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Mutual fund performance appraisals: a multi-horizon perspective with endogenous benchmarking

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Abstract

With over 6500 mutual funds available to investors, industry data show that consumers pay a great deal of attention to the ratings of mutual funds. In spite of this attention, however, much controversy surrounds the various industry approaches to the rating of mutual funds. Many industry rating approaches use subjective weights to integrate fund performances over different time horizons; this can give rise to quite different ratings, depending upon the relative importances assigned to different horizons. In this paper, we present two basic quadratic programming approaches for identifying those funds that are strictly dominated, *regardless* of the weightings on the different time horizons being considered, relative to their mean returns and risks. This effort can be viewed as a novel application of the philosophy of data envelopment analysis, a relatively new, non-parametric frontier estimation technique which focuses on estimating 'radial' contraction/expansion potentials. These approaches eliminate any need for subjective tradeoffs, vis-á-vis the importance or meaningfulness of performances over the different horizons. Finally, much useful sensitivity information is automatically provided. Also, in contrast to many studies of mutual fund performance, our approaches *endogenously* determine a custom-tailored benchmark portfolio to which each mutual fund's performance is compared. All of our approaches are illustrated on a sample of twenty-six actual mutual funds.

Keywords: Mutual funds; Benchmarking; Ratings; Data envelopment analysis; Multi-horizon; Risks; Quadratic programming

1. Introduction and motivation

With over 6500 mutual funds available to investors and over US$3.145 trillion in mutual funds (see Ref. [26]), increasing importance has been placed on the rankings and/or ratings of mutual funds. Numerous business magazines and private firms now specialize in giving regular, exhaustive rankings and ratings of mutual funds. Indeed, industry data shows that consumers pay a great amount of attention to these evaluations. For example, in a recent study [28], 97% of the money flowing into no-load equity funds between January and August 1995 was invested into funds which were rated as 5 star or 4 star funds (the top and next to top ratings) by Morningstar Inc., an industry leader in evaluating mutual funds; further funds with less than 3 stars actually suffered a net outflow of funds over the same period [28].

The typical investor, attempting to choose a mutual fund in which to invest, has available various funds' performances over: the past year to date; 1 year; 3 years; 5 years and 10 years. These various time-horizon performances are made available to potential investors largely because they provide considerable additional information over that given by a fund's performance over just a single time period. However, the investor is typically left to his own intuition and devices to determine which performances (i.e. over which horizons)

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