

A Meta-Analysis of Mutual Fund Performance

T. DANIEL COGGIN

Virginia Retirement System, 1200 East Main Street, Richmond, VA 23219

JOHN E. HUNTER

Department of Psychology, Michigan State University, East Lansing, MI 48824

Abstract. The purpose of this article is to introduce the statistical technique of meta-analysis of regression results using as our example the Lee and Rahmann (1990) study of the performance of 93 mutual funds. Specifically, we derive and estimate the meta-analysis formulas, explicitly adjusted for correlated regression residuals, which quantify the effect of sampling error on their reported regression results. Our analysis of selectivity reveals some real variation around a mean risk-adjusted excess return of about 1% per year: while our analysis of market timing reveals some real variation around a negative mean value and confirms that the correction for heteroscedasticity does make a difference. An examination of the 80% probability interval for the mean selectivity value indicates that the best mutual funds can deliver substantial risk-adjusted excess returns.

Key words: Meta-analysis, econometric estimation, investment performance measurement, U.S. mutual funds

1. Introduction

The analysis of mutual fund performance in Lee and Rahman (1990) takes the form of a series of time series regressions on 93 equity mutual funds, using 87 months of fee-adjusted returns over the period January 1977 to March 1984. Each of the time series regressions has exactly the same specification, in which parameters for selectivity (α^p) and market timing (ρ) are estimated. Selectivity is equivalent to the (positive or negative) risk-adjusted excess return earned by each fund as result of the ability to forecast stock prices. Market timing is a measure of the covariation of the beta of each fund with the market return, where *market return* is defined as the return on the value-weighted CRSP stock index.

Their study is ideal for *meta-analysis*, a parametric statistical technique for the cumulation of results across studies or units of analysis. Meta-analysis allows more statistically powerful inferences from data than are possible using more traditional disaggregated analyses. The purpose of this study is to introduce the technique of meta-analysis of regression results using the Lee and Rahman (1990) study as our example. We begin with a brief introduction to the technique and a description of our specific application.

Efforts to cumulate results across studies are certainly not new. The contribution of meta-analysis is to offer a statistical technique to produce a *direct* estimate of the mean and standard deviation of population values. From its early beginnings in physics (Birge, 1932) and psychological research (Glass, 1976, 1977; Schmidt and Hunter, 1977), meta-analysis is now spreading to other disciplines, including accounting (Christie, 1990; Trotman and Wood, 1991), finance (Coggin and Hunter, 1983, 1987; Dimson and Marsh, 1984),