



American Finance Association

The "Market Model" In Investment Management: Discussion

Author(s): Walt McKibben

Source: *The Journal of Finance*, Vol. 35, No. 2, Papers and Proceedings Thirty-Eighth Annual Meeting American Finance Association, Atlanta, Georgia, December 28-30, 1979 (May, 1980), pp. 607-609

Published by: Blackwell Publishing for the American Finance Association

Stable URL: <http://www.jstor.org/stable/2327422>

Accessed: 28/11/2009 08:16

Your use of the JSTOR archive indicates your acceptance of JSTOR's Terms and Conditions of Use, available at <http://www.jstor.org/page/info/about/policies/terms.jsp>. JSTOR's Terms and Conditions of Use provides, in part, that unless you have obtained prior permission, you may not download an entire issue of a journal or multiple copies of articles, and you may use content in the JSTOR archive only for your personal, non-commercial use.

Please contact the publisher regarding any further use of this work. Publisher contact information may be obtained at <http://www.jstor.org/action/showPublisher?publisherCode=black>.

Each copy of any part of a JSTOR transmission must contain the same copyright notice that appears on the screen or printed page of such transmission.

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



Blackwell Publishing and American Finance Association are collaborating with JSTOR to digitize, preserve and extend access to *The Journal of Finance*.

<http://www.jstor.org>

$$\Delta\beta = q\sigma_f^2(1/\sigma_s^2 - q'h_t/\sigma_t^2) + R^*(h_s/\sigma_s^2 - h_t/\sigma_t^2)$$

If the terms R^*h_s and R^*h_t are approximately equal, then the beta vectors will be approximately proportional, with $\Delta\beta = (q'h_t - 1)\beta_s$. When the beta vectors are proportional, the decomposition between portfolio systematic and residual return is invariant to the specification of the sector portfolio.

Conversely, the fact that there is such a high empirical correlation among broad-based sector portfolios with weighting similar to capitalization, suggests that either R^*h is consistently small relative to q , or consistently proportional across sector portfolios. This tends to confirm approximations to β^* by β_s , and the derivative assertion that the residual variance of h_s is small relative to h_t .

As we have remarked above, this does not necessarily prove that q is proportional to β_s . However, that is the most likely circumstance in view of the fact that no interesting discrepancies have been shown in empirical research known to us.

REFERENCES

1. John Langbein and Richard Posner. "Market Funds and Trust Investment Law," *American Bar Foundation Research Journal*, (Winter 1976), pp. 1-34.
2. ———. "Market Funds and Trust Investment Law II," *American Bar Foundation Research Journal*, (Winter 1977), pp. 1-43.
3. John Long. "Consumption Investment Decisions and Equilibrium in the Securities Market," in M.C. Jensen, ed., *Studied in the Theory of Capital Markets*, (New York: Praeger, 1972)
4. David Mayers. "Nonmarketable Assets and the Determination of Capital Asset Prices in the Absence of a Riskless Asset," *Journal of Business*, (April 1973), pp. 258-267.
5. Merton Miller and Myron Scholes. "Rates of Return in Relation to Risk: A Re-examination of Some Recent Findings," in M. C. Jensen, ed., *Studies in the Theory of Capital Markets*, (New York: Praeger, 1972).
6. Richard Roll. "A Critique of the Asset Pricing Theory's Tests," *Journal of Financial Economics*, (March 1977), pp. 129-176.
7. Henri Theil. *Principles of Econometrics*, (New York: John Wiley and Sons, Inc., 1971).

DISCUSSION

WALT MCKIBBEN*: This excellent paper provides a basis for evaluating the robustness of the "Market Model"—as currently applied by investment managers—to misspecification of the market portfolio.

This issue is vitally important to those practitioners who rely on systems using some base portfolio or index as a norm against which to study performance, policy quantification and monitoring, risk analysis, and comparative characteristics of portfolios.

I believe it would be fair to say that many regular users are reasonably comfortable with current applications where results have been intuitively credible over a period of years. For other applications or extensions, however, we are uneasy and would like more evidence.

* FMR Investment Management Service, Boston.

Having no quarrel with the mathematics of the Rudd-Rosenberg paper, I will concentrate on assumptions and implications, taking the risk of oversimplification.

I take from this article a strong suggestion that the choice of an index is not particularly critical for most currently accepted applications of portfolio theory to U.S. equity investment, so long as the choice is a broad-based capitalization-weighted index. Given that it seems reasonable to use a single-index model for a sector, then we can expect a "wrong" choice of proxy for the "true underlying prominent factor" to induce estimated factor loadings which are a simple linear transformation of the "true" betas. The distortions are expected to be relatively small because broad-based capitalization-weighted indices of U.S. equities are highly correlated.

Variance-covariance estimates should not be seriously biased, which bodes well for comparative risk evaluation. Comparison of most portfolio characteristics should be acceptable on a relative basis. Policy quantification and monitoring depends mostly upon consistency, rather than absolute values.

For performance evaluation, however, the outlook is less comforting. The basis of risk-adjusted comparison is seriously threatened if the reference portfolio is not a unique passive optimum and if estimated portfolios have been scaled wrongly and perhaps translated up or down. Since even small extraordinary returns are hard to achieve with large, well-diversified portfolios (and therefore not to be ignored), even small distortions are disturbing in this regard.

The paper also spells out what we need to assume in order to accept decentralized guidelines for sectoral subproblems as best or near-best solutions.

We must accept that correlations between individual items in different sectors—say, a given stock and a given bond—arise almost entirely from correlations between the two prominent factors and loadings of the specific investments on these factors. Despite obvious exceptions, such as equity and debt instruments of the same firm, this assumption may not be too unreasonable.

Even so, a serious problem still remains. The article shows that we can decentralize decisions and allow optimization at the sector level, assuming that a combination of sector optima will aggregate to a near-optimal overall portfolio only for the pure selectivity case, where changes in the sector portfolio do not change the average sector portfolio loading on the prominent factor. If this is not true, a change in one sector will change the optimum in the other sector.

In other words, it may not be sound to decompose the problem and allow independent action by multiple managers unless the systematic risk in each isolated cell has been well specified and fixed. This is not the present practice.

The paper touched upon extension to the international arena and to investment in real estate and commodities. Combining the results of this paper with what we think we know about such markets, I conclude that I should raise a danger signal. The likely sources of *major* misspecification are more flagrant and threatening when we move to such markets. Significant double counting through cross-ownership and large pools of equity owned by traded firms exist in many countries. There are cases of large obligatory holdings. The indices have not yet been shown to be satisfactory. There is more than a hint that they may not be.

In contrast with findings for various U.S. equity indices, there is a rather low and unstable correlation between almost any pair of indices you care to name within any given non-U.S. market.¹ We certainly cannot assume that "buying the index" abroad or in other categories of investment would be a cost-effective and prudent means of investment.

Rudd and Rosenberg have made important progress toward tests of robustness. Working out the expected effects of incomplete specification makes it possible to estimate the impact of a given stated misspecification measured against some hypothesized "true" structure. Such a next step is needed badly and would be a fertile field for empirical research.

On the theoretical side, a welcome next step might involve working out the expected distortion from other kinds of misspecification. Specifically, we would like to know more about errors resulting if there are in fact two or more non-trivial linkages between two sectors, while we are using a model allowing only one such linkage.

¹ See C. Richard Bartels Jr., "International Index Comparisons," unpublished working paper.