



Robert Engle
Nobel Laureate 2003

Robert F. Engle, was born in November 1942, Syracuse, New York.

American economist, co recipient of the Nobel Prize for Economics in 2003 for his development of methods for analyzing time series data with time-varying volatility, He shared the award with Clive W.J. Granger.

Engle received an M.S. (1966) and Ph.D. (1969) from Cornell University. He taught at the Massachusetts Institute of Technology (1969–75) before joining the University of California at San Diego, where he became a professor in 1977 and later he hold the chair in economics. In 1999 he began teaching at the Stern School of Business at New York University. Engle also held associate editorships on several academic journals, notably the *Journal of Applied Econometrics*, of which he was co-editor (1985–89).

Engle conducted much of his prize-winning work in the 1970s and '80s, when he developed improved mathematical techniques for the evaluation and more-accurate forecasting of risk, which enabled researchers to test if and how volatility in one period was related to volatility in another period. This work had particular relevance in financial market analysis in which the investment returns of an asset were assessed against its risks and in which stock prices and returns could exhibit extreme volatility. While periods of strong turbulence caused large fluctuations in prices in stock markets, these were often followed by relative calm and slight fluctuations. Inherent in Engle's autoregressive conditional heteroskedasticity (known as ARCH) model approach was the concept that, while most volatility is embedded in the random error, its variance depends on previously realized random errors, with large errors being followed by large errors and small by small. This contrasted with earlier models wherein the random error was assumed to be constant over time. Engle's methods and the ARCH model led to a proliferation of tools for analyzing stocks and enabled economists to make more accurate forecasts.

Robert Engle's introduction of the ARCH class of models in 1982 opened up a whole new field in econometrics devoted to predicting not only where a variable is headed (the conditional mean) but moreover how much it is likely to deviate from that target (the conditional variance). Such models form the empirical backbone of many of the computer calculations that drive world financial markets today, as analysts rely on them to quantify risk and calculate the value of a variety of financial options and derivatives.

Prof. Engle now lectures widely to both academic and practitioner audiences. He is a fellow of both the American Academy of Arts and Sciences and the Econometric Society. He is an expert in time series analysis with a long time interest in the analysis of financial markets.