

THE PARADOX OF ASSET PRICING. BY PETER BOSSAERTS.
PRINCETON, N.J.: PRINCETON UNIVERSITY PRESS, 2002.

A quantitative model defining the “intrinsic” value of a security has been and continues to be a primary ambition of many financial economists. Prior to the 1952 publication of Harry Markowitz’s *Portfolio Selection* sophisticated participants in the world of financial speculation often relied on some form of fundamental or technical analysis to assess the investment merits of individual securities. Fundamental analysis is a process of gathering and analyzing information specific to determining the prospects of a security’s future performance. It often requires gathering economic, industry, and company-specific data, and then utilizing this information to arrive at an appraisal of present or future price.

Perhaps the most important aspect of fundamental analysis is the increase in understanding gained by facilitating the process. Consistent with Austrian economic theory, it is this *understanding* of relevant information to the investment opportunity, formulated in the human mind, that aids in developing an estimate of future price.¹ Fundamental analysis is also consistent with Austrian economics because it represents an entrepreneurial process as the means of attaining the goal of profit by allocating investment capital to the most deserving companies. Markowitz’s modern portfolio theory (MPT) and its resultant asset pricing models have attempted to displace fundamental analysis as the only “truly scientific” approach to investment analysis; disregarding the emphasis on individual security appraisal. In fact, most financial economists consider the development of MPT as defining the point at which the field of finance formally became a “true science.”

Motivated by the quantitative logic of MPT, its foundational quantitative specifications of utility and risk aversion, Eugene Fama’s formulation of an equilibrium-based efficient market hypothesis (EMH), and extensions utilizing aggregate market data such as Tobin’s two-fund separation theorem, the advocates of economic positivism continued their search for an ultimate asset-pricing model. Sharpe (1964), Mossin (1966), and Litner (1965) brought us the first asset-pricing models based on EMH and MPT assumptions. Their work resulted in the capital asset pricing model (CAPM), which specifies the relationship between financial security return and risk (defined by the covariance of a security’s historical return series with that of a representative risky market proxy). The relationship between risk and return specifies

¹I have formulated the primary “role” of fundamental security analysis as “gaining understanding” based on cumulative readings of the works of Ludwig von Mises (*Human Action, Theory and History, The Ultimate Foundation of Economic Science, and Money, Method, and the Market Process.*)

the appropriate market-clearing price (i.e., equilibrium). The CAPM contends that a security's required return has little or nothing to do with company and industry specific events for these sources of risk *are* simply immaterial as they are easily diversified away by investors, *all* of whom are assumed to "rationally" hold Markowitz efficient portfolios. While the academic advocates of the "scientific" approach to portfolio and investment management continue producing research that support the use of quantitative asset pricing models, results in real world applications have been dismal.

The failure of CAPM has fueled an ongoing debate over the correct paradigm of asset pricing. Disregarding (or simply ignoring) the writings of Ludwig von Mises, who emphatically states that prices are determined by subjective valuations of individuals and cannot be measured by cardinal numbers, diligent work has continued to (1) Salvage CAPM by reformulating it (i.e., intertemporal CAPM (Merton, 1973), and others), (2) Create new equilibrium models based on far different assumptions (arbitrage pricing theory [Ross, 1976]), or (3), Show that human behavioral constraints limit the ability of investors to act rationally and call for efforts to create a new or radically modified asset pricing paradigm. In spite of financial economists' best efforts, empirical and market tests of quantitative models provide little support for usefulness in real-world applications. Anyone familiar with the Misesian view of economic methodology (praxeology) could easily have predicted the failure of quantitative financial modeling attempts.

Utilizing a world of certainty (evenly rotating economy) for deducing crucial economic insights is a valuable tool for testing economic theory, but wrought with problems when considered descriptive of actual human actions. When economists attempt to supplant human based systems with artificial quantitative models they encounter a host of insurmountable methodological problems due to the variability and complexity of past, present, and future economic environments. Nevertheless, financial economists persist in assuming that the real world can be replicated in asset pricing models. What are especially troubling are the methodological violations in formulating these so-called theories of asset pricing in spite of the continued failures of such models in applications. Ludwig von Mises is well known for his sharp criticisms of the methods employed by the proponents of positivism and empiricism. The utilization of methodological collectivism versus methodological individualism, the problems of constructing indexes to measure aggregate activity, confusion over the proper application of class versus case probability, and the overall mechanistic approach of quantitative modeling violate the Misesian prescription of praxeology as the proper study of purposeful human action.

Unfortunately, Peter Bossaerts' text, *The Paradox of Asset Pricing*, offers no relief from past use of flawed methodologies. Bossaerts is professor of finance and director of the Laboratory for Experimental Finance at the California Institute of Technology. His manuscript is aimed at the academic/professional market and is based on a collection of his lectures, working papers, and published research. Based on the title and preface, one may assume that Bossaerts is launching a full-scale attack on the use of positivism and econometric empiricism in past attempts to study asset pricing; this view is quickly extinguished by the time the reader gets to page xi of the Preface. In terms of general methodology, he utilizes the same techniques and measures that most Austrian economists reject.

The essence of Bossaerts' text is an attack on the efficient market hypothesis (EMH) as the basic premise of asset pricing models. Most Austrian economists would be sympathetic with attempts to overthrow the application of an artificial construct such as EMH as a description of the way security prices assimilate and reflect relevant information. In his text Bossaerts leaves little changed in terms of the ambitious use of mathematical proofs and general support for quantitative modeling. He begins by providing an overview of the commonly used quantitative modeling approach to asset pricing, then proceeds with evidence questioning the validity of EMH as a foundational assumption of asset pricing models. Following the deluge of mathematical calculations and models (which permeate the entire text) he eventually shows the reader the weakness of results obtained from empirical tests of asset pricing models based on the assumption of EMH. Bossaerts also asserts that weak empirical test results of asset pricing models may be attributable to the complexity of research utilizing historical data; a reasonable proposition from the view of most Austrian economists. He quickly oversteps the bounds of reason by suggesting that a better empirical testing method is to create "laboratory experiments" in the spirit of game theory.

Thus, Bossaerts creates a laboratory experiment to examine the dynamics of asset price evolution. Bossaerts' laboratory experiment is basically a simulated trading game in which participants are handed a quantity of money, and told to bid for three securities (two risky and one risk free) initially set at different price levels. Participants are given no prior information about the securities. They are not given information about ending prices but are provided access to information concerning the historical trades of others in the subject group as the game progresses. Participants get to keep their ending wealth at game's end. I will not go into the details of his quasi-experimental design except to say that the trading groups participating hardly represented breadth and depth of sample (two groups each composed of MBA students from Yale, Stanford, and UCLA and one group from Caltech); there are additional design questions as well. Needless to say, most Austrian economists would consider the attempt to perform an economic "laboratory experiment" beyond the bounds of appropriate methodology. In spite of his questionable experimental method, results show that near equilibrium prices generally obtain (although in some cases prices drift in and out of near equilibrium). He attributes anomalies in the results to the irrational speculation of subjects. Results appear to support asset-pricing models but lead to concerns about EMH, especially the requirement that market participants hold a set of correct initial beliefs.

Based on knowledge gained from his "experiment," Bossaerts proceeds to develop a new hypothesis of market behavior he labels the efficiently learning market (ELM). By relaxing the EMH assumption of correct initial beliefs or "priors," he provides evidence that markets tend toward equilibrium based on a subjective learning process as participants compete against each other to optimize ending wealth. Admittedly, ELM has a greater logical appeal than EMH because it encompasses more realistic characteristics of human behavior. He then attempts to verify the ELM hypothesis by constructing an empirical study utilizing historical data from initial public offerings of common stocks. His results are somewhat suspect (again, there are contradictions) but generally supportive of ELM. In any respect, he does show that the ELM "fits the historical record better than EMH." As Bossaerts asserts, "it appears to be more appropriate to model financial markets in the image of a Bayesian learner who may at times hold mistaken expectations." This is perhaps a lot of work to prove the obvious for is

there really anything new in proving that individuals can err when forming expectations of future events?

The Paradox of Asset Pricing is more revealing of paradoxes than the author may have intended. The author is somewhat successful in refuting EMH and the assumption of equilibrium conditions *instantaneously* obtaining in asset prices. To that extent, Austrian economists may applaud. From the perspective of the praxeological method as the only acceptable methodology for the study of human action, the reader is treated to a host of fallacies, absurdities, and contradictions that explain the ineffectiveness and wholesale waste of resources prevalent in most modern-day financial economic research. It is obvious that the author (as is likely the case of most financial economists) is unsympathetic to Austrian methodology by his repeated attempts to “brute force” common sense into the language of mathematics. It cannot be assumed that he is ignorant of the Austrian School for in one sentence he does display some familiarity by stating “There is a school of thought in economics, the Neo-Austrian school, that rejects the very idea that markets equilibrate” (p.16).

If anything, the Bossaerts text provides a good example of “state of the art” research in current financial economic literature. His efforts expand on a line of research that totally rejects methodological individualism. For example, there are no references to the role of a firm’s fundamentals or any reference to the actions of the *individual* in asset pricing. The work of modern financial theorists and econometricians routinely reject the study of individual cases to gain knowledge and understanding. In their view, all relevant information is encompassed in collective or aggregate parameters.

Most business schools and economics departments indoctrinate their students with the modern methods of quantitative modeling and econometrics like that represented in *The Paradox of Asset Pricing*. Fundamental analysis is considered gauche. Is it any wonder that today’s graduates from the so-called “best” business schools who establish careers on Wall Street fail to identify irregularities in financial statements and grossly err with their recommendations?

RICHARD C. GRIMM
Grove City College

REFERENCES

- Fama, Eugene F. 1970. “Efficient Capital Markets: A Review of Theory and Empirical Work.” *Journal of Finance* 25: 383-417.
- Litner, John. 1965. “The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets.” *Review of Economics and Statistics* 47: 13-37.
- Markowitz, Harry M. 1952. “Portfolio Selection.” *Journal of Finance* 7: 77-91.
- Merton, Robert. C. 1973. “An Intertemporal Capital Asset Pricing Model.” *Econometrica* 41: 867-88.
- Mossin, Jan. 1966. “Equilibrium in a Capital Asset Market.” *Econometrica* 34: 768-83.
- Ross, Stephen A. 1976. “Arbitrage Theory of Capital Asset Pricing.” *Journal of Economic Theory* 13: 341-60.
- Sharpe, William F. 1964. “Capital Asset Prices: a Theory of Market Equilibrium under Conditions of Risk.” *Journal of Finance* 19: 425-42.