E-trade and Ameritrade allow you to place your stock orders online, just eight dollars a

covariance matrix developed by Markowitz. In 1964, William Sharpe[1964] developed a

The other half of this problem deals with asset allocation. Sharpe [1992], one of the first people to recognize the benefits from diversification since asset allocation accounts for a large part of the variability in the return on an investor's portfolio. Sharpe develops the concept of an asset class factor model, which summarizes the returns gained from style and the returns due to selection. These models are evaluated on the basis of their ability to explain the returns of the assets in question. This factor is called R-squared value. The fewer the asset classes, the more predictive the model becomes in representing fundamental relationships. In this particular paper, twelve asset classes are studied that span the sectors cash, bonds, U.S. equities and Non-U.S. equities. Sharpe uses a multiple regression analysis to determine a funds historic exposure to the asset classes based on their slope coefficients. Style analysis is defined as the use of quadratic programming to determine a fund's exposures to changes in the returns of the major asset classes. The objective of style analysis is to select the style that minimizes the variance of the difference between the return on the fund and that of a passive portfolio with the same style. Sharpe illustrates that style accounts for over ninety percent of the variation in a portfolio; whereas, selection, which is one minus the R-squared value, accounts for less than ten percent of the variation. Style analysis provides a method for constructing benchmarks for performance measurement. The t-statistic on the mean difference can be employed in this case to determine if the fund is statistically significantly different than the benchmark portfolio. Using style analysis, Sharpe concludes that the average mutual fund cannot beat the market before costs since they constitute a large part of the market. A study by Brinson, Hood and Beebower [1991] looked at 82 large pension plans covering a ten-year period. The purpose of the study was to determine which of the

factors: asset allocation policy, active asset allocation, or security selection contributed the most to the variation in quarterly total returns among the plans. In this study, the asset allocation policy deals with the establishment of normal asset class weights and active asset allocation deals with maintaining the weights thereby enhancing the risk/return trade-off. The asset classes used in this study were equity, bonds, cash equivalent and "other." Their findings suggested that active management had no measurable effect on the returns. They also found that the asset allocation policy explained 91.5 percent of the variation in the quarterly returns among the pension plans. Sheedy, Trevor and Wood [1999] look at how the risk estimation error impacts the efficiency of asset allocation decisions due to the volatility of returns. They considered four approaches to risk estimation. The first method is the sample variance using all available monthly return observations. The second method is the sample variance based on a fixed sample window of the previous sixty or thirty-six monthly return observations. Thirty-six observations highlight changes in risk; whereas, the sixty observations account for sampling error. The exponential smoothing method uses all available monthly return data but more recent observations are given a larger weighting than past observations. This method affects the variance estimate by allowing it to react faster to changes in the return distribution. The generalized autoregressive heteroskedasticity (GARCH) model is more general than the exponential smoothing method and explains current variance based on its own recent past and recent values of the squared change in returns. The study involves eight national stock markets and the portfolios are constructed using a minimum variance objective function. A Monte Carlo simulation was performed to re-optimize the portfolio on a monthly basis for over eighteen years. The first standard to measure the