

Asset allocation is one of the most critical processes that an investor must tackle. A range of studies have shown that the majority of portfolio performance is determined by your allocation into various asset classes rather than the specific stocks or funds that you choose. This runs counter to a great deal of what people read, of course, but it has been demonstrated repeatedly. In 2003, for example, Vanguard published a study of the role of asset allocation in portfolio performance:

https://institutional5.vanguard.com/iip/pdf/icr_asset_allocation.pdf#search=

Their results confirm earlier results that asset allocation is the single most important factor in explaining performance. Their results from an analysis spanning forty years of is compactly summarized in one sentence from that study:

...asset allocation remains the investor's most important decision.

Rather than spending all of their time on picking individual stocks and funds, most investors will do better to spend more time looking at their allocations into specific sectors and asset classes. Different asset classes have different risk and return characteristics, and the correlations between performances of asset classes also have a major impact on total portfolio performance. If your asset allocation decisions are a key issue in portfolio performance, how can you account for these factors?

Most advisory and brokerage firms now have some portfolio planning tool available for asset allocation and planning. Using this type of tool allows you to examine your asset allocation and determine whether you are at the right risk-return balance. These tools can help investors to see how their current investment allocations will impact the probability of being able to fund a future income stream in retirement. These tools are most often what are called Monte Carlo models. For a basic description of this kind of model, see this FAQ:

<http://www.quantext.com/MCFaq.html>

The Pension Protection Act of 2006 has given a major impetus to the use of this kind of model:

*Under the rules, **specific investment recommendations** can be given if they are based on a computer model that must be certified as bias-free by an independent third party.*

Wall St. Journal Article (<http://webreprints.djreprints.com/1523780224916.html>)

While I do believe that there is value in choosing specific stocks and funds (including but not limited to the goal of minimizing fees), the single most critical step for most people planning for retirement is to look at their basic allocation. How much of your portfolio will you allocate to global markets? What fraction of that will go into emerging markets? Will you put a fraction of your portfolio into real estate (via REITs)? Will you put any of your portfolio into commodity-focused assets? How much will you put into utilities? Using a good asset allocation tool allows an investor to see the impacts of various allocation choices. A riskier asset added to a portfolio might increase volatility in the near-term, but the higher expected future returns from this asset may be critical in building a large enough portfolio to meet future needs.

It is a very good thing that the Pension Protection Act of 2006 (PPA 2006) allows advisors to provide specific advice to retirement plan participants. It is also a very good thing that PPA 2006 endorses the use of computer models to help in asset allocation and planning. Many advisors and brokers already provide such tools to their clients. There is, however, a large potential problem in the use of these tools for planning. Many asset allocation and planning tools are so simplistic that they cannot effectively help investors to differentiate between portfolio impacts of key asset classes. These tools may suggest to an investor that two funds have similar risk, when one has dramatically higher risk than the other, for example. Ultimately, many of the available tools have the potential to substantially under-estimate the aggregate portfolio's potential for loss and also may be unable to assist users in making effective decisions to diversify their portfolios.

One planning tool that has been made available to millions of clients by one of the largest 401(k) plan providers allows users to enter their portfolio of investments and purports to identify risks associated with retirement and to help users develop an improved plan. The tool takes inputs on current investments, savings rates, projected future income needs, etc. The tool then simulates the probability that the user will be able to fund their retirement at the desired level. This sounds good. How does the model account for the different investments in your portfolio? The model assigns investments to one of a series of asset classes. Domestic equity funds are treated as though they track the S&P500. Any international funds are treated as though they follow the EAFE index. There are also several fixed income classes. Consider what this means. If you invest a portfolio of your portfolio in a REIT fund (such as ICF), the model in question will assume that this fund behaves just like an S&P500 fund (SPY), despite the fact that ICF behaves very differently from SPY in every way. In fact, only 25% of the variability in return on ICF can be explained by movements in the S&P500 (i.e. R-squared is 25%). A planning tool that simply assumes that ICF will move with SPY will not account for the diversification value that investing in REIT's provides. Similar effects are present for utilities. A utilities index fund (such as IDU) provides very valuable diversification effects when combined with both U.S. equities funds, international equity funds, and even bond funds. A model that just treats a utilities index funds such as IDU as following the S&P500 will not capture this diversification value. Diversification is one of the key goals of asset allocation, but a fund that assumes all domestic equity funds simply follow the S&P500 will not capture these effects---and will thereby lead to asset allocations that are far less than optimal. A small-cap domestic equity fund (such as IJR) will be treated as having the same risk and return characteristics as IDU in this model, despite the fact that Beta for IDU is 44% and Beta for IJR is 140% and these two funds only have a correlation of 20%. Similarly, this model treats IJR as being equally risky as SPY, despite the fact that IJR has almost twice the volatility of SPY.

The same problems will be observed in this type of asset class model when you look at international investing. As noted above, the model provided by one of the major

financial firms assumes that all international equity investments can simply be lumped into an asset class that tracks the EAFE. The EAFE index tracks international large-cap developed-market stocks. If you are investing in emerging markets funds (such as EEM), a planning tool which treats this investment as tracking the EAFE will dramatically under-estimate the risks in your portfolio: EEM has more than 80% more risk (in terms of standard deviation in return) than EFA (a fund which does track the EAFE index). The model in question will show no difference in risk between investing in EEM and EFA.

There is a great deal of uncertainty in the future returns that can be expected from different asset classes. Even given this uncertainty, an ‘asset class’ model that is too simplistic can lead to extremely poor asset allocation decisions. Indeed, an asset class model like the one described here – and that has been made available to millions of investors – can easily lead to decisions that defy basic standards of asset allocation. Quantext Portfolio Planner (QPP) is a Monte Carlo portfolio planning tool that accounts for the specific characteristics of *specific* investments. QPP Monte Carlo projection will account, for example, for the fact that EEM has substantially higher volatility than EFA, and also that combining EEM and EFA generates some positive diversification effects. QPP’s case studies often highlight the value of combining REIT’s and utilities in a broader equity and fixed income portfolio because of their powerful diversification effects. Seeing the vast differences in projections for a portfolio when you account for these effects (vs. when you don’t—as in the model discussed in this article), it is apparent that users of portfolio planning and asset allocation models must be very careful about the underlying assumptions of the models that they use. The key to using asset allocation models can be summarized by quoting Albert Einstein:

Everything should be made as simple as possible, but not simpler.

There are many asset allocation and planning tools in use today that are *too simple*, to the point that they can lead investors to allocation decisions that result in poor diversification and substantially mis-stating portfolio risk. In the context of the Pension Protection Act

of 2006, it is clear that a computer model cannot plausibly be used to support *specific investment recommendations* if the model does not actually capture the key characteristics of specific investments.

Quantext Portfolio Planner is a Monte Carlo portfolio management tool. Extensive case studies, as well as access to a free extended trial, are available at <http://www.quantext.com/gpage3.html>