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## BOOK REVIEW

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Mark Kritzman, Senior Editor

### **PERFORMANCE EVALUATION AND ATTRIBUTION OF SECURITY PORTFOLIOS**

*Bernd R. Fischer and*

*Russ Wermers*

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*(Reviewed by*

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The basis on which investors select managers and strategies is performance. Appropriately, the first half of this book is dedicated to the art of measuring performance. In the second half the authors present an exhaustive treatment of performance attribution.

The authors start off with an overview of factor modelling beginning with Sharpe's 1964 factor-based approach and proceeding to today's more complex models, such as Fama and French (1993).

This book provides a list of metrics aimed at understanding

returns from an absolute perspective such as the Sharpe ratio. Yet, absolute performance is not always as informative as relative performance, which is treated in the early chapters. Fischer and Wermers dedicate an entire chapter to reflections around the concept of active management: why it exists, what is its role, and how does market efficiency relate to a manager's ability to generate profits.

Each asset class may require a specific approach to performance measurement. For example, it is well documented that many hedge funds exhibit autocorrelation. This phenomenon is believed to be the consequence (among others) of illiquidity. Another important issue is the non-normal profile of certain assets. Risk has many aspects that cannot be summed up by volatility alone. All these deviations from the classic

framework can be accounted for in ways that are described in this book.

A good benchmark has to follow a few simple rules. For example, it must be relevant and tradable. Once a benchmark is selected, the reader can access several key figures pertaining to a manager's skill such as the Jensen alpha or the information ratio (a superior metric, because it is independent of leverage). Chapter 11 goes over the main types of benchmarks and how they are built.

But what if you don't have a good benchmark? The authors cite several approaches that have been used to overcome this problem. The key idea is self-benchmarking based on the manager's holdings through time through the portfolio holdings measure:

$$PHM_t = Cov(w_{t-1}, R_t)$$

$w_{t-1}$  equals the weight of a particular asset at time  $t - 1$ , and  $R_t$  equals the returns of this asset at  $t$ . This metric is not scaled, which favours aggressive investing. Nonetheless, it provides new insights about a manager's ability. There are many variants around this measure, and they are extensively detailed in Chapter 4.

Blending these two approaches allows one to decompose the gross return of a fund at time  $t$  among three key components:

- The Characteristic Selectivity measure  $CS_t$  which measures the stock picking ability of the fund manager.
- The Characteristic Timing measure  $CT_t$  which measures the ability to generate profits from time-varying expected returns.
- The Average Style measure  $AS_t$  which can be interpreted as the returns generated from selecting certain types of stocks.

We therefore get the following decomposition for the gross return:

$$GR_t = CS_t + CT_t + AS_t$$

This decomposition lacks two essential elements, trading

costs and fees, which the authors address in Chapter 5.

This approach is illustrated by the authors using detailed information about US funds. The following chapters are also meant to offer more detail on how to best apply it, including the issue of non-normality.

Chapter 12 introduces an attribution method for equity portfolios. According to this method, portfolio weights deviate from a benchmark at the sector level and also within each sector. Therefore, the attribution process separates the contributions to return made at each of these two levels. Return is thus decomposed as follows:

- The Allocation Contribution  $AC_t$ : the part of the return that can be attributed to sector weighting.
- The Selection Contribution  $SC_t$ : the part of the return that can be attributed to stock weighting.
- The Interaction Term  $IT(1)_t$ : the cross products of these attributions.

Under the assumption that the portfolio is constructed from the same universe as the

benchmark, we get the following decomposition:

$$R_{p_t} = R_{b_t} + AC_t + SC_t + IT(1)_t$$

$R_{p_t}$  and  $R_{b_t}$  respectively equal the return of the portfolio and the benchmark at  $t$ . Building on this relationship, the authors present various ways to relax some assumptions, such as extending single-period models to multi-period models, dealing with portfolios and benchmarks that sum to zero, dealing with stocks that are not in the benchmark, and applying these models applying it to fixed income portfolios.

The authors extend the attribution approach to the multi-asset level. In order to do so, they add another source of return:

- The Global Allocation Contribution  $GAC_t$ : the part of the return that can be attributed to asset class weighting.

This excellent book covers everything a practitioner needs to know to construct a comprehensive system for analyzing investment performance.