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## BOOK REVIEWS

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Mark Kritzman, Senior Editor

### NEOCLASSICAL FINANCE

*By Stephen A. Ross*

*(Reviewed by Jennifer Chu)*

“The appeal to investor sentiment seems almost limitless in its ability to explain just about anything. Once we have jettisoned the discipline of a market in which arbitrage is eliminated, we can reverse-engineer any observed pattern of prices and deduce a demand structure that would support it.”—Stephen A. Ross

Stephen Ross, one of the great pioneers of modern finance, revisits the central framework of classical asset pricing and financial market theory in this text based on a series of lectures through the Princeton Lectures on Finance. Rigorous and compact, this four-chapter book reviews the original no-arbitrage underpinnings of theoretical finance Ross developed in the

1970s, and makes a persuasive argument for the relevance of this paradigm for the challenges posed by the new outcrop of “behavioral finance” theory.

Chapters 1–3 present a clear and concise synthesis of the tenets of classical finance and theory of efficient markets. In Chapter 1, Ross reviews the main features of modern finance theory, showing how the assumption of no arbitrage leads to the existence of a positive linear pricing rule, and how this in itself is equivalent to the existence of positive risk-neutral probabilities. Here, he also succinctly describes key topics—Option Pricing, Arbitrage Pricing Theory, the Capital Asset Pricing Model, and the Modigliani–Miller Theorem. Chapter 2 is the most technically challenging section of the book, which Ross notes in the preface can be skipped without harm. Knowledgeable

researchers in the field, however, will find this chapter most meaningful due to its cogent discussion of the stochastic discount factor. Ross’ objective here is to tie the basic theory of no-arbitrage back to the foundations of consumer theory. In particular, key innovations in this chapter include (1) a clear linkage of the volatility of the pricing kernel to the utility specification and the identification of an upper bound on the variability of the pricing kernel by linking this directly to utility-specific risk aversion; and (2) an intriguing spin on the age-old “equity premium puzzle.” Finally, Chapter 3 presents an overview of the theory of efficient markets and discusses a number of studies done, most of which suggest that markets are, on the whole, pretty efficient.

For readers familiar with the ever-growing debate between neoclassical finance and the new

wave of papers falling under the umbrella of “behavioral finance,” the fourth and final chapter of the book proves to be the most compelling and, to those proponents of behavioralism, the most controversial area. In Chapter 4, Ross offers a strong and critical take on the debate. Supporters of behavioral finance argue that anomalies in the markets can only be explained by the existence of imperfectly rational traders and that the aggregation of this imperfect rationalism can come to dominate aspects of the market in systematic ways. It should be noted that the term “behavioral finance” broadly applies to many subsets of the academic literature; Ross’ argument is with those researchers in particular who attempt to broadly apply amorphous models of “investor sentiment” to any financial anomaly. Specifically, Ross addresses one particular puzzle, the closed-end fund puzzle, to highlight the argument of why neoclassical finance is still quite relevant. To account for the puzzle—that closed-end funds sell at a discount to the price of the individual securities in the fund—Ross proposes a neoclassical theory of fee-based discounts that depends on the differences in funds’ payout behavior as well as their evolving payouts over time. The ability of this theoretical framework to explain the

actual discounts cross-sectionally and dynamically is persuasive.

Overall, the text is highly engaging and enlightening for both seasoned readers and those who are looking for an introduction to theoretical finance. The former will appreciate the book’s new insights as well as the clear treatment of the material; the latter will find the presentation intuitive and concise. Standard treatments of classical finance are typically fraught with technical complexity and tend to disengage the reader. Instead, Ross manages to keep the necessary mathematical descriptions but only where they genuinely add insight and not where they might deter. His ability to do so reflects his deep knowledge of the subject and his unique position as one of the founders of the field.

### **EXPERIMENTAL ECONOMICS**

*By Ross M. Miller*

*(Reviewed by Ritirupa Samanta)*

In his preface to Ross Miller’s book, Nobel laureate Vernon L. Smith welcomes the reader with the following message: “You, the reader, will learn much, not only about economics, but also about economists, about the technology of experiment in economics and what it has done for—or to—professional economics, and

about the accomplishments and foibles of financial markets.”

Ross Miller’s achievement lies in his ability to skillfully locate experimental economics within the trajectory of economic thought. He anchors his book around an analogy of the collapse of the Tacoma Narrows Bridge in November 1940. Just as wind tunnel testing of models of suspension bridges might have prevented the collapse of “galloping gertie” (as the bridge was fondly known), the results of experimental models might be used to prevent collapses in financial markets. In his book, Miller develops the contributions experimental economics have made to identify weaknesses in the underlying infrastructure of financial markets. He develops a detailed discussion on the problem of illiquidity—framing the LTCM crisis as one of liquidity dependence. One of the most thought provoking discussions is a chapter dedicated to characterizing money as a “derivative security that is liquidity in its purest form.”

In Section I, Miller carefully develops the possibility of generating bubbles and crashes within an experimental market structure. He traces a path from Edward Chamberlain’s earliest experiments in the 1940s, through the development of the

walrasian auctioneer to Vernon Smith's construction of the double oral auction experiment. It is now standard to play some form of this game in most introductory economics courses as it succinctly demonstrates the concepts of efficient markets, price discovery, and the laws of demand and supply. A powerful innovation to this experiment is the entry of speculators. Miller skillfully describes how Vernon's introduction of speculators within the double oral auction framework resulted in price divergence and the emergence of financial bubbles.

Section II takes a closer look at the anatomy of financial bubbles and crashes. Miller opens with parallels between the CAPM and the underlying theory of option valuation. He traces the events of the crash of 1987—attributing the collapse on Black Monday to the advent of program trading in options structured

as portfolio insurance. Miller engagingly describes the logic of option valuation and demonstrates the critical importance of financial and real options to market stability. This leads to an intriguing discussion of liquidity as an option. The choice to sell is in itself an option that is exercised when the seller enters the market. Miller expertly introduces the concepts of adverse selection and informational asymmetry in this context. Exercising this option directly impacts the level of liquidity in the market and the final chapter in this section describes the LTCM debacle of 1997 as ultimately a crisis of liquidity.

In the final chapters, Miller discusses the role of smart markets in mediating the factors that led to the financial crises of Black Monday and LTCM. Injecting artificial intelligence into versions of Vernon's double oral auction framework allow

computer generated markets to allocate resources in ways that take all possible combinations of options into account. These markets are experimentally shown to be less vulnerable to market bubbles and crashes. He details the efforts of the Federal Communications Commission to use such markets to allocate bandwidth in its wireless spectrum auction in August 1996.

The FCC auction leads Miller to his final point of caution. Beyond markets, both real and experimental, lie a political infrastructure. As he points out "smart markets cannot simply appear; they must be adopted through a process that is likely more political than economics." Ross Miller's book is a persuasive and elegant case for adopting the insights of experimental economics in tempering future bubbles and crashes in financial markets.