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This Week's Citation Classic

Sharpe W F. Capital asset prices: a theory of market equilibrium under conditions of risk. *J. Finance* **19**:425-42, 1964.
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Given homogeneous probabilistic predictions of the joint distribution of security returns, capital asset prices will adjust in equilibrium so that expected returns will be linearly related to security risks, where the risk of each security is measured by its beta value, indicating the sensitivity of the security's return to changes in the return on an efficient portfolio. [The *SCI*® indicates that this paper has been cited over 425 times since 1964.]

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"I began to work on portfolio theory and capital asset prices in 1960; the initial results were contained in my dissertation, completed at the University of California, Los Angeles in June, 1961. In it I explored normative aspects of portfolio construction and developed a positive model for the determination of capital asset prices under conditions of risk, using the very strong assumption that the risk of a security can be dichotomized into: (1) a part due to correlation with all other securities, and (2) a part due to factors completely unique to the security in question. This assumption (which I called the diagonal model, but is now usually termed the single index model) is obviously a simplification of reality. We now know that it is a great oversimplification. However, it does allow great reductions in the cost of solving the quadratic programming problem associated with efficient portfolio construction. An algorithm designed to exploit its characteristics, developed in my dissertation, was published in 1963.[1]

"Shortly after completing the dissertation, I set out to see if the strong single-index model assumption could be relaxed when building a positive model of capital asset pricing. Happily I found that the key results could all be obtained without the assumption (although some still mistakenly believe that it is needed). I first presented this much more general model at the University of Chicago in January, 1962, and submitted a written version to the Journal of Finance shortly thereafter. The usual refereeing process and other editorial matters delayed publication until September, 1964.

"A few months later, John Lintner's more extensive analysis was published.[2] It started from a different point and for a while both John and I believed that our models had reached different conclusions and were inconsistent with each other. After the usual confusion (some of it in print), it is now well established that the two approaches are completely compatible. A third model was developed by Mossin.[3] Although he initially interpreted one of his results differently, his approach has been shown to be fully compatible with the other two.

"The resulting theory is usually termed the Sharpe-Lintner or Sharpe-Lintner-Mossin Capital Asset Pricing Model (CAPM). While much has been done to extend it, the basic ideas remain at the core of much of modern finance theory and practice. I suspect that this stems in part from the fact that the results are both reasonable (although not intuitively obvious) and practical. Moreover, the results are not wildly inconsistent with empirical evidence, and this has undoubtedly helped them gain acceptance as well."

1. **Sharpe W F**. A simplified model for portfolio analysis. Manage. *Sci*. **9**:277-93, 1963.
2. **Lintner J.** The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets. *Rev. Econ. Statist*. **47**:13-37, 1965.
3. **Mossin J.** Equilibrium in a capital asset market. *Econometrica* **34**:768-83, 1966.