Portfolio instability and socially responsible investment: experiments with financial professionals and students

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Abstract

Socially responsible investment (SRI) is regarded as a potential instrument to prevent behavioral biases and contribute to portfolio persistent growth. The stabilizing property of SRI has been overlooked in the literature on portfolio management, despite the fact that more stable portfolios are less costly in terms of human resources and incur lower transaction costs. We assess the efficiency and stability of SR portfolios from the perspective of behavioral finance. Based on the data collected from incentivized experiments with 153 financial professionals and 233 students, we compare a baseline treatment to a ranking treatment in which participants received feedback about their average investment in SRI assets. We found a significantly positive influence of SRI on the level of portfolio stability and less need for portfolio rebalancing. Portfolios with a majority of SRI shares exhibited more stability in both treatments compared to conventional portfolios. Moreover, we observed that in the ranking treatment subjects invested more in SRI assets than in the baseline. In addition, the experiment revealed the convergence of professionals' and students' behavioral patterns.

Portfolio stability

Stability is determined by changes in asset weights in a portfolio (Oikonomou et al (2015, 2018)), i.e. as the sum of the squared differences of each asset's portfolio weights $w_{i,t}$ between two successive investment periods *t* and *t-1:*

$$Stability_{t\to T} = \sum_{t=1}^{T}(\bar{\omega}_{g_t} - \bar{\omega}_{g_{t-1}})^2 + \sum_{t=1}^{T}(\bar{\omega}_{b_t} - \bar{\omega}_{b_{t-1}})^2 + \sum_{t=1}^{T}(\bar{\omega}_{n_t} - \bar{\omega}_{n_{t-1}})^2$$

$$\bar{\omega}_{g_t} = \frac{g_t}{g_t + b_t + n_t}$$

Higher portfolio stability → Less need for portfolio rebalancing → Lower transaction costs → More sustainable portfolio

Hypotheses

Hypothesis 1: The greater the share of SRI assets in a portfolio, the higher the portfolio stability.

Hypothesis 2: Despite better performance in optimal portfolios, SRI portfolios provide higher stability than optimal and conventional portfolios.

Hypothesis 3: Investors tend to invest more in socially responsible assets, and therefore, improve the portfolio stability, if they are ranked according to the level of their investment in SRI assets.

Experimental Design

- **Investment game** with different asset allocation in 10 periods
- 2 treatments **: baseline and ranking** (feedback on the level of SRI investment)
- **An individual choice task** to invest cash holdings in assets based on the provided risk-return and SRI information
- Asset B: highest risk & return, asset C: lowest risk & return, asset A: mean risk & return
- **The final gain** = portfolio value = cash holdings + value of assets
- **Negative and positive externalities:**
  - 3 asset types: A (neutral) , B (brown) and C (green)
  - Investing in asset A => no consequences
  - Investing in asset B => transfer 20% of the average capital invested in this asset during 10 periods to the International Association of Oil and Gas Producers
  - Investing in asset C => transfer 20% of the capital invested in this asset to Reforest' Action
- **Control tasks** to measure**:**
  - social preferences: New Ecological Paradigm Scale (Dunlap et al. (2000))
  - risk tolerance: Bomb Risk Elicitation Task (Crosetto et Fillipin (2013))
  - questionnaire on socio-economic background

Results

Higher stability of SRI portfolios

- Green portfolios, with a prevailing share of SRI shares, exhibit higher stability (= lower SRI index) than conventional (brown and neutral) portfolios in both treatments, but do not outperform optimal portfolios.

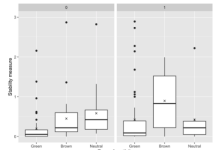

Figure 5: Professionals. Mean and median stability by treatment (0 - Baseline, 1 - Ranking treatment; line corresponds to the median, cross - to the mean of stability)

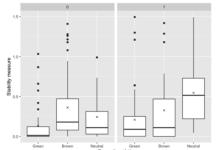

Figure 6: Students. Mean and median stability by treatment (0 - Baseline, 1 - Ranking treatment; line corresponds to the median, cross - to the mean of stability)

Higher investment in SRI in case of ranking

- The participants invested more in green assets in the ranking treatment than in the baseline treatment.

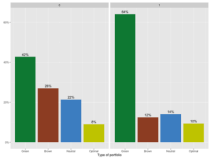

Figure 3: Professionals' portfolio types by treatment (0 - Baseline, 1 - Ranking treatment)

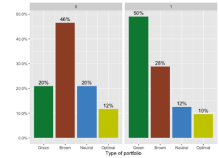

Figure 4: Students' portfolio types by treatment (0 - Baseline, 1 - Ranking treatment)

Convergence of experimental results

- Similar results, and consequently, behavioral patterns in student and professional samples.