The origins of the mean-variance approach in finance: revisiting de Finetti 65 years later

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Abstract

In a recent critical review of de Finetti's paper "Il problema dei pieni'', the Nobel Prize winner Harry Markowitz recognized the primacy of de Finetti in applying the mean-variance approach to finance, but pointed out that de Finetti did not solve the problem for the general case of correlated risks. We argue in this paper that a more fair sentence would be: de Finetti did solve the general problem but under an implicit hypothesis of regularity which is not always satisfied. Moreover, a natural extension of de Finetti's procedure to non-regular cases offers a general

solution for the correlation case and shows that de Finetti anticipated a modern mathematical programming approach to mean-variance problems.

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References

1. Borch, K. (1974): The mathematical theory of insurance. Lexington Books, Lexington, MA

2. Bühlmann, H., Gerber, H. (1978): Risk bearing and the reinsurance market. *The ASTIN Bulletin* **10**, 12–24

3. Dantzig, G.B. (1963): Linear programming and extensions. Princeton University Press, Princeton, NJ

4. de Finetti, B. (1940): Il problema dei “Pieni”. *Giornale dell' Istituto Italiano degli Attuari* **11**, 1–88; translation (Barone, L. (2006)): The problem of full-risk insurances. Chapter I. The risk within a single accounting period. *Journal of Investment Management* **4**(3), 19–43

5. de Finetti, B. (1969): Un matematico e l'economia. Franco Angeli, Milan

6. Karush, W. (1939): Minima of functions of several variables with inequalities as side conditions. S.M. dissertation. University of Chicago, Chicago, IL

7. Kuhn, H.W., Tucker, A.W. (1951): Nonlinear programming. In: Neyman, J. (ed.): Proceedings of the Second Berkeley Symposium on Mathematical Statistics and Probability. University of California Press, Berkeley, CA, pp. 481–492

8. Lintner, J. (1965): The valuation of risky assets and the selection of risky investments in stock portfolios and capital budgets. *The Review of Economics and Statistics* **47**, 13–37

9. Markowitz, H. (1952): Portfolio selection. *The Journal of Finance* **7**, 77–91

10. Markowitz, H. (1956): The optimization of a quadratic function subject to linear constraints. *Naval Research Logistics Quarterly* **3**, 111–133

11. Markowitz, H. (2006): de Finetti scoops Markowitz. *Journal of Investment Management* **4**(3), 5–18

12. Mossin, J. (1966): Equilibrium in a capital asset market. *Econometrica* **34**, 768–783

13. Pressacco, F. (1986): Separation theorems in proportional reinsurance. Goovaerts, M. et al. (eds.): Insurance and Risk Theory. D. Reidel, Dordrecht, pp. 209-215

14. Rubinstein M. (2006a): Bruno de Finetti and mean-variance portfolio selection. *Journal of Investment Management* **4**(3), 3–4

15. Rubinstein M. (2006b): A history of the theory of investments. Wiley, Hoboken, NJ

16. Shapiro, J.F. (1979): Mathematical programming: structures and algorithms. Wiley-Inter-science, New York

17. Sharpe, W. (1964): Capital asset prices: a theory of market equilibrium under conditions of risk. *The Journal of Finance* **19**, 425–442

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