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A Review of Performance Evaluation Measures for Actively-Managed Portfolios

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Abstract: In the recognition that investment management is an on-going process, the performance of actively-managed portfolios need to be monitored and evaluated to ensure that funds under management are efficiently invested in order to satisfy the mandate specified in the policy statement. This paper discusses the primary performance evaluation techniques used to measure a portfolio's basic risk and return characteristics, risk-adjusted performance, performance attribution and market timing ability. It is concluded that the Treynor measure is more suitable for evaluating portfolios that are constituents of a broader portfolio, while the information ratio is useful for evaluating hedge funds with an absolute return objective. Although the Sharpe ratio and M-squared arrive at the same evaluation result, M-squared provides a direct comparison between the portfolio and the benchmark. With regard to the analysis of portfolio performance attribution, it is found that the return-based multifactor model of Sharpe (1992) is not suitable for analyzing the performance of hedge funds that engage in short-selling, leverage and derivatives. Additional factors generated by factor analysis could be used as factors in the extended model of Sharpe (1992) to analyze hedge fund return attributions. Finally, the Treynor and Mazuy (1966) model and the Henriksson and Merton (1981) model essentially distinguish the market timing ability from the security selection ability of the portfolio manager.

Keywords: *Performance evaluation measures, performance attribution, market timing, active portfolio management, passive portfolio management*

1. Introduction

Investment management refers to the process of managing collective investment schemes with an objective to create wealth that is governed by the mandate specified in the policy statement. The investment management process is research-driven, and typically involves the application of quantitative techniques to solve complex problems in order to achieve desired investment management outcomes. There are two major branches in investment management: active portfolio management; and passive portfolio management. While passive portfolio management involves tracking the desired exposure in a pre-specified benchmark, active portfolio management has an objective of outperforming the benchmark portfolio of similar risk level and investment style. The primary concern for active portfolio managers is the ability of the portfolio to outperform the benchmark on a risk-adjusted basis. To improve the risk-adjusted performance of an actively-managed portfolio, factors that differentiate the performance between the portfolio and the benchmark must be identified. These factors include the asset allocation ability, the security selection ability and the market timing ability of the portfolio manager.

In the recognition that investment management is an on-going process, portfolio performance needs to be monitored and evaluated regularly. This paper aims to discuss the rationale behind the essential measures used to evaluate portfolio performance. The remainder of the paper demonstrates and compares the uses of performance evaluation measures based on the following categories: basic return and risk measures; the risk-adjusted performance measures and the performance attribution techniques. While the basic return and risk measures and the risk-adjusted performance measures aim at evaluating the overall performance of the actively-managed portfolio, the primary application of the performance attribution techniques is to dissect the performance of the portfolio in order to identify whether the primary source of performance is due to the asset allocation, security selection or market timing decision of the portfolio manager.