

BIBLIOGRAPHY

A general introduction to securities, security markets, and security information may be found in:

- [1] David F. Jordan and Herbert E. Dougall, *Investments*, Prentice-Hall, Englewood Cliffs, N.J., 1952.

The classic book on security analysis is:

- [2] Benjamin Graham and David L. Dodd, *Security Analysis*, McGraw-Hill Book Company, New York and London, third edition, 1951.

A discussion of expected values, variances, and other matters relating to random variables may be found in:

- [3] J. V. Uspensky, *Introduction to Mathematical Probability*, McGraw-Hill Book Company, New York and London, 1937.
- [4] William Feller, *An Introduction to Probability Theory and Its Applications*, Vol. I, John Wiley & Sons, New York, and Chapman and Hall, London, second edition, 1957.

Investment for the long run is discussed by:

- [5] Henry A. Latane, "The Choice between Risk and Uncertainty in Portfolio Management Assuming Reinvestment of All Returns" (unpublished MS.)

A geometric analysis of efficient sets is presented in:

- [6] Harry Markowitz, "Portfolio Selection," *The Journal of Finance*, Vol. VII, No. 1, March 1952, pp. 77-91; reprinted as *Cowles Commission Papers, New Series*, No. 60.

Other treatments include:

- [7] John Frederick Weston and William Beranek, "Programming Investment Portfolio Construction," *The Analysts' Journal*, May 1955.
- [8] A. D. Martin, Jr., "Mathematical Programming of Portfolio Selections," *Management Science*, Vol. I, No. 2, January 1954, pp. 152-165.

An early analysis, not taking non-negativity restraints into account, was presented by:

- [9] A. D. Roy, "Safety First and the Holding of Assets," *Econometrica*, Vol. XX, 1952, pp. 431-449.

Published about the same time as the previously cited *Journal of Finance* article [6], a parallel development and application of quadratic programming was:

- [10] H. S. Houthakker, "La forme des courbes d'Engel," *Cahiers du Seminaire d'Econometrie*, No. 2, Centre National de la Recherche Scientifique, Paris, 1953, pp. 59-66.

The critical line method of quadratic programming was presented in:

- [11] Harry Markowitz, "The Optimization of a Quadratic Function Subject to Linear Constraints," *Naval Research Logistics Quarterly*, Vol. III, 1956, pp. 111-133.

An interesting technique for minimizing a quadratic appeared in the same issue:

- [12] Marguerite Frank and Philip Wolfe, "An Algorithm for Quadratic Programming," *Naval Research Logistics Quarterly*, Vol. III, Nos. 1 and 2, March and June 1956, pp. 95-110.

The technique for transforming a linear programming code into a quadratic programming code was suggested by:

- [13] Philip Wolfe, "A Simplex Method for Quadratic Programming," privately circulated as RAND P-1205, November 1957.

The pioneer volume on linear programming was:

- [14] Tjalling C. Koopmans, ed., *Activity Analysis of Production and Allocation; Proceedings of a Conference*, John Wiley & Sons, New York, and Chapman and Hall, London, 1951.

The computing technique presented by George Dantzig in the above monograph is now obsolete, mostly because of the work of Dantzig and associates. A more recent version of the simplex method is to be found in:

- [15] George B. Dantzig, Alex Orden, and Philip Wolfe, "The Generalized Simplex Method for Minimizing a Linear Form under Linear Inequality Constraints," *Pacific Journal of Mathematics*, Vol. V, 1955, pp. 183-195.

The growing field of linear programming is surveyed in:

- [16] Vera Riley and Saul I. Gass, *Linear Programming and Associated Techniques*, Operations Research Office, Johns Hopkins University, Chevy Chase, Maryland, May 1958.

A book now in preparation by Dantzig should be (momentarily) definitive on the subject of linear programming computing techniques.

A recent book by the authority in dynamic programming is:

- [17] Richard Ernest Bellman, *Dynamic Programming*, Princeton University Press, Princeton, N.J., 1957.

Monte Carlo techniques are discussed in:

- [18] H. A. Meyers, ed., *Symposium on Monte Carlo Methods*, John Wiley & Sons, New York, and Chapman and Hall, London, 1956.

Two valuable papers on non-linear programming are:

- [19] H. W. Kuhn and A. W. Tucker, "Nonlinear Programming," in *Proceedings of the Second Berkeley Symposium on Mathematical Statistics and Probability*, edited by Jerzy Neyman, University of California Press, Berkeley and Los Angeles, 1951, pp. 481-492.
- [20] Kenneth J. Arrow and Leonid Hurwicz, "Reduction of Constrained Maxima to Saddle-Point Problems," in *Proceedings of the Third Berkeley Symposium on Mathematical Statistics and Probability*, Vol. V, 1956; reprinted as *Cowles Foundation Paper*, No. 104.

Modern interest in utility analysis was greatly stimulated by:

- [21] John von Neumann and Oskar Morgenstern, *Theory of Games and Economic Behavior*, Princeton University Press, Princeton, N.J., third edition, 1953.

An appealing axiom system for expected utility is presented by:

- [22] Jacob Marschak, "Rational Behavior, Uncertain Prospects, and Measurable Utility," *Econometrica*, Vol. XVIII, No. 2, April 1950; reprinted as *Cowles Commission Papers, New Series*, No. 43.

The shape of the utility function is discussed by:

- [23] Milton Friedman and L. J. Savage, "The Utility Analysis of Choices Involving Risk," *Journal of Political Economy*, Vol. LVI, No. 4, August 1948, pp. 279-304.
- [24] Harry Markowitz, "The Utility of Wealth," *Journal of Political Economy*, Vol. LX, No. 2, April 1952, pp. 151-158.

Some of the discussion on expected utility, pro and con, may be found in:

- [25] A. A. Alchian, "The Meaning of Utility Measurement," *American Economic Review*, Vol. XLIII, No. 1, March 1953, pp. 26-50.
- [26] I. N. Herstein and John Milnor, "An Axiomatic Approach to Measurable Utility," *Econometrica*, Vol. XXI, No. 2, April 1953; reprinted as *Cowles Commission Papers, New Series*, No. 65.
- [27] R. Duncan Luce and Howard Raiffa, *Games and Decisions; Introduction and Critical Survey*, John Wiley & Sons, New York, and Chapman and Hall, London, 1957.
- [28] Robert Dorfman, Paul A. Samuelson, and Robert M. Solow, *Linear Programming and Economic Analysis*, McGraw-Hill Book Company, New York, 1958, Appendix A.
- [29] M. Allais, "Le Comportement de l'Homme Rationnel devant le Risque: Critique des Postulats et Axiomes de l'Ecole Américaine," *Econometrica*, Vol. XXI, No. 4, October 1953, pp. 503-546.
- [30] H. Wold, A. S. Manne, P. A. Samuelson, E. Malinvaud, L. J. Savage, and G. L. S. Shackle, several related notes on the strong independence axiom, *Econometrica*, Vol. XX, No. 4, October 1952, pp. 661-679.

Pioneer works on personal probability include:

- [31] Frank Plumpton Ramsey, *The Foundations of Mathematics and Other Logical Essays*, Harcourt Brace and Company, New York, 1931.
- [32] Leonard J. Savage, *The Foundations of Statistics*, John Wiley & Sons, New York, and Chapman and Hall, London, 1954.

Views counter to the notion of "personal probability" are expressed in:

- [33] G. L. S. Shackle, *Expectation in Economics*, University Press, Cambridge, 1949.
- [34] G. L. S. Shackle, *Uncertainty in Economics and Other Reflections*, University Press, Cambridge, 1955.
- [35] John Maynard Keynes, *A Treatise on Probability*, Macmillan and Co., Ltd., London, 1921.

The last is a classic survey of works on probability.