

# 2009 Muh Award to Economist Robert Merton

Robert C. Merton, a Nobel Prize-winning economist whose work revolutionized financial markets and helped launch the growth of the risk-management industry, received the 2009 Robert A. Muh Alumni Award presented by the School of Humanities, Arts, and Social Sciences.

The award, given every two years, honors an MIT graduate for noteworthy achievements in the humanities, arts or social sciences. The ceremonies include a public lecture by the recipient.

## **A Singular Award**

"The Muh Award is a singular opportunity for us to recognize MIT graduates who have made extraordinary contributions, and whose life work calls on deep knowledge in the disciplines of our School," said Deborah Fitzgerald, the Kenan Sahin Dean of the School of Humanities, Arts, and Social Sciences. "We are delighted to present Bob Merton with this year's award."

## **1997 Nobel laureate**

Currently the John and Natty McArthur University Professor at the Harvard Business School, Merton received a PhD in economics from MIT in 1970. Along with MIT faculty members Fischer Black and Myron Scholes, he developed the conceptual foundation for determining prices for stock options and other complex securities. With Scholes, Merton won the Nobel Prize in Economic Sciences in 1997 for this work. Merton also made path-breaking contributions to the theory of portfolio selection and consumer behavior that have provided a starting point for voluminous economic research on financial markets.

Merton has applied his theoretical insights about securities markets in practical settings. He was a founding principal of Long-Term Capital Management, and is currently the developer of SmartNest, a pension management system that addresses deficiencies associated with traditional defined-benefit and defined-contribution plans.

Merton presented the 2009 Muh Award lecture, titled "Observations on the Science of Finance in the Practice of Finance," on March 5 in the Wong Auditorium, to an overflow audience.

## **About the Muh Alumni Award**

The Robert A. Muh Alumni Award was first announced in October 2000 at the 50th anniversary celebration of the School of Humanities, Arts, and Social Sciences. Muh '59, a life member of the MIT Corporation and past chair of the Humanities Visiting Committee, endowed the award to honor an MIT graduate who has made significant contributions to education, scholarship or performance, academic administration or arts management in the humanities, arts or social sciences. The award rotates among the three major areas in the School.

An interview with Merton appeared in [Technology Review](#) in April 2008.

## HAIL ROBERT C. MERTONI

Paul A. Samuelson, 5 March 2009

Science, like art, has its dull ages and its vintage ages. Newton and Leibniz wrote during such a Golden Age, so that Puccini might later have romanticized it in an opera, although he didn't.

I nominate for another such unwritten Puccini opera a true fable of a stellar period in modern finance theory.

MIT was made for Robert C. Merton and young Merton was made for MIT. Only the MIT economics professor Harold Freeman, who drew young Paul Samuelson to MIT and then in 1950 drew Bob Solow from Harvard to MIT, could have engineered getting Bob Merton into a graduate economics school.

When Bob decided to abandon graduate work in Applied Math at Cal Tech, he dutifully applied to all the usual suspects: Harvard, Chicago, Princeton, Yale, Wharton and MIT. Only one gave him a nibble. It was Freeman on our Admissions Committee who offered Bob a fellowship which he gratefully accepted.

That autumn there was a long line of registering students in front of Solow's open office door. Cynical Harold said to Merton, "Avoid the regular courses, they will bore you to death." So Bob tells it, he went through the open door of my adjacent office instead and didn't come out for three years! No one-and I mean no one- benefited from talk with Merton more than no-longer- young Paul Samuelson.

Most days each noon Bob and my Harvard undergraduate son Bill played poker or bridge. (No wonder Bill got sucked into the family business!)

What uniquely made Merton the top guru in finance? Thomas Kuhn would have said it was his new and better departure from previous normal economics science. Yes. Yes. But as Freeman Dyson corrected Kuhn, sometimes it is a new technology rather than a new paradigm that revolutionizes a science. Galileo without a telescope could not have been Galileo. Biologists without a microscope would have remained naturalists.

Merton's secret weapon was the Itô stochastic calculus. He couldn't have learned that studying electricity at Columbia as an undergraduate. How then? Merton first met Itô outside of finance theory. The time was ripe to make a stochastic version of plain-vanilla Solow-Douglas production theory. So a future Nobel laureate-who can be left nameless in this telling of the story- - wrote up such a model. But it was Merton, between poker games, who created the version of Itô appropriate for stochastic finance where you can't know the future before it happens.

The rest is history. It was said that Hegel didn't understand his own philosophy until he read its French translation. So it was with the brilliant Black-Scholes pair whose "perfect hedge" couldn't be understood and perfected without the Itô stochastic calculus. Three persons richly deserved the 1997 Nobel prize in finance, but death robbed Fischer Black of it. Thus, Merton and Scholes shared the award.

Bob enriched MIT life. In doing that, Robert C. Merton, worthy son of old sociologist Robert K. Merton, also enriched the paradigm of modern finance theory.

Most fitting it is that we should honor Bob Merton. If only I were a Puccini, I could spell that out in beautiful arias.