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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

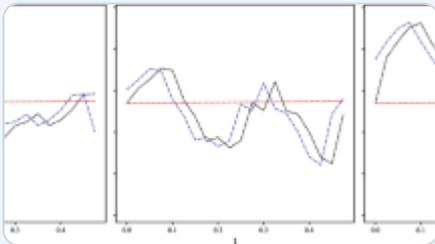
solution for the correlation case and shows that de Finetti anticipated a modern mathematical programming approach to mean-variance problems.

Mathematics Subject Classification (2000): 91B30, 90C20

Journal of Economic Literature Classification: G11, C61, B23, D81, G22

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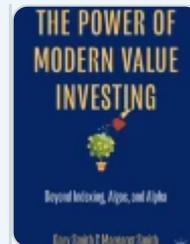
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$(p \times 1, f_i \in \mathbb{R}^{K \times 1}, i = 1, \dots, n$
LS regressions of asset returns r_t on factor returns f_t to obtain \hat{B} and \hat{a} in (2.4);
the mean μ and covariance Σ under Fama-French Factor Model;
the response variable r^d and regression coefficients λ_1, λ_2 in (2.3);
 $\sigma = \frac{1}{n} \sum_{t=1}^n [r^d - w^T (\lambda_1 r_t + \lambda_2 1)]^2$;
 $(\lambda, p) \in \mathcal{D}$
 $\hat{\sigma} = \text{SCOPE}(foss, k)$;
 1 ;
in $\text{AIC}(k) = \arg \min_k [n \log(\frac{\text{SS}(k)}{n}) + 2|w^d|_0]$.
 $w^d / 1^T w^d$

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