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## BOOK REVIEW

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Mark Kritzman, Senior Editor

### **THE ENDOWMENT MODEL OF INVESTING: RETURN, RISK, AND DIVERSIFICATION**

*By Martin L. Leibowitz, Anthony Bova, P. Brett Hammond (John Wiley & Sons, Inc., 2010)  
(Reviewed by Bruce Grantier)*

This book is about improving returns and diversification for endowment-like funds through looking at asset allocation and portfolio risk relative to the US equity asset class and expressing risk and return relative to US equity beta. Relating the beta of asset classes to the beta of US equities (“1” by definition) in this way greatly simplifies the analysis of portfolios, provides better understanding of asset class alpha, and is consistent with the premise that the beta sensitivity to US equities “captures about 90% or more of the volatility risk of most allocations seen in the US institutional market.”<sup>1</sup> As such, the book

has won high praise from many esteemed members of the financial community—too many to mention—but including Clifford Asness, Roger Clarke, Charles Ellis, Frank Fabozzi, and Gifford Fong, Jack Meyer, and Edgar Sullivan.

In this review I propose to follow the outline of the book and discuss: *Preface*: the modern endowment setting, *Part 1*: the building blocks used in this approach—structural beta and structural alpha; *Part 2*: the so-called “beta-based asset allocation”; *Part 3*: stress betas; and *Part 4*: asset allocation using this approach.

The authors, Martin Leibowitz, Anthony Bova, and Brett Hammond, are eminently well-qualified to present such research. Martin Leibowitz (Managing Director, Research Department, Morgan Stanley) has written four

books, published 138 articles, and won 8 Graham and Dodd Awards for excellence in financial writing. Anthony Bova (Vice President, Research Department, Morgan Stanley) focuses on institutional portfolio strategy and recently won the Bernstein Fabozzi/Jacobs Levy Award for co-authoring “Gathering Implicit Alphas in a Beta World.”<sup>2</sup> Brett Hammond (Managing Director and Chief Investment Strategist, TIAA-CREF Asset Management) has published extensively within TIAA-CREF on pension and other investment topics.

*Preface* sets the stage for the book’s beta-based approach to asset allocation. The authors do not believe the endowment model is wrong, rather, its diversity has been overestimated—hence their suggestion that a beta-based approach recognizes this higher volatility. They further suggest

that a powerful defence is the accumulation of higher incremental returns over the long term.

The authors note the book is oriented towards larger institutional investors who typically have a long-term time horizon and consider the full range of asset classes. The authors, however, point out that:

*“investors should be leery of accepting the endowment model’s past periods of high returns as a simplistic template for the future. Many of the more notable early successes were achieved by organizations that enjoyed special advantages in staff and analytical resources, highly committed sponsors, flexible funding needs, extensive access networks, and perhaps most important—early entry.”*

The size-effect is significant. The authors quote the 1990–2008 NACUBO/TIAA-CREF Endowment Surveys, which report equally weighted returns of the largest endowments (>\$1B in 2008) of 12.1% pa vs. 8.2% earned by the smaller endowments and 9.0% earned by a passive 60/40 asset mix (S&P500/Lehman Aggregate). With this caveat and empirical evidence in mind, the authors point out that the principles of beta-based analysis still apply to the simple and standard asset classes.<sup>3</sup>

*Part 1* describes the beta-based approach. The authors review the evolution of US endowment

diversification away from standard asset classes into other alternatives, achieving some success (as apparent in David Swenson’s “Pioneering Portfolio Management”<sup>4</sup>), culminating in the financial crisis of 2008/2009, in which endowments lost any benefit of diversification—many large ones significantly underperformed a simple 60/40 asset mix. The authors observe that:

*“US equities continue to act as the overwhelmingly dominant risk factor for most institutional portfolios.”*

This is the premise for using US equities (whose beta is set at “1”) as the reference point for the betas of other asset classes. The calculation of individual asset class betas relative to US equities uses the standard formula: the beta of an asset is the correlation of the asset with the market (US equities) times the ratio of the asset’s volatility to US equity volatility. The authors call these derived betas “structural betas.”

They then calculate the “structural alphas” of asset classes, again, using the standard formula: the return of an asset is the asset’s beta times the market returns (US equities) plus the asset’s alpha. The result is structural alphas ranging from a low of cash to the highest asset classes (as you would expect)

venture capital, private equity, and emerging markets.

The difference between beta-based optimization and standard optimization is that, while correlations of asset classes are key to both, beta-based optimization recognizes the dominant influence of US equities as a source of risk, and orients diversification around that perspective. The authors discuss in *Part 2* the comparisons of beta-based returns with standard optimization results, although they note that the differences, while hard to quantify, stem mainly from the relaxation of the mean–variance approach, which allows greater focus on the less constrained non-standard asset classes. Given the dominance of US equities in explaining portfolio volatility, the beta-based approach is a far simpler technique compared to the large covariance matrix dependant and time required in the standard optimization.

*Part 2* contains a wealth of detailed excellent topics related to the beta-based approach—too numerous to mention here, and I apologize but recommend further to the reader. I will highlight a few which I liked most, although other readers would likely differ.

“Dragon Risk<sup>5</sup>”: The authors list non-quantitative risks in non-standard asset classes

which, while real, may limit sponsor allocations. Limiting allocations precludes higher returns, but (from a beta-based point of view) results in only a very small risk reduction. Some of these risks are: model misspecification, asymmetry or fat-tails, perils of relatively new vehicles, and shifts from historical returns as novel asset classes become established.

“Alpha Cores”: This very interesting chapter is about decomposing a portfolio into swing assets (traditional, liquid assets) and core assets (all other assets). This framework puts the starting point at assessing the maximum acceptable limits on the core assets and then to add the swing assets to achieve the desired risk level of the overall portfolio.

“Bonds as the Risk Free Asset”: Many investors prefer bonds to cash as their risk-free asset. Because of bonds’ low volatility, this substitution affects very little the risk characteristics of the non-bond assets. The substitution, however, does reduce the structural alpha of all non-bond asset classes—suggesting sponsors at least revisit their allocations to the non-bond assets (or non-core assets, if that approach is taken).

“Active Alphas”: Active alphas and structural alphas are fundamentally different. Active

alphas are skill-based and zero sum, while structural alphas are achieved passively and derived solely from a policy allocation. Active alphas can further be split into 1/portable and 2/bound. Portable alpha can be extracted and layered, while bound alpha requires continued investment in the asset and typically arises when the fund does not have access to efficient hedging vehicles.<sup>6</sup> An example is in the specialized sector of high-tech within venture capital, where a 2% alpha premium is expected over venture capital in general, but venture capital is not hedgeable.

*Part 3* discusses “stress-betas”, the increasing betas generated during non-normal times when correlation tightening occurs. The authors note that ironically the 60/40 asset mix stress beta changes little in abnormally volatile times. It is the substitution for bonds that introduces the risk of stress beta. For example, in international and emerging markets (which are attractive for their structural alpha over the long-term) correlations react quickly to volatility in US equities.

The chapter on “The Endowment Model: Theory and Experience” is quite interesting and thought-provoking. The authors looked at endowment returns over 1993–2007

and found consistently higher returns through non-traditional assets over this period. At the same time the risk characteristics of the endowment portfolios were fundamentally similar to a 60/40 portfolio. Returns were so much higher, that it brought into question the purpose of diversity of the endowments’ allocations. In retrospect, this unusual stable period earned returns which greatly exceeded expectations and provided a cushion for future non-normal times. The next chapter—“Diversification Performance: Under Stress (2008) and over the Long Term (1993 through 2007)—confirms the questions raised in the previous chapter. During the stressful period of 2008, the typical endowment portfolio beta rose to .95, far greater than the 60/40 portfolio beta of .64 and causing severe losses of the diversified portfolio.

*Part 4*, which contains the key takeaways, is an excellent summary. The reader would, however, benefit greatly from adding this book to their bookshelf, not just following these brief remarks, but using the book as a reference for investment policy.

Using structural alphas and betas reveals that many institutional portfolios are far more

alike in risk-return characteristics than they appear on the surface.

The concept of starting with an alpha core can greatly help in the process of structuring a balance of risk and expected return.

The reliance on non-standard alternative assets appears to be more a return-enhancing than risk-control technique, although, in periods of stress beta, accumulated past excess returns may be the price of severe underperformance during the period of stress betas.

Finally, the endowment model requires a long-term time horizon to be successful—the author’s example of the

1993 through 2007 followed by 2008 bears this out. The earlier period’s excess return compensated for the subsequent underperformance in 2008.

Overall, the value of the beta-based approach is its simplicity and intuitive appeal in understanding the roles of structural alpha and structural beta in the modern endowment portfolio. Speaking as a member of several investment committees, including a university endowment investment committee, I would heartily recommend readers try out the beta-based approach and consider the excellent lessons which such an approach suggests.

## Notes

- <sup>1</sup> An early reference to this result is Leibowitz, Martin “The Beta-Plus Measure in Asset Allocation”, *Journal of Portfolio Management*, Spring 2004.
- <sup>2</sup> *Journal of Portfolio Management*, Spring 2007.
- <sup>3</sup> For a survey of literature on private equity performance, see: Grantier, Bruce “Living Dead” *Canadian Investment Review*, Fall, 2008. <http://www.investmentreview.com/files/2009/12/livingdead1.pdf>.
- <sup>4</sup> Swenson, David “Pioneering portfolio management: An unconventional approach to institutional investment management.” New York, The Free Press, Revised Edition 2009.
- <sup>5</sup> A term attributable to Clifford Asness.
- <sup>6</sup> Interestingly much has been written about this—the book cites authors such as Asness, Dalio, Dopfel, Gupta and Straatman, Siegel, and Siegel and Waring.