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effectiveness of the risk measure is did it produce a portfolio with minimum variance. Their findings suggested that the exponential smoothing method produced the most efficient portfolios in all cases where risk is changing. The other side to assessing risk measures is the tendency for asset weighting to vary widely with small changes in the inputs. The objective is to obtain an efficient portfolio where there exists a degree of variability in the portfolio weights to account for the risk-return profile changing over time. By this standard, the exponential smoothing method proved to be a superior method. To test the simulation method, an historic data analysis was performed using the risk measures to allocated assets based on portfolios with minimum variance subject to a target return. In this analysis, the most efficient portfolios resulted from those methods that incorporated all of the available data and weighted recent observations more than past observations with exponential smoothing proving to be the superior risk measure. Bogle [1998] investigates Morningstar's nine-box category rating system, a system that he compares to tic-tac-toe. He criticizes the use of the Standard & Poor's 500 stock index to characterize the market since corporations with large market capitalization dominate this index. Style analysis is the method of comparing a mutual fund with others following a similar investment style. Typically this analysis is done by comparing the ratios of market-to-book value or price-to-earnings in a box where the vertical axis ranges from large to small market capitalization and the horizontal axis ranges from value to growth. Morningstar has taken this concept and created a grid of nine boxes; along the vertical axis is large-, medium-, small-capitalization and value, blend, or growth on the horizontal axis. The author applauds this system since it provides an easy way to quantify the statistics for each fund. Bogle studies in-depth the large-capitalization blend

growth by dividing the group into quartiles based on returns. He discovers that the top risk-adjusted ratings are earned by those funds with the highest total returns and that risk stays constant over the quartiles. Next he looked at the expense ratios for the funds in this category and divided the group into quartiles based on this figure. His findings suggested that the group with the lowest expense ratios have the highest net returns and they assume almost identical risk. His investigation into the style boxes confirms that the relationship of risk and return is apparent in the style boxes. His study also suggests that returns are higher for index funds than actively managed funds holding risk constant. Beutow, Johnson and Runkle [2000] look at the shortcomings of return-based style analysis to make asset allocation decisions and cite that the major problem in this area is the lack of a definition of style. They cite two views about the application of return-based style analysis. One stems from Sharpe [1988, 1992] and Tierney and Winston [1991] who advocate its use to analyze the asset mix of a portfolio manager. Return-based style analysis is the key to determining a manager's effective asset mix. Christopherson [1995], who is the proponent of a style classification system, expresses the other view. The authors also fault Bogle [1998] because one would have to invest based on the definitions created by Morningstar for his results to be accurate. The problem with trying to categorize assets is that one asset may exhibit characteristics that satisfy more than one style classification. Return-based style analysis examines the returns for a portfolio or an asset with respect to a set of time series returns of various indexes. This method comes under fire because using returns from different indices to measure the returns of the portfolio produces widely different results. The authors cite that return-based style analysis is best used when the portfolio investment objective is