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AMBIGUITY WHEN PERFORMANCE IS MEASURED BY THE SECURITIES MARKET LINE

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I. INTRODUCTION

IMAGINE AN IDEALIZED ANALOG to the activities of professional money managers, a contest whose rules are as follows:

(a) Each contestant selects a portfolio from a specified set of individual assets.
(b) Returns are observed on the assets.
(c) After each period of return observation, the portfolios are re-balanced to the initial selections.
(d) After an interval consisting of several periods, "winners" and "losers" are declared for that interval.
(e) Contestants choose a new portfolio, or keep the old one, and the process (b) through (d) is repeated.
(f) After several intervals, consistent winners are declared to be superior portfolio managers and consistent losers are declared inferior. In the absence of any consistency, everyone is declared non-superior.

The sponsors of the contest face only a single problem of intellectual interest. They must develop criteria to partition contestants at step (d) into winners and losers. Of course, the criteria must be acceptable to participants and to disinterested observers. There should be a correspondence between "consistency in winning" and an intuitive notion of ability in portfolio selection.

We might think of many desirable qualities to be possessed by such criteria. For example, they should be robust to stochastic changes in the return sequence; true ability should be detectable over many intervals regardless of the sequence. If the criteria are employed by different sponsors, the same judgements about ability should be obtained. It should not be possible to reverse judgements by making changes in the computation of the criteria, if such changes are deemed insignificant by all observers. In other words, the criteria must provide decisions about ability that are *unambiguous* to rational judges.

A criterion that is widely employed in the financial community for assessing portfolio performance is the "securities market line," the (linear) relation between

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