



Fiche de sujet de contrat d'ingénieur d'études (IGE)

Titre en français (et éventuellement en anglais) :

Instabilité de portefeuilles diversifiés et investissement ISR : approches comportementales

Portfolio instability and ISR investment: behavioral insights

Mots clés français (et éventuellement en anglais) :

Instabilité de portefeuilles, ISR, diversification, volatilité, rentabilité, marchés expérimentaux, finance comportementale

Portfolio instability, ISR, diversification, volatility, return, experimental market, behavioral finance

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A définir



Présentation du sujet (en français et éventuellement en anglais) :

The standard mean-variance optimization is a basic and convenient procedure for portfolio formation. However, the main issue with mean-variance optimization is that small changes in input assumptions can lead to large changes in the minimum-variance frontier. This problem is called instability in the minimum-variance frontier. It arises because, in practice, uncertainty exists about the expected returns, variances, and covariances used in tracing out the minimum-variance frontier. This problem has been addressed extensively by the literature: for instance, some authors use a statistical concept of the efficient frontier, reflecting the fact that the inputs to the optimization are random variables rather than constants (Michaud, 1998); other authors pointed out that the instability translates into high transaction costs and further decreases portfolio returns (Kirby and Ostdiek, 2012) and show that portfolio instability tends to increase with estimation risk. Kourtis (2015) proposes a new method to promote stability in mean-variance optimization: he augments the standard mean-variance objective with a new instability penalty that controls the deviation from the portfolio before rebalancing. In this last paper, no economic meaning is given to the instability penalty. We suggest that the allocation of the assets into portfolio is influenced by behavioral biases. In turn, the instability of portfolio increases and more rebalancing is needed.

The new perspective opened by the ISR could mitigate this issue. By nature, the ISR businesses are more sustainable and should therefore be more resilient to financial crisis and economic events. It implies that a portfolio containing a significant fraction of ISR shares should present less instability and therefore should be less rebalancing than a portfolio that contains few or no ISR shares. From a practical point of view, portfolios that contain a large fraction of ISR shares should have lower transaction costs since the frequency of portfolio rebalancing over time will decrease. Even if it is currently unclear whether ISR returns and risks are different from traditional investment (Galema, Plantinga, and Scholtens, 2008), the possibility that they are of higher stability is clearly relevant.

The project combines three methodologies: portfolio simulation based on financial data (Thomson Reuters, Datastream), portfolios choices made by individual investors based on private accounts' data, incentivized experimental data collected on individual investors about their social preferences and risk-preferences (in the spirit of Riedl & Smeets (2017)).

Références bibliographiques :

Galema, R. J., Plantinga, A., & Scholtens, B. (2008). The stocks at stake: return and risk in socially responsible investment. *Journal of Banking and Finance*, 32(12), 2646-2654.

Gasser, S. M., Rammerstorfer, M., & Weinmayer, K. (2017). Markowitz revisited: Social portfolio engineering. *European Journal of Operational Research*, 258(3), 1181–1190.

Kirby, C., & Ostdiek, B. (2012). It's All in the Timing: Simple Active Portfolio Strategies that Outperform Naïve Diversification. *Journal of Financial and Quantitative Analysis*, 47(2), 437-467.



Kourtis, A. (2015). A Stability Approach to Mean-Variance Optimization. *Financial Review*, 50, 301-330.

Michaud, R. (1998). *Efficient Asset Management: A Practical Guide to Stock Portfolio Optimization and Asset Allocation*. Boston: Harvard Business School Press.

Riedl, A., & Smeets, P. (2017). Why Do Investors Hold Socially Responsible Mutual Funds? *Journal of Finance*, 72(6), 2505–2550.

Compétences particulières souhaitées / profil attendu (en français et éventuellement en anglais) :

Statistic software (Stata or R), Econometrics, Mathematical skills (matrix calculation), English, financial theory