

# Revisiting the SRI performance debate: A heterogeneity-consistent approach

Abstract version

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**Short abstract**—In earlier research, socially responsible investment (SRI) funds were found to have either a slight underperformance or a statistically indistinguishable performance vis-à-vis conventional funds. However, the approach to testing for this performance differential has mostly been based on a dichotomous distinction between both types of funds. In our paper, we revisit earlier SRI mutual fund performance research by introducing heterogeneity in both the extent to which mutual funds can be socially responsible and the effect of covariates on estimated fund returns. To do so, we implement a robust process-oriented social responsibility sorting tool and a quantile regression estimation approach

**Keywords**— socially responsible investing; mutual fund performance; multi-criteria decision analysis

## I. Extended abstract

The practice of socially responsible investing (SRI) has become increasingly popular over the last decade, as more and more investors are aware of environmental, social and governance (ESG) issues. Originally going back to religious organizations' moral investment principles, the decisive breakthrough for SRI was the worldwide boycott against the racist system of apartheid in South Africa. Following more recent developments like global warming, SRI moved from a niche to a mainstream investment strategy (KPMG & ALFI, 2013). Along the lines of these developments, the concept of SRI has further evolved, from pure negative screening of the investment universe to a combined strategy of positive and negative screening, complemented by shareholder activism and engagement. About one out of every nine dollars under professional U.S. asset management is now invested in the SRI universe (Forum for Sustainable and Responsible Investment, 2012). Between 1995 and 2012, SRI assets under professional management rose by 486%, hence outgrowing conventional assets, which rose by 376% over the same period. A similar observation was made for the European market, with the combined investments in SRI strategies outgrowing the conventional alternative (Eurosif, 2012).

Together with the increasing interest for SRI from the investment industry, academics have published a growing number of SRI studies. The performance of SRI versus conventional investments has been of particular interest. Other than the traditional motivation of trying to “do well by doing good” (Domini, 2000), the question was raised whether there are any financial motivations to engage in SRI. The first empirical work on this question goes back to Moskowitz (1972) and Bragdon and Marlin (1972) who find evidence of a positive correlation between corporate social and financial

performance. Following these first results, more and more empirical work on the matter was published, using increasingly sophisticated methodologies. The quality of results drastically improved when developments in empirical asset pricing were implemented. Bauer, Koedijk and Otten (2005) find no significant differences in risk-adjusted returns between SRI and conventional funds using a four-factor model (Carhart, 1997). They also find that SRI funds have gone through a catching-up phase prior to delivering statistically undistinguishable results in comparison to conventional funds. Also allowing for time-varying risk factor loadings, Renneboog, Ter Horst and Zhang (2008a) employ a conditional four-factor model following Ferson and Schadt (1996). As Bauer et al. (2005), they find no statistically significant difference in risk-adjusted returns between SRI and conventional funds. All in all, most empirical evidence points towards equal average performances of SRI and conventional funds, with some proof of a slight underperformance of SRI funds being documented as well (Cortez, Silva, & Areal, 2012). Geczy, Stambaugh and Levin (2003) find that the performance of SRI depends on the beliefs held by an investor vis-à-vis the underlying asset pricing model and the stock-picking ability of fund managers. Under the assumption of the CAPM and no significant stock-picking abilities of the fund manager, the cost of SRI is negligible. However, adhering to a four-factor model and assuming fund managers possess some stock-picking skills, the cost of investing in SRI can be substantial. For a more elaborate overview of the literature on SRI, we refer to some excellent review papers (Margolis & Walsh, 2003; Orlitzky, Schmidt, & Rynes, 2003; Renneboog, Ter Horst, & Zhang, 2008b).

One of the puzzling observations in the empirical literature is that conventional benchmarks are better able to explain the variation in SRI returns than ethical benchmarks (Bauer et al., 2005; Bauer, Otten, & Rad, 2006; Cortez, Silva, & Areal, 2009; Leite & Cortez, 2014). Together with the evidence of mostly statistically indistinguishable average risk-adjusted returns, one might wonder whether SRI and conventional funds are in fact different from each other (Utz & Wimmer, 2014). We believe that the reason for these puzzling observations lies in the way that researchers have treated the distinction between SRI and conventional funds. Typically, difference portfolios are constructed from a dummy variable indicating whether a mutual fund is listed as socially responsible or not. The problem with this approach is that it drastically reduces social responsibility to an all-or-nothing/one-dimensional concept. Possible variation and heterogeneity between funds with respect to social responsibility is not taken into account. In making investment

decisions, socially responsible investors do not adopt a dichotomous classification approach, but instead need to carefully examine publicly disclosed fund information (e.g. prospectus) to determine the best-suited alternative according to personal preferences (Hollingworth, 1998). Barnett and Salomon (2006) addressed this issue in the strategic management literature, and find a curvilinear relationship between screening intensity and financial performance. Therefore, they suggest future research to incorporate more in-depth examinations of social responsibility, instead of examining the financial consequences of simply being socially responsible or not. Renneboog, Ter Horst and Zhang (2011) distinguish between SRI funds based on the type of screening activity to examine flow-return relations. Cappelle-Blancard and Monjon (2012) examine financial performance in relation to both screening intensity and the types of screens (sectoral versus transversal). However, a comprehensive approach to account for the multiple dimensions of social responsibility in SRI performance measurement – in addition to screening activity – is still lacking.

The central contribution of our paper is exactly the implementation of a methodology to allow for more variation in terms of social responsibility, between both funds listed as SRI and conventional. This methodology draws from multi-criteria decision analysis (MCDA), an operations research technique devoted to the treatment of problems where multiple competing dimensions (e.g. aspects of social responsibility) have to be considered simultaneously. We implement a robust social responsibility MCDA indicator that can score and sort mutual funds with respect to twenty process-level social responsibility criteria, following Verheyden and De Moor (2014a; 2014b). This indicator accommodates for variation and heterogeneity between mutual funds based on ESG-criteria, and hence allows for a more nuanced examination of SRI mutual fund performance. First, we apply the indicator to sort mutual funds in five categories going from low (5) to high SRI (1). From these categories, we are able to revisit earlier state-of-the art SRI performance research that simply compared a sample of SRI funds with a sample of non-SRI funds. Instead, the indicator allows us to test for differences in risk-adjusted returns between the 5 groups of sorted funds, providing a more detailed and nuanced insight into SRI fund performance.

As a statistically significant difference in alpha between SRI and conventional funds might be explained by an incomplete set of included risk factors, we also use the MCDA tool to construct a zero-investment “ethics” factor-mimicking portfolio to control for possible style differences between SRI and conventional funds. Renneboog et al. (2008a) test such an “ethics style factor” and find it to have a limited impact on the risk-adjusted returns of SRI funds. However, the design of this factor is rather limited in scope, as it simply represents a zero-investment portfolio, which is long in ethical firms and short in risk-free deposits. We revisit this approach using the MCDA indicator and build a factor-mimicking portfolio that is long in the top-tier funds with respect to process-oriented social responsibility criteria, and short in the bottom-tier funds. Doing so, we capture the multi-faceted nature of SRI instead of reducing it to a naive proxy.

Next to introducing heterogeneity in the extent to which mutual funds can be considered socially responsible, we also accommodate for heterogeneity in the way covariates can affect fund returns. To do so, we extend the current state-of-the-art methodological approach by implementing quantile regressions (QR; Koenker & Bassett, 1978) next to the traditional ordinary least-squares (OLS) regression. Instead of only modeling the conditional mean of the dependent variable, QR accommodates the modeling of other aspects of the conditional distribution, which serves as a test for robustness of the OLS results and allows for more nuanced conclusions on the performance of SRI funds. Using the conditional-mean estimation method, earlier research could have come to the conclusion that in spite of different levels in SRI fund returns (i.e. the dependent variable), the covariates will affect the returns of all SRI funds in exactly the same way. However, if there is heterogeneity in the effects it will not be captured by the conditional mean-estimation method. QR provides a more complete view of the relationship between variables through the effects of independent variables across quantiles of the SRI fund return distribution. In addition, QR avoids distributional assumptions about the error term and is robust to outliers in the dependent variable (Koenker & Bassett, 1978).

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