Finance & economics

Robert Merton and the effect of time on portfolio choice

Finance theorists are, as everybody knows, unworldly people who can scarcely tie their shoe laces, still less change a car tyre. Robert Merton confounds this stereotype. As he talks amiably at the London office of Dimensional Fund Advisors (he is the firm’s “resident scientist”), you sense that here is a man who could fix a flat in no time. He would probably deliver a cheerful lecture on the importance of the correct tyre pressure while he was tightening the wheel nuts.

Mr Merton has always had a bent for engineering, whether financial or mechanical. He bought his first stock aged ten and completed a risk-arbitrage trade (on a takeover by Singer, a maker of sewing-machines) aged 11. He rebuilt his first car aged 15. In 1997 he won the Nobel prize for economics aged 53—a career high. A year later, a career low: LTCM, the hedge fund he co-founded, imploded. These markers of the passing years matter. For Mr Merton’s specialism is the mathematics of time applied to finance.

His first paper on the subject was published almost exactly 50 years ago. Its title—“Lifetime Portfolio Selection under Uncertainty: The Continuous-Time Case”—is forbidding. The ten pages of equations that follow are daunting. But for Mr Merton, the equations are tools, no different from a car jack. They allowed him and subsequent researchers to clarify an important question: when does time horizon matter in investing and when does it not?

To start to understand the paper’s importance, go back more than half a century to the birth of modern portfolio theory. Finance theory had been mostly a collection of stories and rules of thumb. Some was useful (“sell down to the sleeping point”). Little was rigorous. A new generation of scholars changed this. The reckoning changes, for instance, when wealth is looked at in the round to include non-tradable human capital—knowledge, skills and abilities. Sitting in a London office, Mr Merton gives an illustrative example.

Say, a young person’s human capital, which determines his future earnings, is 90% of his lifetime wealth, with the balance in stocks. And say that for an almost-retired person the proportions are reversed. If the stock market crashes by 40%, the young person has lost only 4% of his wealth. But the nearly retired person has lost 36%, which is much more serious. For older people, having all their financial wealth in stocks is not sensible. For younger people, having all their financial wealth in stocks is acceptable. Yet the timelier the money, the greater the risk of losing it.

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