain assets or strategies in one light, and miss the fact that other parts of their strategy fulfill the same purpose.

A recent example illustrates this. A family had decided to allocate 20% of their assets to investment grade bonds, to provide them with "pillow money," a concept which represented for that family the assurance that their wealth would never fall below a certain level. Simultaneously, they allocated 20% of their wealth to income-producing real estate, reflecting the history of the family and its long-term values. Little did they realize that their practice of only infrequently revaluing their real estate (and their comfort with that valuation process), which was really only meant to provide regular income, would make that part of their assets as stable in value as any bond portfolio. They and their adviser were simply double counting, blocking 40% of their assets for "pillow money" and thus limiting their choices, and opportunities, for the balance of their wealth.[8]

Statman [1999][9] proposes a solution to this conundrum, describing and specifying a behavioral portfolio, which is in fact the progenitor of the approach we discuss here. He postulates that one can view a portfolio as a pyramid comprised of several layers, each of which is meant to fulfill a distinct investment goal. These distinct goals include downside protection at the very base of the pyramid, all the way up to the small upside potential layer at its top. His construct associates each layer of the pyramid with broad categories of investments, such as money market investments as downside protection vehicles, and "stocks, aggressive growth funds, IPO's and lottery tickets" at the tools through which to gain upside potential.

In this article, we apply this generic concept to a more detailed strategic asset allocation process, seeking to use it to define the asset- or strategy-mix most likely to help the investor achieve his or her investment goals. Yet, rather than focusing on the suitability of each investment or strategy to a specific pyramidal layer, we implicitly invite the investor to quantify the relative importance of four distinct investment goals (liquidity, income, capital preservation, and growth) in his or her circumstances. Having prioritized these goals and quantified their relative importance, one can then simply combine, into one whole, various sub-portfolios designed to meet each of these individual goals, in the appropriate proportions.[10]

Calling as it does upon basic concepts and basic instincts, the approach does not feel as foreign or overwhelming to the individual investor as the alternative that often involves cold and seemingly abstract conversations about amorphous return expectations and risk tolerance, together with a review of a large number of charts and graphs illustrating how several potential portfolios might do over 10, 20, or even 50 "theoretical years."[11] Similarly, as individuals go through the asset allocation process looking at the same "buckets" through which they do look at their wealth in their everyday circumstances, the allocations they eventually choose will feel both more comfortable and more reasonable, and thus should be more easily sustainable over time. They will not feel that they are "boxed into" a fixed long-term allocation with which they find it difficult to associate. Finally, as the approach still relies on sophisticated analytical tools, at least "below the surface," it can be used by and with investors with higher levels of investment sophistication and inclinations toward investment detail.

FOUR FUNDAMENTAL GOALS

The individual needs of a vast majority of all investors can be simply depicted as some form of combination of four fundamental goals: liquidity, income, capital preservation,

and growth. Importantly, these "component goals," as one might call them, are sufficiently simple for any investor to be able to relate to them. Let us first define them.

Liquidity is defined to cover the funds that the investor will need over some relatively short period of time, measured in months and not in years. The critical investment features of this goal are, first, that the investor cannot take the risk of any downward volatility in the price of any holding falling into that category and, second, that all investments must be readily marketable at a price that can be reasonably predetermined. Such liquidity needs include funds required to cover expenses or regular outgoings, committed but as of yet not called capital and contingencies.

Income reflects the cash flow needs anticipated by the investor to maintain his or her lifestyle. Depending upon individual circumstances, these needs may alternatively seem very modest or very large relative to the investor's asset pool. In instances where those needs are very modest, it can be argued that the generation of income may well not be an important consideration. Yet, experience does suggest that individuals who made their wealth and "matured" away from the financial markets may at times still need to be able to see some portion of their portfolio dedicated to meeting these income needs. In instances where those needs are very large relative to the investor's asset pool, income needs may well not only drive the whole allocation process, but also force the investor down a road involving significant financial—i.e., cash flow—planning activities.

Capital preservation relates to the need for an investor to avoid experiencing significant declines in the value of his or her capital. It is usually intellectually clear to any investor that the prospects of growing the value of a portfolio are somehow related to a risk of a fall in that market value. Thus, whether expressed in terms of "pillow money," "nest egg," or otherwise, the need for capital preservation can simply be defined to reflect an investor's aversion to losses. These losses can reasonably be expressed in either nominal or real terms, and it would therefore be important, later in the process, to ascertain how each investor defines such a "loss."

Growth reflects the need to see the capital appreciate. This can arise out of a number of different considerations. The simplest relates to the fact that families tend to have rising number of descendants over time, and capital growth is the only manner in which future generations can have access to the same amount of purchasing power as their ancestors. For other families, it can represent an echo of an entrepreneur's past, during which he or she experienced significant wealth creation. In those circumstances, it is important to keep a balance between understanding the need for some (significant?) real rate of return and appreciating the truism according to which financial markets are not a place where wealth is created, but one where wealth is preserved. Finally, it can be seen as "an insurance against changing circumstances ahead."

Having defined each of these "component goals," the adviser must then invite the investor to allocate his or her assets among them. In that process, the specificity of the investor's own definition of these objectives can be discussed (distinguishing, for instance, between nominal and real capital preservation, or core growth versus aggressive growth), together with any individual goal or constraints not hitherto covered. Note, however, that one is still focusing on choosing a meal from a menu of prepared dishes rather than from a shopping list of ingredients![12] The focus thus remains on goals, as an investor might express them, and not a strategic asset allocation benchmark as an adviser might normally see it. One can also at that point evaluate whether certain goals may be overlapping, or whether certain constraints are binding or non-binding. For instance, an individual who looks for a significant exposure to an income-producing strategy is likely simultaneously to meet nominal capital preservation goals, while the reciprocal is not necessarily true. Finally, one can also discuss and evaluate the internal consistency between an investor's overall growth goals and income needs.

A fifth goal is sometimes useful to help investors deal with a frequent dislike for the apparent static nature of the allocation of their wealth across the four generic goals: *opportunistic investments*. Considering that some of their wealth should be invested in an opportunistic manner resonates particularly strongly for investors who have a history of having created some or all of their wealth through "trading" activities. Differentiating between "growth" and opportunistic investments can simply be made by noting that the latter must represent a portion of the investor's wealth that he or she is willing to lose, while growth, though risky, would involve more conservative and diversified strategies, and thus should be viewed as exposed to downside risk, but rarely to the risk of total loss of principal. In this analysis, we will not incorporate opportunistic investments, as they would normally be modeled as comprising the same assets or strategies as those making up the balance of the portfolio (i.e., if the balance of the portfolio, for instance, is invested 25% in fixed income, 25% in absolute return strategies, and 50%

in equities, the opportunistic bucket will have the same policy allocation, recognizing however that tactical moves made by the investor from time to time to reflect unusual insights will move that bucket's allocation significantly away from that policy allocation). Thus, the concern that one would have with respect to that opportunistic bucket would be limited to setting out the appropriate decision rules and diversification constraints, if any, that would govern the activity in that portion of the investor's wealth.

INTERACTIONS BETWEEN INCOME AND CAPITAL PRESERVATION

As briefly previewed in the foregoing section, there can be some measure of overlap among two or several of these four goals. Yet, it is crucial to note that such overlap relates to the way in which each goal is achieved, not in the way each investor conceives of them. Thus, though there might be some overlap as to the investment means to achieve income or capital preservation goals, for instance, we must fully recognize that these goals are fundamentally different when viewed from the point of view of the investor. This is a critical insight, as different assets or structures can, eventually, be used to satisfy different goals, but the adviser must proceed to that point keeping the goals separate to ensure that he or she will be keeping the client "on track." For instance, an investor who is very comfortable with real estate may view it as a capital preservation asset, irrespective of whether real estate prices do or do not fluctuate in the short term: implicitly, the investor will have married his or her comfort with an asset class or strategy—with its specific liquidity constraints—with a capital preservation, or "pillow money," goal that might have otherwise be met through the use of U.S. Treasury securities.

At the simplest extreme, it is clear that there is an almost total overlap between liquidity, on the one hand, and income and capital preservation, on the other. Indeed, any strategy that one might choose to deliver on a liquidity goal will also deliver on income and capital preservation goals, the latter in nominal terms at least, though the reciprocal does not hold!

More interesting, though, is the interaction between income and capital preservation goals. Indeed, nominal capital preservation is likely to be achieved in an environment where the main part of total expected return is in the form of a fixed income stream, i.e., a bond,[13] assumed to be sufficient to absorb most short-term capital depreciation risks. Thus, for instance, a five-year duration bond portfolio, yielding 5% should post non-negative returns in any period during which the level of interest rates is not expected to move up by more than one percentage point.[14] In fact, most forecasts of the long-term outlook for a well-diversified investment grade bond portfolio with an average maturity of around seven years provides for return and risk values that are very close to each other (for instance 6% return with a 6% risk). This puts at approximately 16% the odds of a negative yearly return, and at 4% the odds of a negative rolling three-year return for such a portfolio.[15] Additional portfolio construction and diversification work can help reduce these already low probabilities, by raising expected returns and lowering anticipated risk.[16] Yet, note that a similar investment, i.e., investment-grade bonds, could well be selected to meet income goals, though the fact that the coupon will be used to meet these income needs means that the value of the investment may seem to have fallen (and thus capital not to have been preserved) as the coupon is paid out.

Real, i.e., inflation-adjusted, capital preservation may require a different approach. Jones and Wilson [1998] suggest that the interplay of inflation and bond yields is such that bonds do not typically provide a solid hedge against inflation (although others do not necessarily agree with them). Thus, a portfolio required to provide real capital preservation, i.e., purchasing power preservation, may well therefore need exposure to riskier asset classes or strategies, which would typically be viewed as part and parcel of a "growth portfolio." Note, however, that such a portfolio would still provide a significant level of income!

This analysis suggests that it may be possible to view capital preservation goals as being satisfied through some combination of income and growth strategies, with the tilt toward growth increasing as the need for capital preservation shifts from a nominal to a real measurement.

CREATING THE BUILDING BLOCKS

Let's start by restating our fundamental insight: our goal is to create an optimal asset allocation through a holistic view of the investor's broad goals. Thus, we will derive the overall strategic allocation for each investor by combining individual sub-portfolios, each of which is dedicated to meeting a specific discrete investment objective, into a whole. In short, the investor provides us with a reasonable estimate of the makeup of his or her goals, as distributed among four component goals, and the adviser then matches each of these "goal buckets" with a "component goal sub-portfolio," and the overall asset allo-

cation will simply be the aggregate of these goal sub-portfolios. Thus, the overall asset mix is still the final output of the exercise, but the whole process is designed away from that goal from the point of view of the investor. One might think of that in a language analogy: the adviser eventually wants to be able to have an actionable plan, i.e., a plan expressed in his or her own language, but he or she must conduct the bulk of the process speaking the investor's language.[17]

Interestingly, prejudices can still creep in, and must therefore be provided for. In particular, the way in which the investor and his or her adviser view alternative assets has an important bearing on the sub-portfolios that are constructed, and designed to meet two of these three main component goals (recall that we have indeed agreed to limit ourselves to liquidity, income, and growth, effectively arguing that capital preservation—nominal or real—can be met through some combination of income and growth). Indeed, both income and growth portfolios can indeed be viewed in "traditional" or "enhanced" modes.

- In a traditional mode, advisers and investors agree to place severe constraints on the acceptable exposure to non-traditional investments, such as "hedge funds" or "private equities."
- In an enhanced mode, advisers and investors agree to invest to view non-traditional assets through different lenses.
    - For instance, they do not consider "hedge funds" as a separate asset class. Rather, they view these strategies as variants along a "manager activity spectrum," which would be defined by pure index replication at one end and concentrated, leveraged, or hedged (i.e., long/short) strategies at the other end. Thus, they would look at the whole of the given sub-portfolio—income or growth focused—and allocate a certain "manager risk budget" across the full spectrum of manager activity spectrum. This would probably lead them to focus more sharply on strategies that minimize manager risk (often in exchange for some enhanced tax efficiency) and on those that maximize the odds of capturing manager alpha, thus eschewing so-called "core strategies," which are often less efficient in both tax and return per unit of risk terms.
    - Similarly, they would view most non-traditional strategies as somewhat less liquid than their traditional counterparts and would thus allocate their sub-portfolios across the full liquidity spectrum to ensure that it fits their liquidity needs. In that context, they are effectively trading reduced liquidity in exchange for higher expected returns.

FIVE COMPONENT SUB-PORTFOLIOS

Let us now turn to the creation of five component sub-portfolios. Note that the comments proposed below are meant to be illustrative of a process rather than prescriptive of a given solution, which would implicitly be viewed as unique and therefore not open to any challenge. We are rather in fact convinced that individual advisers will reasonably disagree on the optimal composition of each "component goal sub-portfolio," in terms of individual allocations or even of the suitability of certain strategies. These disagreements will reflect their views of certain investment trade-offs as well as the sophistication of their respective clienteles. This is what makes a market!

Liquidity. Unless the definition of liquidity is expanded to cover the need to meet all committed but as of yet uncalled investments (as would be the case in private equities, or with respect to the operating expenses budgeted to enhance a real estate asset over time, for instance), the liquidity sub-portfolio would only likely include cash and near cash investments, such as Treasury bills, certificate of deposits, and other money market instruments.

Traditional income. Fixed income assets would dominate the income sub-portfolio, as they provide income flows that are both predictable and relatively certain. Within these, investment-grade bonds would likely outweigh any commitment to extended fixed income markets, such as mortgages, private placements, mezzanine finance, corporate or municipal high yield bonds, hedged developed international bonds, or emerging market debt instruments. A small part of the portfolio might, or might not (depending upon the exposure limit set for non-traditional strategies), be allocated to high returning (and yielding as these strategies are often tax-inefficient in that all return is in the form of income or realized capital gains) and highly diversifying investments such as arbitrage, selected market neutral or event-driven strategies.

Note that some might argue that such a portfolio should also provide for some growth in the value of the assets to handle the likely need for some growth in income over time. Though this would certainly be a sensible assumption, we prefer to deal with current income needs

separately and argue that any investor, however conservative or risk-averse, should allocate some portion, however modest, of his or her wealth to growth, precisely because that would allow for increases in future income levels.

Enhanced income. The only significant difference between the traditional and enhanced approaches involves a greater commitment to non-traditional and extended market strategies. These, which typically would come at the expense of greater manager and liquidity risks, should indeed provide some excess return premium that could be used either to satisfy higher income needs or to provide for some measure of inflation protection.

Traditional growth. As one moves up the expected return scale, one must now be willing to consider exposure to what one might generally characterize as equity or equity-like risk, with the corresponding assumption that income will be retained within the portfolio. In the core growth portfolio, one would probably focus principally on strategies that provide a solid, but conservative balance between market and manager risk. As individual investors are typically concerned with taxes, the portfolio would probably thus show some "barbell" like exposure[18] to tax-efficient strategies that aim to produce index-like returns with significant tax-management alpha at one end of the spectrum and strategies involving significant manager risk and tax inefficiency, but considerably higher after-alpha potential. Again, depending upon the willingness of the investor to accept exposure to non-traditional strategies, some highly diversifying and modest exposure to arbitrage, market neutral, event driven, or managed future strategies, such a portfolio would probably incorporate some form of long/short or concentrated portfolio exposure in modest quantities. Finally, the portfolio would also probably incorporate some investment real estate subset, where the focus would be more on capital growth than income.

Enhanced growth. This last sub-portfolio is likely to represent only a fraction of many investors' assets, yet it would fulfill the role assigned to the higher risk category in Statman's behavioral portfolio pyramid. Thus, though sharing many common features with the core growth portfolio, it would likely require accepting some exposure to more esoteric markets (for instance emerging market equities), greater manager risk (a higher reliance on long/short or concentrated portfolio strategies), and even some illiquidity (private equities or venture capital).

The distinction between each of these five sub-portfolios would likely be "codified" by each manager in terms of some long-term absolute return goals, probably linked to inflation. One might for instance postulate that income portfolios should generate returns after income distributions approximating inflation, potentially plus some small premium, while growth portfolios would probably be targeted to produce total returns ranging from 3% to 7% above inflation.

THE OVERALL ASSET ALLOCATION

Creating the overall strategic allocation then simply requires allocating the appropriate percentage of each investor's assets to each of the sub-portfolios, and combining each of the resulting asset or strategy allocations along the traditional asset or strategy lines to visualize a usual strategic asset allocation outcome.

Clearly, that stage may require significant fine-tuning, as it is likely that the investor may not feel comfortable either with selected strategies or even with the overall makeup of the portfolio. Yet, even then, it would be considerably easier for the adviser to have a meaningful and useful conversation if he or she takes the investor through the changes that would be needed in the investor's own investment goals for the resulting portfolio to conform to his or her preconceived notion of how the portfolio should look like. This would be an excellent opportunity for focused and highly relevant education, which would determine how the resulting model ought to be changed to provide both comfort and reasonable chances of success to the investor. Indeed, reflecting the need to allow each investor to "travel on the road to optimality,"[19] the adviser should certainly not force an investor to accept an uncomfortable portfolio, yet should firmly help him or her understand the trade-off and sketch out a road map for gaining the necessary confidence ultimately to move toward that target portfolio.

AN ILLUSTRATION

Imagine an investor whose investment goals requires him 1) to keep about 5% of his total wealth highly liquid, 2) to have an after-tax yield of approximately 2% of his assets to meet income requirements, 3) to want to allocate at least 60% of his assets to strategies that should produce real capital preservation over time (defined year as a zero probability of returns below inflation over rolling five-year periods, assuming a normal distribution of returns) and 4) to be ready to invest the balance seeking capital growth. How would we approach the asset allocation (carried out here in a single "location" for the sake

of simplicity, and structured in a tax-efficient manner to reflect the taxable status of the investor)?

Our first step is to allocate the assets across the four component goals, ensuring that we minimize any possible overlap.

1. The *liquidity* component will represent 5% of the investor's assets, and is expected to yield about 2%, pretax equivalent, on a normalized basis.[20]
2. We next turn to the *income* needs of the investor, evaluating the extent to which they may be binding. The focus is thus first placed on the likely composition of the portfolio designed to meet the real capital preservation needs of this investor, which we assume would yield about 3%. This reflects the assumption that the portfolio would be split 75/25 between income and growth characteristics, with the income portion of the portfolio yielding about 3.5% after taxes and the growth portion yielding about 1.6% (see below for an explanation of these assumptions).
3. Thus, the *income* constraints imposed by the investor are non-binding, and no specific allocation is needed to an income portfolio.
4. We would next allocate 60% of the assets to the real *capital preservation* portfolio, which leaves 35% of the assets allocated to *growth*.

We assume that the investor has not requested that any strict limitation be placed on non-traditional assets and thus will construct three component portfolios, with the income and growth versions comprising a significant exposure to alternative assets.[21]

1. The *liquidity* portfolio is allocated 100% to tax-exempt cash and money market instruments, with an average maturity of one year or less.
2. The *income* portfolio would be allocated as follows:
   a. 25% to absolute return strategies expected to produce a pretax return about 10% (8% income yield) with a standard deviation of 3%.
   b. 50% to actively managed tax-exempt investment grade bonds, expected to return about 5.5%, on a pretax equivalent basis, with a standard deviation of 7.5%.
   c. 25% to actively managed extended fixed income market investments, expected to return about 7%, with a standard deviation of 9%.

   The income portfolio would thus be expected to return 4.5% after tax, with a 4.4% standard deviation of returns, based on our current long-term, "equilibrium" capital market assumptions. We would expect the readily available yield on this portfolio to be 3.5%, although it could in fact be higher, if the investor elected to take the returns generated by the absolute return strategies.
3. The *growth* portfolio would be allocated as follows:
   a. 10% to absolute return strategies expected to provide a pretax return about 10% (8% income yield) with a standard deviation of 3%.
   b. 31% to a tax-managed portfolio of U.S. equities, designed to replicate the Russell 3000 Index, and thus expected to return 7% after taxes, with an after-tax volatility of 16%.
   c. 13% to a tax-efficient actively managed international equity portfolio, expected to return 7.5% after-taxes, with an after-tax volatility of 16% as well.
   d. 6% to an actively managed portfolio of emerging market equities, expected to return 9.5% after-taxes, with an after-tax volatility of 16.5%.
   e. 10% to a diversified portfolio of private equities and venture capital, expected to return 11% after-taxes, with an after-tax volatility of 20%.
   f. 10% to passively managed real estate, modeled here as real estate investment trusts, expected to return 6.8% after-taxes, with an after-tax volatility of 6%.
   g. 20% to a portfolio of diversified semi-directional, i.e., long/short strategies, applied to global equity markets, and expected to generate 10% after-tax returns, with an after-tax volatility of 6.5%.

   The growth portfolio would thus be expected to return 8.9% after tax, with a 10.2% standard deviation of returns, based on our current long-term, "equilibrium" capital market assumptions (See endnote 21). We would expect the readily available yield on this portfolio to be 1.6%, although it could in fact be higher, if the investor elected to take the returns generated by the absolute return and long/short strategies, by redeeming the "income portion" of that return every year.
4. Note that a *capital preservation* portfolio allocated 75% to the income sub-portfolio and 25% to the growth sub-portfolio would have an expected after-tax return of 5.5%, with an after-tax volatility of 4.4% and thus a 0.1% probability of negative returns

EXHIBIT 1
Overall Portfolio Allocation

	Income	Growth	Liquidity	Total
Tax-Exempt U.S. Dollar Cash			5.0%	5.0%
Tax-Exempt U.S. Bonds - Active	22.5%			22.5%
Tax-Exempt U.S. Bonds - High Yield	5.6%			5.6%
Taxable Multi-Strategy Bonds - Active	5.6%			5.6%
U.S. Large Cap Equity - Passive		12.5%		12.5%
U.S. Small Cap Equity - Passive		3.0%		3.0%
Diversified non-U.S. - Active		6.5%		6.5%
Emerging Market Equity - Active		3.0%		3.0%
Private Equity & Venture Capital		5.0%		5.0%
Non-Directional Multi-Strategy	11.3%	5.0%		16.3%
Semi-Directional Multi-Strategy		10.0%		10.0%
Real Estate (U.S.) - Passive		5.0%		5.0%
Total	45.0%	50.0%	5.0%	100.0%

EXHIBIT 2
Overall Portfolio Characteristics

	Income	Growth	Liquidity	Capital Preser-vation	Total
Expected Portfolio After-Tax Compound Return	4.50%	8.21%	2.28%	5.49%	6.34%
Expected Portfolio After-Tax Arithmetic Return	4.58%	8.93%	2.30%	5.64%	6.60%
Expected Portfolio After-Tax Yield	3.50%	1.60%	2.28%	3.03%	2.49%
Expected Portfolio Risk (After-Tax)	3.67%	9.96%	2.31%	4.66%	6.11%
Return per Unit of Risk (After-Tax)	1.23	0.82	0.98	1.18	1.04
Sharpe Ratio (Pretax)	0.63	0.60	-0.45	0.71	0.67
Probability of Negative Rolling 12 Mos	7.12%	18.89%	16.25%	9.26%	13.01%
Probability of Negative Rolling 60 Mos	0.05%	2.43%	1.39%	0.15%	0.59%

over any rolling 60-month period, thus as close as possible to our design objectives.

Combining these portfolios to satisfy the needs of our investor, he would therefore allocate:

1. 5% of his assets to the liquidity portfolio;
2. 45% of his assets to the income portfolio (i.e., 75% of 60%);
3. And the remaining 50% of his assets to the growth portfolio.

Our investor's overall asset allocation would thus look as shown in Exhibit 1, while the characteristics of both individual sub-portfolios and the overall portfolio are found in Exhibit 2. Note that the after-tax yield on the portfolio is estimated to be 2.5%, thus well above the original target of 2%, which, as we had originally concluded, is therefore non-binding.

UNINTENDED IMPLEMENTATION BENEFITS

In spite of the greater initial complexity associated with the need to maintain these "component goal portfolios" (which might be viewed as analogs to the "life cycle funds" one often sees in the defined contribution pension business), the construct imposes a discipline on managers who need to understand fully the impact of any tactical portfolio rebalancing on the investment objective dynamics.

For instance, confronted with the investment need to create a significant portfolio exposure to high-yield corporate bonds (which seemed particularly attractive at the time), an investor might be forced to consider how to fund that exposure. Though the initial impulse would likely be to sell investment-grade bonds, it would quickly become apparent that such an approach would not necessarily be reasonable. Indeed, though the main argument for buying these lower-quality bonds would be that the spread between their yields and those of investment-grade bonds was unusually wide, it would become clear that

the risk that would be incurred in the portfolio dedicated to generate income or capital preservation would be unacceptably high. In fact, an analysis of that very risk would lead the investor to conclude that an important component of that risk was of an equity nature, as it would relate to determining whether the economic outlook would be conducive to rising corporate cash flows, which would reduce the expected default rates and thus promote tighter spreads. Thus, some of the commitment would likely notionally be "located" in the income portfolio, as a part of the extended fixed income market allocation, while the balance would similarly be notionally attributed to (and thus funded by) the equity exposure and thus located in the growth portfolio. A similar thought process could be envisioned in the case one decided to invest in non-U.S. bonds, un-hedged. There, indeed, the main risk being of a currency nature would be assessed to be more equity- than bond-like and the position would thus be notionally viewed as a part of the growth portfolio.

Another important benefit is that this approach is also particularly well suited to circumstances where a family needs to create family partnerships, for reasons of economies of scale or to provide access to the same investment opportunities to family members or investment structures that are not large enough to meet stated minimum investments or diversification targets. Rather than structuring these family partnerships strictly along asset class axes (which usually arise because investment advisers keep trying to get their clients to speak their language rather than learning the languages of their clients), these can just as effectively be structured along investment goals, to create a better fit between each investor's strategic asset allocation and his or her ongoing portfolio. This makes it considerably easier for each member of the family to understand his or her portfolio, hypothetically here comprised solely of money market instruments and goal-based family partnerships, as that portfolio composition mirrors the way in which they expressed their investment needs and goals!

CONCLUSION

The approach that we describe here can reasonably characterized as influenced more by behavioral finance than pure investment theory. In fact, as noted earlier, an investment purist would be right noting that the process might be sub-optimal (it does not explicitly account for the diversification benefits associated with the less than perfect correlation between the liquidity, income, and growth sub-portfolios. Yet, as observed when dealing with issues such as the use of downside protection strategies,[22] or dollar-cost averaging funding approaches, traditional finance concepts may fail individual investors, as they do not take an important individual risk into consideration. Indeed, Brunel [1998, 2002] argue that individuals are exposed to decision risk, which is defined as the risk of changing strategy at the worst possible time, or the point of maximum pain. Therefore, approaches that are geared toward reducing that risk, be they focused on strategic asset allocation or tactical portfolio rebalancing, seem better suited than admittedly theoretically purer alternatives, which experience often shows are inappropriate in the context of individuals. Intellectual honesty would certainly compel the adviser to check the overall quantitative optimality of the resulting portfolio, together with the reasonableness of the simulated likely distribution of final wealth and periodic shortfalls.

Yet, it is important to note that the simplicity of the process should not be assumed to have invalidated all forms of sophistication. Thus, while the "didactic" approach taken with an individual client suggests that the adviser should focus on "telling the time rather than explaining how to make a watch," it is no less important for the adviser to ensure that the resulting overall asset allocation is totally sensible, in terms of its internal consistency, of its tax efficiency, and of its suitability given the client's estate and financial planning circumstances. In certain cases, in fact, the initial "component goal bucket" approach would only serve as a general guide, as asset location considerations might require a considerably more detailed focus, and may thus dictate an overall portfolio structure that may be at variance with the initially suggested allocation. Yet, even in these instances, it is probably true that the overall expected return goals, risk tolerances, and portfolio constraints derived through the first phase of the process would serve as considerably better and more reasonable estimates of the client's real needs than alternatives that would have been derived through the traditional process based on questionnaires, optimizations, and simulations.

Note common sense still prevails. In particular, the process remains iterative. Indeed, the idea that individual investors travel on the road to optimality is still crucial. Thus, it is highly likely that change will occur over time that will lead an individual to want to change his or her strategic asset allocation. In fact, that change is one of the key reasons why individuals should consider incorporating a growth exposure in their portfolio, even though

they may have sufficient assets otherwise to cover all the needs they currently contemplate (in which case, the disutility of losses might lead them to invest all their assets in the least risky feasible strategy—i.e., one that is sufficient to cover current needs). Some growth is indeed needed to allow for change. That change can affect philanthropic goals, a generation's view of dynastic goals, spending patterns, the way in which markets or economic conditions interact with the family's wealth or even for change in the family's behavior relative to its own goals. It is indeed not unusual for a newly wealthy family first to want to protect wealth against any downside, only gradually to see the typical competitive spirit require to consider other success criteria such as achieving a particular milestone new wealth level or philanthropic lifetime giving goal. Thus, the need to provide for possible changes requires the investor to seek some growth, which will thus serve as a cushion to allow for some flexibility at some future point in time, should it prove necessary.

Finally, note that the process needs to continue to incorporate an analysis of the various location issues and opportunities discussed, mentioned in the introduction, and discussed by Brunel [2002], Reichenstein [2000], and Shoven and Sialm [1998]. That need remains crucial to the development of a well thought out and fiscally sound strategic asset allocation. Proceeding through a behavioral finance induced "bucket analysis" indeed only serves as a first step for the professional to arrive at an overall asset allocation that makes sense to the investor.

ENDNOTES

[1]For a discussion of this topic, see Jean L.P. Brunel, *Integrated Wealth Management: The New Direction for Portfolio Managers*, Institutional Investor Books, 2002, chapter 5, pp. 82-99. Also, see John Shoven and Clemens Sialm, "Long Run Asset Allocation for Retirement Savings," *The Journal of Private Portfolio Management*, Summer 1998, pp. 13-26. Or, William Reichenstein, "Calculating the Asset Allocation," *The Journal of Wealth Management*, Fall 2000, pp. 20-25.

[2]See Jean L.P. Brunel, "Why Should Taxable Investors Be Cautious When Using Traditional Efficient Frontier Tools?," *The Journal of Private Portfolio Management*, Winter 1998, pp. 35-50.

[3]The insight here is that individuals will become more comfortable with financial asset investments as they gain favorable experience with them.

[4]Being prescriptive can lead individuals to "ask for an appendectomy when they should only really talk to their doctor about a tummy ache," as proposed in Brunel [2002]. Jumping to a "solution" rather than describing needs may lead them to pick the wrong solution, based on incomplete or even at time fallacious data.

[5]We elected not to discuss the detailed characteristics (i.e., specific composition) of these sub-portfolios, to avoid losing our focus on a broad conceptual approach, because of potential disagreements with our readers as to the suitability or even advisability of any specifically proposed sub-portfolio allocation.

[6]Presentations to the Security Analysts of San Francisco and to the Los Angeles Society of Security Analysts, respectively, March 24th and 25th, 2003.

[7]See Robert Dubil and Maretno Harjoto, "Are Venture Capital Firms and Hedge Funds Safer than Mutual Funds? A Theory of Investor Loss Aversion," *The Journal of Wealth Management*, Fall 2003, pp. xx-yy.

[8]Applying the process proposed here in fact allowed them to "free up" 20% of that wealth and feel very comfortable with the decision.

[9]Meir Statman, "Behavioral Finance: Past Battles, Future Engagements," *Financial Analysts Journal*, November/December 1999, pp. 18-28.

[10]A purist could rightfully argue that this "building block" approach to strategic asset allocation is bound to be sub-optimal, as it fails to consider the covariances of each of the pairs of component sub-portfolios. Though valid in the strict terms of financial theory, the criticism arguably loses some of its punch when evaluated in the terms of behavioral finance. There, indeed, making sure that the investor both participates most efficiently in the process and gains reasonable expectations seems to outweigh the commendable but infrequently achievable desire for theoretical purity.

[11]Here, it is worth remembering the thoughts offered in Meyers [2000]: actual year-to-year investment returns rarely equal the compound average returns usually postulated, and this can lead to significant bad surprises, particularly when individual asset locations include time-constrained structures, such as a trust that is scheduled to terminate on a given date.

[12]This analogy was offered by Zvi Bodie, professor of finance and economics at Boston University School of Management, during Section II of the 2003 Private Wealth Management Conference sponsored by AIMR in Atlanta on March 17th and 18th, entitled: "New Developments in Investing and Advising."

[13]Note however that real capital preservation may not be achieved simultaneously. For more on this, see C.P. Jones and J.W. Wilson, "The Incidence and Impact of Losses from Stocks and Bonds," *The Journal of Private Portfolio Management*, Summer 1998, pp. 31-40.

[14]By definition, one estimates the price variation of a bond with a given duration through the simple following formula:

Price change = - Duration * Yield Change in Percent

Thus, a bond with a five-year duration will experience a 5% fall in price if interest rates rise by 1%. The assumed 5%

coupon will in total return term, offset that 5% fall in price.

[15]This explicitly assumes that the distribution of the returns on the portfolio is normal and uses the standard formulas to derive the normal cumulative probability distribution for a given value (here, zero) for the specified mean and standard deviation.

[16]Note that this would typically be associated with one of two additional risks introduced in the portfolio. First, such portfolio construction moves might require a loss of liquidity. Second, they might require a greater exposure to manager risk, which itself typically introduces the risk of a loss of some normality in the distribution of returns and a corresponding increase in the risk of "tail events" or "outlier events" becoming more probable (as kurtosis would rise).

[17]This simply recognizes the fact that the professional must be able to speak his or her client's language, rather than imposing onto the client a jargon that can be misunderstood, threatening or both!

[18]For a fuller discussion of this topic, see Jean L.P. Brunel, "A Tax-Efficient Portfolio Construction Model," *The Journal of Wealth Management*, Fall 2001, pp. 43-50. Or David M. Stein, "Equity Portfolio Structure and Design in the Presence of Taxes," *The Journal of Wealth Management*, Fall 2001, pp. 37-42.

[19]For a discussion of this topic, see Jean L.P. Brunel, *Integrated Wealth Management: The New Direction for Portfolio Managers*," Institutional Investor Books, 2002, Chapter 1, pp. 15-30.

[20]Although that short-term interest rate level may seem high, one needs to recognize that the currently prevailing interest rate environment is unusual. Thus, the 3.5% pretax equivalent level we chose makes the computations somewhat easier, while being consistent with the current long-term equilibrium forecast we use in our practice.

[21]The return and risk forecasts used in the discussion of the sub-portfolio in this example are the author's own and are valid only at the time the article was written. The process used to develop these forecasts is discussed in Brunel [2002], chapter 8, and pp. 129-143.

[22]For a discussion of this issue, see Jean L.P. Brunel, "A Second Look at Absolute Return Strategies," *The Journal of Private Portfolio Management*, Spring 1998, pp. 67-78. Also, see Meir Statman, "Lottery Players/Stock Traders," *Financial Analysts Journal*, January/February 2002, pp. 14-21.

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