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George G. Szpiro

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PRICING THE FUTURE



FINANCE, PHYSICS,
AND THE 300-YEAR JOURNEY TO THE
BLACK-SCHOLES EQUATION

A Story of Genius and Discovery

George G. Szpiro

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1 of 1 people found the following review helpful. Vignettes from the prehistory of math finance
By David J. Aldous
300 years of precursors to the Black-Scholes option pricing formula are traced via accounts of the lives and works of a dozen or so major characters and another dozen minor characters. This is nowadays a common format for popular science writing (used e.g. for Bayes rule in *The Theory That Would Not Die*), and here it is executed well -- the writing style and content is engaging and appropriately non-technical. The choice of topic is intrinsically cross-disciplinary (mathematics theory, economics theory, practical market speculation) and by incorporating also the author's own physics background, a book emerges that is pleasingly different from other popular science accounts of these topics and characters (typically written from the viewpoint of one particular academic discipline, or none in the case of journalistic authors). Here is a precis of the relevant standard history, from a mathematician's viewpoint. For various reasons [mathematicians couldn't make it fit with the rest of math, and physicists perceived the world in terms of deterministic laws], in 1900 mathematical probability had not yet become a coherent discipline. In particular there is a fundamental mathematical "square root law" providing a rough description of the cumulative effect of purely random fluctuations. Before 1900 this had been observed and explained in various contexts but not appreciated as a widely-applicable fact. Over the first third of the 20th century this (quite simple) law, the associated "Normal approximation" and the more technically sophisticated notion of the Wiener process as the fundamental model of "purely random" continuous fluctuations, all became well understood. The Wiener process was subsequently recognized as a mathematically fundamental and interesting object, and studied deeply by mathematicians and in several applied disciplines. During this time period and previous centuries, the relevance of such probability models to finance (stock prices and options thereon) was repeatedly realized by scattered individuals, but their theories never were widely used by speculators nor joined any academic mainstream. Until in 1973 Black and Scholes published their explicit formula for fair option prices (based on the Wiener process model for price fluctuations), fortuitously at the time when the Chicago Board Options Exchange opened and when electronic calculators became available to use the formula quickly, and mathematical finance blasted off. The book does a fine job of adding color and Physics counterparts to this history, and of giving verbal explanations of some of the mathematics, though by emphasizing individual stories it may not leave the reader with a very accurate big picture.
0 of 0 people found the following review helpful. Very Enjoyable Read.
By L. Bradley Bergh
Very enjoyable read. Somewhat motivational in that it prompted me to research related topics in greater depth. It shows the way many things in our lives are related in the patterns of behavior they exhibit. I first experienced the book on Audible and then bought the hard copy to facilitate reference in conjunction with other research.
0 of 0 people found the following review helpful. Nice Read About the Evolution and History of Financial Markets
By Phyllis and Case
As an engineer with much of the attendant knowledge of physical science and mathematics, I have been very curious about the quantitative side of financial markets. I found the history of financial markets very interesting, and how recenty our understanding, and the science and mathematics of the markets are. I came away with a much better understanding of the whole world of financial markets after reading this book.

Options have been traded for hundreds of years, but investment decisions were based on gut feelings until the Nobel Prizewinning discovery of the Black-Scholes options pricing model in 1973 ushered in the era of the quants. Wall Street would never be the same. In *Pricing the Future*, financial economist George G. Szpiro tells the fascinating stories of the pioneers of mathematical finance who conducted the search for the elusive options pricing formula. From the broker's assistant who published the first mathematical explanation of financial markets to Albert Einstein and other scientists who looked for a way to explain the movement of atoms and molecules, *Pricing the Future* retraces the historical and intellectual developments that ultimately led to the widespread use of mathematical models to drive investment strategies on Wall Street.