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RETURNS-BASED STYLE ANALYSIS: THE PREFERRED METHODOLOGY

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In 1995, Brinson, Beebower, and Hood released their famous study entitled “Determinants of Portfolio Performance”, which showed that the asset allocation decision accounted for over 90% of a portfolio’s performance. With this, and subsequent concurring studies, in hand, many institutional (and well-educated individual) investors have shifted their focus away from security selection towards making the important asset allocation decision.

With more and more investors placing greater focus on asset allocation versus security selection and market timing, there is a realization that not all investment products are created equal. Stock funds can be separated based on the size of companies they invest in or their investment philosophy (value vs. growth) while bond funds can be separated by the length of maturities in the portfolio and the type of fixed-income securities (government vs. corporate) that they purchase. Seeking to help investors sort through the thousands of funds available and to provide a clearer picture of individual funds, a number of vendors (most notably Morningstar) have developed tools and classifications to divide the mutual fund universe up into smaller pieces based on their asset class (i.e. Large Cap Growth, Small Cap Value, etc.).

As the investment world set about doing this, two methods were developed to determine a mutual fund’s asset class. The most commonly used method is holdings-based analysis. The second method is called returns-based style analysis and was developed by the Nobel Prize-winning economist William Sharpe.

While both methods have similarities in that they use factor models, they differ greatly in how they are applied and the results they provide. Holdings-based analysis applies a factor model to each security held in the portfolio to determine its asset class. After analyzing each security, the results are summed up based on each securities’ weightings in the portfolio and the fund is assigned to the dominant asset class (i.e. Large Cap Growth).

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Returns-based analysis differs in that it analyzes the historical returns of the aggregate portfolio versus a passive set of market indices representing the major asset classes. A model is established that equates the returns of the portfolio to the returns of the indices, multiplied by the weighting towards each index. Once the model is established, it is applied to rolling periods of historical returns (i.e. rolling 36-month periods over the past 5 years). For each period, the model is solved to find the set of weightings that most consistently and closely matches the returns pattern of the fund.

With two distinct and different methods competing in the marketplace, there has been considerable debate over which method is better.

We believe there are a number of critical objectives that can only be accomplished through a performance-based analysis of style. Accordingly, we complement our core performance-based analysis with new holdings-based data when it is published.

On the practical side, we prefer style-based analysis because it is easier to determine the inputs of the analysis. Historical monthly returns for mutual funds and passive indices are available from a variety of sources, whereas mutual funds are required to report their portfolio holdings only semi-annually.

Holdings-based analysis is also complicated because you have to build a model for individual securities. It can be difficult to factor in all of the influences that affect the price of a security. As an example, when looking at a stock the model might have two factors: a security's market capitalization, and its price/book or price/earnings values, to determine its growth vs. value exposure. Using this model to analyze a utility company stock will not provide a clear picture of the asset class exposure of the stock because it is highly sensitive to interest rates; its performance is more similar to a bond than a stock. To factor in all of these influences, you have to develop an extremely complex, and costly, factor model.

Conversely the returns-based factor model looks at the aggregate performance of the fund instead of looking at each security. In using performance-based analysis, the primary determinate is the bottom line performance of the fund. So if a security's performance is closely aligned to the

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movements in the bond markets, whether or not it owns bonds or interest rate sensitive stocks, it is going to be classified as a bond fund because that is how it is going to behave in the portfolio.

The second issue you run into when analyzing individual securities is all of the noise incorporated into the data. When looking at an individual security it can be hard to tell whether the performance of the stock is due to its asset class exposure, to some company- or industry-specific event, or to some combination of the two. Over time and when you pool a number of securities together the noise is reduced and you are able to get a much clearer picture of the style exposure. This is the case when using monthly returns of the portfolio.

With only semi-annual fund holdings reports, it is nearly impossible to get a true picture of a portfolio's style. Holdings-based analysis provides a snapshot of a portfolio on two specific days during the year. For funds with high turnover, the securities held by the portfolio on those two days are not necessarily representative of the securities held by the portfolio throughout the year.

Other issues may arise when fund managers "window dress" their portfolio. Prior to the two reporting dates the manager can clean up his portfolio by selling non-conforming securities and buying conforming securities for the portfolio. For a number of funds, a significant portion of their assets come from corporate retirement plans where the fund fills in one of the Morningstar style boxes. If the fund shifts asset classes it will likely overlap with another fund already offered in the plan and will be replaced with a fund that fits its original style category. This can cost the fund significant assets and the fees associated with those assets.

From a philosophical standpoint we prefer returns-based analysis because performance-based analysis provides a clearer and deeper picture of a fund's asset class exposure. Most analysis using the holdings-based methodology arrives at a very simplistic answer. The fund is assigned to one asset class (Small Cap Value). The problem with this is that while the dominant asset class may be Small Cap Value, the fund can have significant exposure to other asset classes. When factoring in the fund's exposure to the other asset classes the fund may not look as impressive compared to its peers. For example, I recently read a Morningstar report on a large cap growth manager that had consistently performed in the top decile of his asset class for the past ten years. While the fund was

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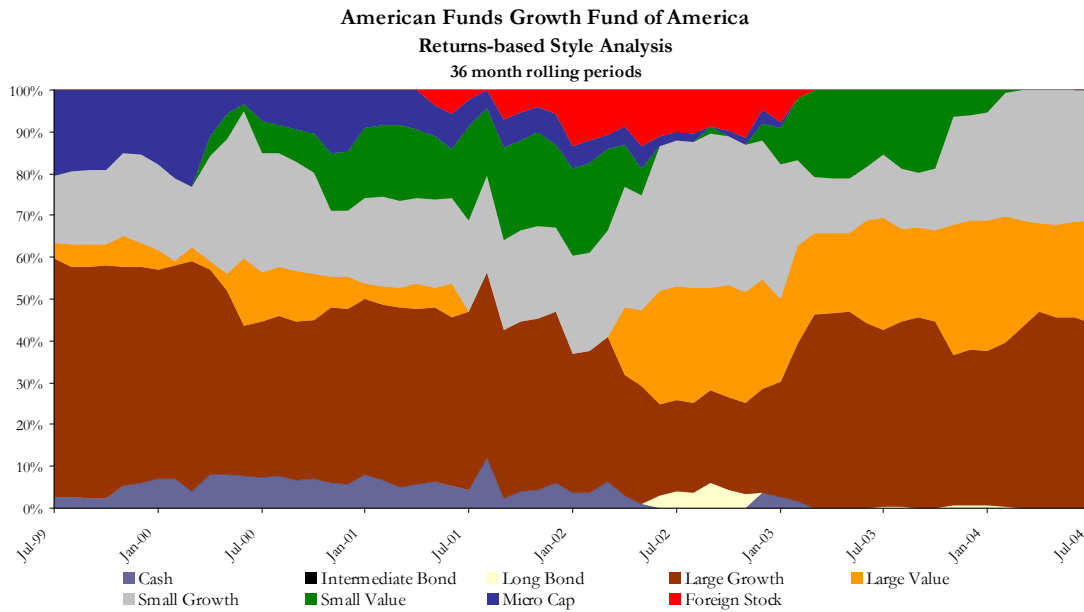
categorized as Large Cap Growth, the report indicated that the manager frequently and consistently invested a significant portion of the portfolio in small cap stocks that he allowed to grow into large cap stocks. Because small cap stocks have historically outperformed large cap stocks (due to the increased risk associated with small companies versus large companies) it is to be expected that this manager would outperform his Large Cap Growth peers. The flipside of this story is that the manager has been incurring greater risks than many investors would expect because of his exposure to riskier small cap stocks. Large Cap Growth does not tell us enough about this fund to determine whether it is a prudent addition to our invest lineup.

Returns-based analysis allows retirement plan fiduciaries to avoid some of these pitfalls by continually examining the performance of a fund. There are no time periods that are not covered that would enable to manager to drift outside his investment style to chase performance or to try to boost returns.

Returns-based analysis provides a more complete picture of the exposure that a fund has to each asset class. Shown below is an analysis we completed of the American Funds Growth Fund of America. This fund is categorized by Morningstar using a holdings-based methodology as a Large Cap Growth fund. Our analysis shows that this fund's average Large Cap Growth exposure has averaged 40% over the time period analyzed. For investors expecting a pure Large Cap Growth fund, they have unwittingly gained significant exposure to other asset classes, including Small Cap Growth and Large Cap Value.

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As the analysis above illustrates, through performance-based analysis investors are able to develop a much clearer and deeper picture of the manager’s investment style. Consultants are able to use this information in a number of ways. For example, good consultants are able to determine whether the manager sticks with a specific style or if they switch styles chasing the hot asset class or sector. By focusing on selecting managers that stay style-consistent, we can implement the asset allocation that is selected for each client and know that it will stay true to our initial intention.

Another use of our analysis is to determine whether a manager has unintentionally shown a permanent drift in style. This is common with small cap funds that have success and see their asset base grow. Because they have to invest more assets, the manager is forced to start investing in larger companies. While the fund may still be characterized as a small cap fund, we can see that the fund is unable to invest in the same types of companies that it used to build its track record.

Performance-based style analysis also allows a consultant to provide attribution analysis on the fund’s previous returns. In the example of the large cap growth manager discussed above, a



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consultant using style analysis could see that the fund had exposure to small cap stocks that enabled the fund to boost returns relative to its peers. Another example would be analyzing a successful large cap stock fund that did relatively well compared to its peers during the previous bull market. In this instance a cursory look at the fund might make it seem like the manager is picking better stocks but upon a closer examination using returns-based analysis it might be determined that the fund had significant cash exposure. Once it is understood that the fund had the cash exposure the consultant can look to determine whether it is the result of large cash inflows or whether the manager was timing the market successfully.

As a firm we believe that returns-based analysis is the superior methodology for determining a fund's asset class exposure because of the greater information content and the reduced possibility for hidden gimmicks. It is an important tool that we utilize to provide the framework for selecting and monitoring investment managers and for implementing our clients' portfolios.

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