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IN MEMORIAM

Harry M. Markowitz, father of modern portfolio theory, dies at 95

By ROB KOZLOWSKI

Nobel laureate Harry M. Markowitz, the economist whose work in modern portfolio theory gave birth to the field of quantitative finance, has died at age 95.

Mr. Markowitz, who died June 22, won the Nobel Memorial Prize in Economic Sciences in 1990 following an impressive career both as a financial economist and mathematician in theoretical finance.

In an autobiography written upon receiving the award, Mr. Markowitz said that while becoming an economist had not been a childhood dream of his, he selected the field following the completion of a two-year bachelor's program at the University of Chicago when he had to choose an upper division.

"Micro and macro were all very fine, but eventually it was the 'Economics of Uncertainty' which interested me — in particular, the (John) Von Neumann and (Oskar) Morgenstern and the (Jacob) Marschak arguments concerning expected utility; the Friedman-Savage utility function; and L.J. Savage's defense of personal probability," Mr. Markowitz wrote in 1991. "I had the good fortune to have (Milton) Friedman, Marschak and Savage among other great teachers at Chicago. (Tjalling) Koopmans' course on activity analysis with its definition of efficiency and its analysis of efficient sets was also a crucial part of my education."

Bruce I. Jacobs, principal at Jacobs Levy Equity Management, said in an email that Mr. Markowitz's insights into the relationship between risk and return transformed investment management and continue to shape how trillions of dollars are invested.

"He showed us how to construct investment portfolios on the 'efficient frontier,' where it is possible to achieve the maximum expected return for any given level of expected risk. He also pop-



2013 Wharton-Jacobs Levy Prize. Left to Right – Bruce I. Jacobs, Harry M. Markowitz, Kenneth N. Levy.

ularized the practice of diversification — reducing portfolio risk by spreading it over numerous securities to diminish the impact of company-specific events," Mr. Jacobs said.

Mr. Jacobs also noted Mr. Markowitz was the creator of SIMSCRIPT, a programming language for computer simulations used widely in the defense industry, as well as a co-creator of the Jacobs Levy Markowitz Market Simulator, which permitted more realistic modeling of stock market scenarios than was previously possible.

It is, however, as the father of modern portfolio theory that Mr. Markowitz will forever be remembered. Written in 1952, his historic paper "Portfolio Selection" opens with the seemingly simple sentences: "The process of selecting a portfolio may be divided into two stages. The first stage starts with observation and experience and ends with beliefs about the future performances of available securities. The second stage starts

with the relevant beliefs about future performances and ends with the choice of portfolio. This paper is concerned with the second stage."

In his 1990 autobiography, Mr. Markowitz wrote: "In the 38 years since then, I have worked with many people on many topics. The focus has always been on the application of mathematical or computer techniques to practical problems, particularly problems of business decisions under uncertainty. Sometimes we applied existing techniques; other times we developed new techniques. Some of these techniques have been more 'successful' than others, success being measured here by acceptance in practice."

Mr. Jacobs said Mr. Markowitz "never stopped searching for practical solutions to complex problems," continuing to write scholarly papers well into his 90s.

Further details on services for Mr. Markowitz were not immediately available.