

Topic Page: [Merton, Robert C. \(1944 - \)](#)

Summary Article: **Merton, Robert C**

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US economist, known for his role in developing the Black and Scholes model, a valuation formula for pricing stock options. Merton and Canadian-born US economist Myron S Scholes shared the Nobel Prize for Economics in 1997 for their work in combining the relevant variables that determine the value of a derivative – the exercise price and exercise date of the option, the risk of the underlying asset, and the rate of interest – into a usable formula. He has been a professor at the Harvard Business School since 1988 and has served on the boards of several financial companies and institutions.

A stock option is a contract that gives one the opportunity to trade in the future on terms that are fixed today. The simple example of such an option is that of a forward contract used by farmers to hedge against price uncertainties by selling a crop at the beginning of the planting season at a fixed forward price. But all options, whether in commodities, stocks, or foreign currencies, are similar in kind and are designed to hedge against the risk of losses by taking on a counter-balancing transaction. The key problem in option-pricing theory is to determine the value of the option before the maturity date and hence the price at which it is bought or sold in the market. Merton and Scholes, in collaboration with the late Fischer Black, developed a computable formula for valuing any option, or combination of options, known as derivatives, which not only generated new financial markets for these newly created financial instruments, but also offered new perspectives in corporate finance and capital budgeting.

Merton began his university studies in engineering at Columbia University and applied mathematics at CalTech. He completed his PhD in economics at the Massachusetts Institute of Technology (MIT) in 1970. After teaching at MIT as a professor of finance for over a decade, he moved over to the Sloan School of Management of MIT in 1980 and the Graduate School of Business Administration of Harvard University in 1988. He was president of the American Finance Association in 1980. He was founding member of the 'hedge fund' Long-Term Capital Management, which began active trading in February 1994 after raising over \$1 billion from investors. The company, and others like it, were called 'hedge funds' but they were not companies to facilitate hedging but rather investment partnerships that attempted to immunize partners' portfolios from systematic risk by a strategy of selling overvalued and buying undervalued stocks. Long-Term Capital Management collapsed in the autumn of 1998 and had to be rescued by the Federal Reserve, casting doubt, probably unfairly, on the Black-Merton-Scholes pricing rule.

His publications include *Continuous-Time Finance* (1990), *Cases of Financial Engineering: Applied Studies of Financial Innovation* (1995; with S Mason *et al*), *The Global Financial System: A Functional Perspective* (1995; with D Crane *et al*), *Finance* (1998; with Z Bodie).

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