

# An Overview of Our Asset Allocation Process

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## PART 3

In this third segment of a multi-part investment education series, Biagio Manieri, Ph.D., CFA, will provide an overview of PFM Asset Management's (PFMAM) views on proper asset allocation. Future segments will provide the firm's thoughts on other important topics, including the use of manager selection, alternative assets in portfolios and portfolio implementation considerations.

### An Overview of Asset Allocation

The investment process for managing multi-asset class portfolios involves a number of decision sets. Of the various decisions investors can make, research has shown that asset allocation is by far the most important decision, responsible for 100% or more of investment performance (Exhibit 1). Gary Brinson *et al* conducted a study analyzing the investment performance of various institutional investors.<sup>1</sup> They decomposed the returns into three primary drivers: asset allocation, security/manager selection and market timing. Brinson repeated the same study in later years. Both of these studies showed that asset allocation was the most important decision.

PFMAM conducted a similar study in 2015 and confirmed Brinson's findings. Plan sponsors would have achieved the same or higher returns if they had simply focused on asset allocation and constructed their portfolios using low-cost index funds. What this means is that all other decisions including security/manager selection and market timing, on average, detracted from investment performance. Given the importance of asset allocation, our investment process for constructing client portfolios begins with asset allocation.

### Discussion of Mean Variance Optimization Models

At its core, the asset allocation process is both an art and a science, particularly when defining an "asset class" and which asset class to use when constructing the policy portfolio or the strategic asset allocation of the plan. This same art and science are also involved when formulating our Capital Market Assumptions (CMAs), which include assumptions about expected returns, correlations and risk.<sup>2</sup>

Additionally, there is also an art used when formulating CMAs for private markets or so-called "alternatives" including private equity, private real estate, hedge funds etc. since these investments present unique challenges, including characteristics that materially differ from other asset classes and challenges when modeling future returns. CMAs are the inputs for a Mean Variance Optimization (MVO) Model, which investors use to compile efficient frontiers.<sup>3</sup>

**Exhibit 1: Historical Plan Performance vs. Index**

	Median Plan Performance	Index
<b>BSB (1991)</b>	13.4%	13.5%
<b>BHB (1995)</b>	9.0%	10.1%
<b>PFMAM (2015)</b>	9.1%	10.1%

Source: Brinson, Hood & Beebower, 1995; Brinson, Singer & Beebower, 1991; PFMAM 2015 white paper study.

<sup>1</sup> Gary Brinson, "Determinants of Portfolio Performance" Financial Analyst Journal, July/August 1986.

<sup>2</sup> A copy of the CMAs is available upon request.

<sup>3</sup> For a more detailed discussion on how we construct our CMAs, please refer to our earlier InvestEd – [Developing Our Capital Market Assumptions](#).

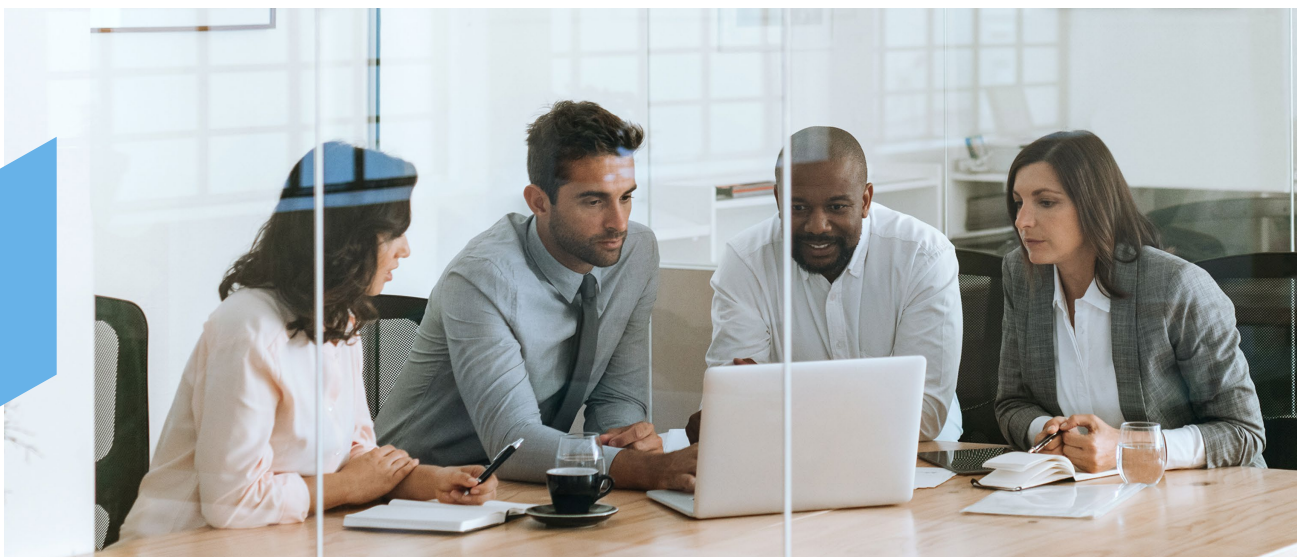
Since no model, including MVO models, can completely capture all of the goals and objectives of a typical investor, we need to constrain the weights assigned to various asset classes. The MVO model only takes into consideration the three variables that make up the CMAs. Objectives such as the need for liquidity are not part of the model. Therefore, unconstrained outputs from the MVO model make little sense in many cases, e.g., when 100% of the plan is invested in private equity. While the MVO model is a set of mathematical formulas and can tell us which portfolios based on the CMAs are “efficient”, the model cannot tell us which portfolio on the efficient frontier to select.

Selecting a particular portfolio on the efficient frontier involves trade-offs between conflicting goals: volatility/risk versus returns. A plan sponsor should balance various goals such as the preservation of purchasing power and growth of the corpus by some amount exceeding inflation with the short-term need to reduce volatility, provide adequate liquidity, etc.

The pursuit of higher returns necessitates the acceptance of higher volatility/risk. The policy portfolio selected is the result of an investor’s views and preferences concerning expected return and risk and takes into consideration return objectives and risk tolerances. The policy portfolio also balances the investor’s needs over the intermediate term and the long term.

The use of MVO models also faces other limitations. Investors would be ill-advised to simply follow what the model says, and in fact there is a reason why MVO models have been called “error maximizing models”. They do not take into consideration estimation error when calculating the weights assigned to various asset classes, and we know that the estimation error is not the same for all asset classes.

Our estimates for expected return, risk and correlations have different probabilities of being correct, e.g., we can be more certain of some things and less certain of others. MVO models also have implicit assumptions, e.g., returns are normally distributed, correlations are stable, etc., which we know are not valid. When constructing client portfolios, we take the output from the model as a starting point and bring to bear our investment knowledge and expertise. While the output of MVO models cannot be taken uncritically and constructing a portfolio is as much or even more art than science, going through the formal quantitative process does force investors to think seriously about expected return and risk and provides discipline versus a process that carelessly constructs a portfolio.



## The First Step

The initial step in asset allocation is defining and selecting the asset classes that are considered for inclusion in the portfolio (as outlined below). In selecting which asset class to include, we are looking for investments that generate different return patterns and are driven by different factors. In reality this is not easy to do, because with few exceptions, all asset classes are economically sensitive whether equities, corporate bonds, real estate, etc.

For example, investors have defined public equities as being fundamentally different from private equity. During times of market stress, we see that both have similar attributes and similar economic sensitivities. Private equity, especially leveraged buyouts, act like leveraged public equities. While the return patterns are different due mostly to different accounting treatments, leveraged used, etc., both are driven by the same economic factors. Many asset classes, including equities, credit, real estate, commodities, etc. are economically sensitive. The exceptions are Treasuries, TIPS, the U.S. dollar, and a few others, which all tend to rally during times of economic stress. The process of deciding which asset class to include in the policy portfolio or the process of determining the strategic asset allocation of the plan is also dynamic in that an investor may consider an asset class that was previously excluded, or a new asset class may be introduced, e.g., high yield bonds.

1. Identify which asset classes will be included in the portfolio.
2. Derive capital market assumptions for each asset class, both intermediate- and long-term.
3. Constructing efficient portfolios is an art and a science:  
An efficient portfolio is one in which expected return cannot be increased/reduced without also increasing/reducing expected risk.
4. Continuously monitor the portfolios and investment managers.

## Role of Each Asset Class in a Multi-Asset Class Portfolio

Each asset class included is expected to serve some role in the portfolio. Equities are expected to generate returns over time that are above inflation and above what other asset classes return. For investors with a long-term investment horizon, public equities should be the starting point. Other asset classes should be compared to public equities when determining the role that those asset classes will play in the portfolio. For example, fixed income and real estate are included to provide diversification and to help lower the volatility of the portfolio at the expense of lower expected returns.

## Tactical Asset Allocation<sup>4</sup>

As we explained in previously in this series, we do not attempt to time the market as we believe no one is smart enough to predict how the stock market or specific securities will perform on any given day.<sup>5</sup> Our investment philosophy and empirical research lead us to believe that short term market timing is not likely to be rewarded over time. We distinguish between market timing based on technical analysis and tactically overweighting and underweighting various asset allocations based on fundamental analysis. As fundamental investors, we seek to buy assets that we understand at prices that are attractive. Whether at the asset class or security level, we define the investment process as consisting of three steps:

- ▶ Determining the economics of the asset
- ▶ Based on those fundamental attributes, determining the intrinsic value of the asset
- ▶ Comparing the estimated intrinsic value with the current price.

At any given point in time, an asset may be overvalued or undervalued. We want to buy or overweight the cheap asset and sell or underweight the expensive asset. When tactical shifts are based on an understanding of the economics of the asset and an estimate of the intrinsic value, it can add value over time. For example, with respect to public equities, empirical research confirms that when equities are purchased at above average valuations, the realized return is below average and vice versa (Exhibit 2).

Since the mid-1950s, when equities traded at a price-to-earnings (PE) of less than 10, the next 10-year annualized return is 15.7%. When the PE ratio was between 10 and 15, the following 10-year return averaged 13.4%. When the PE ratio was between 15 and 20, equities returned 7.4% over the next 10 years on average. Finally, when the PE ratio was greater than 20, stocks returned 4.7% on average over the next 10 years. Therefore, we think it is appropriate to incorporate fundamental analysis in our decisions as to whether we should overweight or underweight specific asset classes.

*Stay tuned. In our next segment, Biagio will discuss the manager selection process.*

**Exhibit 2**

Current PE	Average Next 10-Year Annual Return
Less than 10	15.7
10-15	13.4
15-20	7.4
>20	4.7

Source: Data from Bloomberg, PFMAM analysis.

4 For institutional clients, the strategic allocation is most important for those with long-term expectations. Tactical allocations typically do not comprise more than 10% of the overall portfolio.

5 Please refer to our earlier InvestEd – [Our Multi-Asset Class Investment Philosophy](#).

**To learn more or discuss in greater detail, please contact us:**

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