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COMPONENTS OF INVESTMENT PERFORMANCE*

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I. INTRODUCTION

THIS PAPER SUGGESTS methods for evaluating investment performance. The topic is not new. Important work has been done by Sharpe [21, 22], Treynor [23], and Jensen [13, 14]. This past work has been concerned with measuring performance in two dimensions, return and risk. That is, how do the returns on the portfolios examined compare with the returns on other "naively selected" portfolios with similar levels of risk?

This paper suggests somewhat finer breakdowns of performance. For example, methods are presented for distinguishing the part of an observed return that is due to ability to pick the best securities of a given level of risk ("selectivity") from the part that is due to predictions of general market price movements ("timing"). The paper also suggests methods for measuring the effects of foregone diversification when an investment manager decides to concentrate his holdings in what he thinks are a few "winners."

Finally, most of the available work concentrates on single period evaluation schemes. Since almost all of the relevant theoretical material can be presented in this context, much of the analysis here is likewise concerned with the one-period case. Eventually, however, a multiperiod model that allows evaluations both on a period-by-period and on a cumulative basis is presented.

II. FOUNDATIONS

The basic notion underlying the methods of performance evaluation to be presented here is that the returns on managed portfolios can be judged relative to those of "naively selected" portfolios with similar levels of risk. For purposes of exposition, the definitions of a "naively selected" portfolio and of "risk" are obtained from the two-parameter market equilibrium model of Sharpe [20], Lintner [15, 16], Mossin [18] and Fama [10, 11]. But it is well to note that the two-parameter model just provides a convenient and somewhat familiar set of naively selected or "benchmark" portfolios against which

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