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Asset Allocation - A New Approach

Fifteen months ago, we issued a paper that examined existing asset allocation models available for individual investors, criticized their shortfalls, and proposed a new approach, the "Econometric Monte Carlo" (EMC) model. (You can review our April, 2002 paper at http://www.StillRiverRetire.com/Downloads/Asset_Allocation_for_a_New_Decade.pdf). We still believe in that model, but recognize that it does not have universal validity. Specifically, it can be used only when the investor can reasonably predict what the pay-outs from the investment fund need to be. In many cases (probably the majority), however, investors have no idea what pay-outs they will need. So we have returned to this subject and are further proposing a new, more generalized model.

The Econometric Risk Capacity (ERC) Model

Risk *capacity,* as opposed to risk *tolerance*, is the financial ability to *afford* investment risk, and it is determined by understanding what the investment horizon is, how important the financial goals are, and how those goals can best be attained. It is a financial rather than an emotional measure.

The Econometric Risk Capacity (ERC) Model balances expected long-term performance against risk capacity (not risk tolerance).

Most existing Asset Allocation models use either direct or indirect measures of risk *tolerance*. This is a problem, because risk tolerance is rather akin to *mood*: it can be defined in a general way, but (as various studies have indicated) it cannot be specified with any precision at all. Furthermore, like mood, risk tolerance tends to change with the wind: it's easy to be risk tolerant in rising markets, but during bear markets suddenly most people become conservative. Or maybe they were never risk tolerant in the first place, but just thought they were. If that is true (and we suspect that very often it is), then risk tolerance often cannot even be measured *im*precisely.

By looking at the investor's capacity for risk rather than his or her attitude about risk, we can identify a suitable level of risk for the investment portfolio. This still cannot legitimately be a highly precise measure, but in a well-constructed model, precise quantification of this factor is not necessary.

In our Econometric Risk Capacity (ERC) model, risk capacity is balanced against expected fund performance. Expected fund performance is estimated using a statistical analysis of fund categories, and works on the assumption that over the long run, the best guess is that any particular kind

of investment will, regardless of whether it is in favor or out of favor at the moment, eventually tend to regress toward its historical mean performance. Investment types that have run up in value recently, therefore, tend to be disfavored by the model, while those that have fallen in value tend to look like better bargains over the long run.

"Over the long run" is an important qualifier here. This is not a market timing model, and it does not project that recent trends are going to change immediately, or even any time soon. Rather, it assumes that eventually whatever cyclical factors are at work will eventually cycle the other way, and that long-range rate of return estimates should take this into account. The nature of the long-term trends is established by analyzing the performance of various fund types against underlying economic variables (such as Gross Domestic Product, inflation rates, and interest rates).

Funds with higher expected long-run returns are favored in this model. If the client's risk capacity is high, rate of return considerations dominate the allocation process. However, if risk capacity is low, then risk factors associated with certain classes of investments dominate the allocation. The model is responsive, therefore, both to market factors and to individual factors.

Needs-Based Econometric Monte Carlo (EMC) Model

Our second model is the Econometric Monte Carlo (EMC) model. It is an even more sophisticated model that incorporates some of the best of the existing techniques, and avoids some of their worst pitfalls. The main drawback, though, is that the user must have a pretty good idea what the withdrawal pattern of funds is going to be. Although in a majority of cases this condition cannot be met, in many instances it can, especially for education funding and post-retirement income planning.

The Econometric Monte Carlo method is based on the following principal techniques:

- ***The EMC method asks the investor to specify real financial goals:*** what are the existing fund balances, the expected future contributions, and the expected periodic or lump sum withdrawals (for education, retirement, bequests to heirs, or other needs)? By testing asset allocation against specific financial goals, we let the *investor* determine where the trade-off should be: more risk, or more achievable goals?

- ***The EMC method treats investment performance as an economic phenomenon***. If returns for two investments are correlated, it is rarely because of any direct relationship between the investments (as Modern Portfolio Theory models implicitly assume), but rather because both investments have similar relationships to underlying economic factors. If we focus on the real economic relationships rather than mere mathematical correlation between funds, we can simulate the future without assuming that the past will repeat itself.

If we focus on the real economic relationships rather than mere mathematical correlation between funds, we can simulate reality without assuming that past results will simply be replicated in the future.

- ***The EMC method uses scenario testing and Monte Carlo analysis to generate a range of future economic scenarios, and evaluates the ability of different allocations to meet the investor's financial goals within an investor-specified margin of***

error. There is no need, therefore, to try to measure the investor's risk tolerance in the abstract.

- ***The EMC method also creates a variety of lifespan scenarios so that it measures a retirement fund's ability to last as long as necessary.*** The investor does not have to guess when he or she will die (or when a spouse will die); the EMC model uses actuarial methods to include mortality risks in the scenarios that are tested.
- ***When the EMC method identifies more than one allocation that can achieve the desired results, it further selects an allocation that provides higher expected returns, greater diversification, lower volatility, and lower risk of permanent loss of principal.*** The weighting of these factors is a matter of judgment, not pure mathematics, and can be adjusted over time.

The EMC model builds on the strengths of existing methods. It takes into account the analysis of long-term historical trends, relationships, and deviations from those trends and relationships, as does Modern Portfolio Theory. It uses Monte Carlo scenario-testing as one means of risk analysis. And it incorporates the human element in balancing return vs. risk factors, in testing potential outcomes against goals, and in making adjustments on the fly.

Why the ERC and EMC models are not just different, but better:

- ***Regression to the mean.*** Recent years' experience has reminded us that the more a market or investment diverges from its long-term trend, the more it is due for a correction. Although we cannot reliably predict *when* major corrections will occur, we can predict with a high level of confidence *that* they will occur. When models based on Modern Portfolio Theory or pure Monte Carlo Analysis continue to push the most recent market miracle, the ERC and EMC models gradually move assets out of those investments – and into others that are closer to their cyclical lows.
- ***Buy low, sell high.*** Because the ERC and EMC models tend to enforce a strategy of moving out of a sector when the price goes way up, they encourage selling at a higher price than the purchase price. Allocation models built strictly on analysis of past performance are implicitly employing a "buy high, sell higher" strategy, which can produce spectacular returns at certain times, and huge losses at others.
- ***Realistic expectations from newer investments.*** The ERC and EMC models, being econometric, look at each available investment's relationship to the market and the economy as a whole. Therefore, if a certain fund has been in existence only during a bull market (or a bear market), it is not rewarded (or penalized) because it has only gone up (or down). The models project appropriate rises or falls in that fund because it is projecting rises and falls in the entire economy and the financial markets.

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- ***The many facets of "risk".*** Other mathematically sophisticated models tend to equate risk with volatility. To individual investors, risk does *not* mean volatility. It means: Will I lose my money? *and* Will I get what I'm expecting to get out of my investment? Volatility is only a part of the answer. The EMC model looks directly at the main question: How likely is it that a given allocation will allow me to meet my financial goals? The ERC model does the same, but in a different fashion (less direct, but also very easy to specify and input).

- ***Intolerant of risk tolerance.*** Most other asset allocation methods require precise measurement of risk tolerance. They then have to translate this unrealistically specific risk tolerance into an allocation that supposedly reflects it. Both of these steps are suspect, if not patently invalid. The ERC and EMC models do not measure risk tolerance, and therefore avoid this pitfall.

- ***Responsiveness to the marketplace.*** Although neither model is a market timing model *per se*, both models are responsive to large changes in the markets. If stocks have suddenly climbed (or fallen) by, say, ten percent, any prudent investor would take this into account. Shouldn't an asset allocation model do so as well? Since the ERC and EMC models base future expectations in part on a comparison of the current market position against long-term trends, changes in the market affect the model immediately, and large changes do result in revised allocations. Few other models are responsive in this way.

Do these newer models have limitations? Of course. As with other complex models, these methods (especially the EMC model, which involves Monte Carlo simulation) can be somewhat opaque to investors. Also, neither model pretends to give us a mathematically "optimal" allocation, only a "suitable" allocation. And both models remain fallible because they incorporate some judgment factors and, most of all, because they deal with the future. Still, we believe that the limitations of ERC and EMC are less serious than those of the alternative methods.

What have we learned?

There is no magic key to asset allocation. In the end, we all take our chances. We can help ourselves a little by using the tools (both simple and complex) that are available. The value of the tool is not necessarily related to its complexity, however, or to its cost. You can get wonderful (and wonderfully expensive) mathematical models that rely on assumptions that contradict basic investment realities, and that produce results that do not reflect what is currently happening in the markets.

We have presented the concepts behind our new Econometric Risk Capacity model and the year-old Econometric Monte Carlo alternative in the hopes that they will be seen as conceptual steps forward in the search for the best possible asset allocation tools – or, at least, as viable alternatives for those who have, with good reason, been dissatisfied with the existing alternatives.