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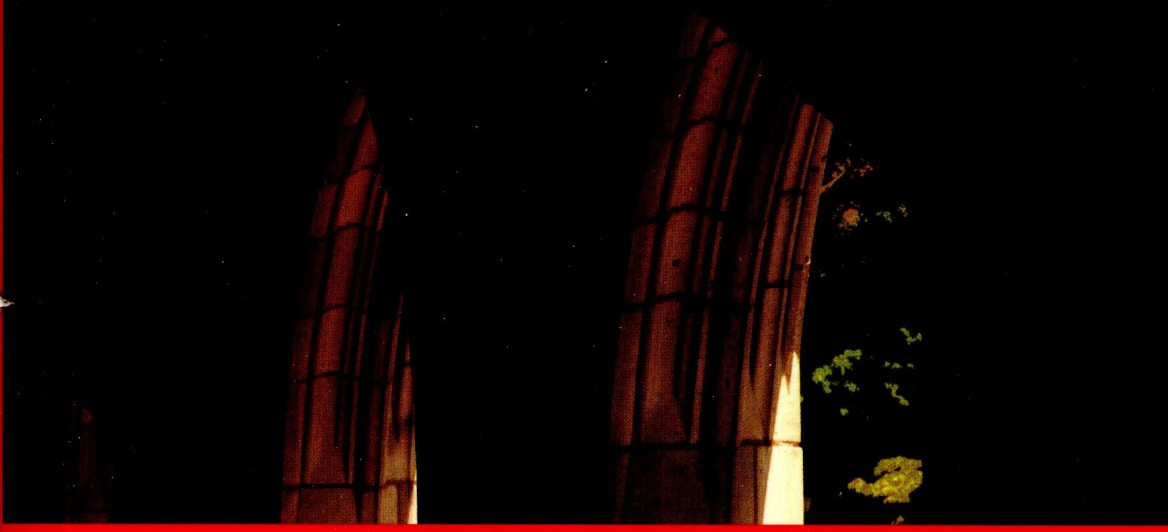

The Endowment Model of Investing

Return, Risk, and Diversification

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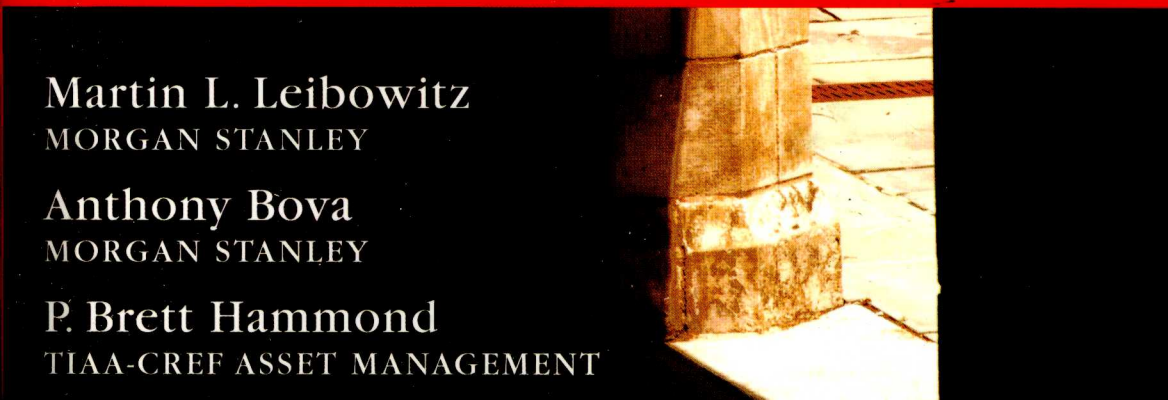

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Praise for
The Endowment Model of Investing

"This is a terrific book—required reading for any CIO. With their focus on beta-based analysis, Marty, Anthony and Brett have developed a sophisticated approach for how to exploit the power of diversification in the 21st century."

—Lyn Hutton, Chief Investment Officer, Commonfund

"Any fund sponsor or portfolio manager considering alternative assets should read this book. The authors show that alternative assets can increase a fund's risk exposure in the short term as their stress betas rise during market crises. When properly allocated, however, alternative assets can provide a central role in maximizing value over the long term."

—Bruce I. Jacobs, Principal, Jacobs Levy Equity Management, and editor of *Market Neutral Strategies*

"The key question is whether beta-based performance analysis and other novel mathematical modeling approaches can effectively deal with the triumvirate of return, risk and diversification in a portfolio. While that key question may be unresolved for, no group other than the authors have made such a rigorous and penetrating assessment of the problem. In my judgment—A MUST READ FOR EVERY CHIEF INVESTMENT OFFICER OR STRATEGIST."

—Allan S. Bufferd, Treasurer Emeritus, MIT

"The authors' frameworks shed needed light on the risks and return sources in non-traditional portfolios. Were this book previously available, many endowment fiduciaries might have understood better what was happening to their portfolios during the financial crisis, and why their pain was predictable, inevitable, and—curses to the Investment Deities—necessary for long-term success."

—Andrew K. Golden, President, Princeton University Investment Company

"This is a must read for every institutional investor concerned with portfolio risk management. Full of important insights and robust analyses, its deconstruction of equity risk exposure under conditions of stress is particularly valuable and would have saved endowment funds much grief (and money) had they digested its warnings before the markets crashed."

—Ian Kennedy, Former Global Director of Research at Cambridge Associates

"Every endowment will benefit by having its key people study this elegant, rigorous, and articulate examination of the endowment model's focus on achieving superior long-term returns—and why skillful implementation is always crucial."

—Charles D. Ellis, Author, *Winning the Loser's Game*

"Is the endowment model broken? The answer, is 'No, but you need to step up your game.' Their appealing mix of analysis and common sense will take you where you need to go."

—Jack R. Meyer, Managing Partner, CEO, Convexity Capital

"A solid analysis of the trend towards allocating into multiple asset classes that indicates when such diversification helps to control fund-level risk—and when it does not."

—Jim Simons, Chairman, Renaissance Technologies LLC

"A balanced book... neither coming to bury nor praising the model... takes us through problems like 'dragon risk.' All-in-all, a balanced and exceptionally thoughtful study of the endowment model that is sorely needed. Heartily recommended."

—Clifford Asness, Chairman, AQR Investments

"A valuable new approach that probes more deeply into the various forms of diversification."

—Frank J. Fabozzi, Professor in the Practice of Finance Yale School of Management and Editor, *Journal of Portfolio Management*

"The Endowment Model is a major advance in the science of investing for endowments. It provides a formal way to incorporate such difficult-to-handle concepts as investment 'alphas' into a risk/return framework... I think the book is great."

—David Booth, Chief Executive Officer, Dimensional Fund Advisors

"The authors have suggested a framework that is quite intuitive and relatively simple. Many institutional funds may find this framework insightful for asset allocation and risk management purposes."

—Roger Clarke, Chairman of Analytic Investors, Inc.

"Leibowitz, Bova and Hammond have collaborated in creating a compendium of insightful and actionable principles for the endowment space... (and) a significant proportion of institutional portfolios. This is an important contribution for developing a framework for success for many institutional portfolios."

—H. Gifford Fong, President, Gifford Fong Associates

"The endowment model is a tenet of institutional investing that the recent credit crisis calls into question. Leibowitz, Bova and Hammond have produced a must read for assessing the future of this trusted model. Their very readable book calls for maintaining the endowment model but adjusting our time horizons when applying it."

—Edgar Sullivan, Managing Director, Promark Global Advisors (formerly General Motors Asset Management)

The Endowment Model of Investing

Founded in 1807, John Wiley & Sons is the oldest independent publishing company in the United States. With offices in North America, Europe, Australia, and Asia, Wiley is globally committed to developing and marketing print and electronic products and services for our customers' professional and personal knowledge and understanding.

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Preface

The purpose of this volume is to focus on the endowment allocation model, to understand the source of its value to investors, to analytically examine its theoretical underpinnings and its empirical behavior, and finally, to reassess where and when it should be used given its benefits and limitations. It does so by adopting a new approach to describing the risk-and-return characteristics of individual asset classes and then exploring how this reformulation affects their role within a total portfolio.

U.S. equity turns out to be the primary risk factor in most institutional portfolios. A total portfolio's beta is derived by combining the explicit equity percentage with the correlation-based equity sensitivity that is implicitly present in all nonequity assets. This total beta approach suggests most U.S. institutional funds share three surprising characteristics:

1. A total portfolio volatility that is more than 90 percent dominated by equity volatility
2. Fund-level beta values that almost always lie between 0.55 and 0.65
3. Total projected volatilities of 10 to 11 percent in normal equity markets

The book is divided into four parts. Part One, "Alpha/Beta Building Blocks of Portfolio Management" (Chapters 1 and 2), demonstrates that asset classes and portfolios can be decomposed into equity-beta and beyond-beta components. Because of the dominance of the equity risk factor, the typical institutional allocation does not fit the common textbook definition of portfolio diversification as a means of reducing portfolio risk.

Part Two, "Beta-Based Asset Allocation" (Chapters 3 through 14), builds on this total beta framework to develop analytical tools that provide a deeper understanding of the risk-and-return dimensions of institutional portfolios. It also addresses the limitations of optimization techniques in the face of a proliferation of novel asset classes that have only a relatively brief historical performance record. The concepts of an equity-based beta and the corresponding beyond-beta alphas shine a fresh light on the process of incorporating new asset classes into the endowment model. One novel suggestion is to reverse the standard historical process of asset allocation

where traditional assets form a base to which the nonstandard assets are added incrementally. By inverting this process, at least mentally, an alpha core of nonstandard assets is first formed that specifically focuses on the appropriate constraints for the nonstandard assets. The traditional equity and fixed income components are then incorporated as supplementary swing assets to obtain the desired level of total beta risk.

Part Three, "Theoretical and Empirical Stress Betas" (Chapters 15 through 19), examines both theoretical and actual portfolio behavior in selected regimes. Of particular interest are the implications during periods of significant market declines (such as 2008–2009) when correlations "go toward 1" (they cannot literally "go to 1" without driving an asset's residual risk to zero). In such environments, beta values can rise significantly and become *stress betas*. It is during these stress times that the endowment model—or any typical highly diversified allocation—may significantly underperform traditional 60/40 allocations.

Part Four, "Asset Allocation and Return Thresholds" (Chapters 20 and 21), develops implications for the future of the endowment model. One key conclusion is that the modern endowment model should not be viewed as a technique for reducing short-term volatility, but rather a strategy for accumulating incremental returns and achieving more divergent outcomes over the long term. The final chapter suggests a number of key takeaways for investors.

The endowment model should continue to be an attractive option for long term investors if they are truly long term and able to ride out bouts of significant short term volatility. At the same time, investors should be leery of accepting the endowment model's past periods of higher 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 dynamic nature of the financial markets means that they are always evolving. And just as nature abhors a vacuum, so financial markets abhor any easily followed source of excess return.

With all these caveats in mind, diversification still remains one of the most powerful risk-reducing and return-enhancing tools in the investor's arsenal. Beta-based analysis provides a simple and pragmatic approach for avoiding some common allocation problems and enabling diversification strategies to reap their full potential benefits.

Acknowledgments

This beta-based approach to asset allocation would not have been possible without the early work of Harry Markowitz and William Sharpe. These pioneers developed the fundamental principles of diversification and identified the central role of systematic beta measures that form the foundation for our studies.

We would also like to express our gratitude to the many clients who address allocation problems on a daily basis and who have been so generous in sharing their insights into the nature of these issues.

Finally, the authors would like to acknowledge Morgan Stanley and TIAA-CREF for their encouragement and support of this research.

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