EXTENDED ABSTRACT

Title: *Sustainable investments worldwide: a multiregional perspective of low carbon designation and mutual fund performance*

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Abstract:

For decades the mutual fund industry has experienced a continuous growth worldwide and, more recently, an unprecedented development of environmental funds is noticeable in line with the growing interest in sustainable investing. According to the Global Sustainable Investment Review (available at www.gsi-alliance.org/) in 2018 sustainable investing in the United States has reached an increase of 38 per cent of the total assets under management using sustainable strategies and considering the past two years. In Europe, the total assets committed to sustainable and responsible investment strategies grew by 11 per cent between 2016 and 2018. This is more acute in the case of Canada, with an increase of 42 per cent for the same period since the ethical investment is consolidating its leading position as a preferred investment alternative for investors interested in sustainability and environmental protection.

The so-called sustainable investment (SI) is indistinctly recognized as “social responsible”, “ethical”, “environmental” or “green” investment; and its importance has been established in recent years since the society believes are pushing in pro of environmentally conscious business practices, such as the conservation of natural resources, the production of alternative energy sources, the implementation of clean air and water projects, among other green-based initiatives. In this context, environmental investing constitutes an opportunity for managers and well-diversified investors who play a central role in taking action on a real threat to combat the dramatic consequences of global warming, climate change and environmental pollution. Thus, many financial investment strategies are centred in allocating capital to exploit the climate-resilient

opportunities, i.e., to handle the portfolio risk while capitalize on the transition towards a lower carbon economy. Specifically, Louche et al. (2019) argue that financial markets play a major role in favoring this transition, while Ceccarelli et al. (2019) address the linkage between the climate preferences of investors and the importance of climate responsibility for the financial intermediaries willing to keep competiveness dealing with eco-labelling schemes and redirecting, if necessary, capital flows towards the transition to a low carbon economy. Some references on the importance of ecology for finance has been widely treated in Scholtens (2017), Galaz et al. (2015) and Linnenluecke et al. (2016), among others.

Undoubtedly, investors and financial market participants alike ratify the increased interest that questions related to the carbon emissions raised along with the carbon reporting and the proliferation of climate conscious investment products worldwide -an interest that peaked with the 2015 Paris Agreement. Among other premises, questions related to transparency and the availability of climate-relevant information are both gaining importance to support the global agreement (Ceccarelli et al., 2019). Since then, some initiatives have been taking place, such as the European Commission's action plan for sustainable finance in 2018 which proposes the introduction of eco-labels schemes on the market to facilitate the environmentally-aware investors to express their preferences. Furthermore, under this scenario investment institutions are adapting their businesses towards an eco-label system. For instance, the reputed company Morningstar, which is specialized in investment funds, also awarded the eco-label procedure and launched the Low Carbon Designation (LCD) which is assigned to portfolios that have low carbon-risk scores and low levels of fossil-fuel exposure.

Therefore, the introduction of the LCD in 2018 represents an important milestone to the sustainable investment landscape in general and in particular to investor's investment decisions as they have increased the access to relevant climate information. Specifically, the Morningstar's LCD offers levels of scores to assess the exposure of the funds in terms of carbon risk and this tool mainly aims to help investors by integrating their preferences into global sustainable investment. Moreover, we find that the LCD indicator is very informative not only to evaluate environmental funds according to their low-carbon score but also to compare them by conducting a performance diagnosis. To the best of our knowledge, due to the recent appearance of this metric, the literature on this specific subject is still scarce and only very few studies deal with the LCD score to untangle its impact on the investment arena. Prominently, Ceccarelli et al. (2019) contribute this particular topic and provide arguments concerning the response of mutual funds when investors claim for climate responsibility on their investments. To our view, their input would allow an in-depth discussion on how this can be reconciled.

In examining the relationship between environmental funds and their conventional peers attending to their performance, the literature suggests that no difference in the performance appears. This question makes the analysis even more attractive from the point of view of the sustained growth and the boom being experienced for the green funds in the world lately. At the centre of the controversy, the vast majority of authors advocate that green funds achieved adjusted returns not significantly different from the rest of SI and conventional funds (Climent and Soriano, 2011; among others). Other studies highlight the added value of green investing, for instance, Muñoz et al. (2014) claim that green funds from Europe do not perform worse than other forms of SI. However, some contributions postulate that investors in environmental mutual funds

earned inferior risk-adjusted returns (White, 1995; Ibikunleover and Steffen, 2017; Silva and Ceu Cortez; 2016). We contribute to this debate on the impact of the environmental preferences on fund performance.

This study analyses the relationship between SR mutual funds and outcomes by examining the implications of managerial decisions for financial performance and by taking levels of scores regarding the geographical scope of the Morningstar's LCD indicator. Using a sample of 3,920 socially responsible mutual funds from Europe, the United States and Canada, and "other" zones (including emerging countries), we examine the following: i) the measurement of performance according to environmental scores, and ii) the relation between socially responsible fund performance and the level of carbon risk and fossil fuel portfolio involvements. Then, we cover the core LCD fund's region-specific characteristics (carbon risk and fossil fuel involvement) by establishing levels of scores and subsequently, we undertake a multi-regional analysis for comparative purposes. We find that an inverse relationship between scores and performance, noting that the lower scores achieve a better performance, being penalized the higher ranked scores by conducting a worst performance. This effect is strongly identified for European' SI and with less impact for the United States case. Specifically, for the US and Canada funds presenting the lowest carbon risk and fossil fuel portfolio involvements experienced the greatest returns, in line with Hunt and Weber (2018) ´s analysis for the Canadian case, the dichotomy of high risk-adjusted returns and low carbon intensity makes sense to address financial risks caused by climate change and, at the same time, is able to reduce the carbon exposure of investment portfolios.

Regarding methodology, we apply a multifactor model to estimate the performance. Additionally, and since we are interested in comparing the performance of socially responsible funds with different environmental scores, we also obtain from Morningstar the information related to carbon risk and fossil fuel portfolio involvements for each mutual fund. The sample of socially responsible funds is split into several groups as follows. Firstly, we consider three main investment zones to avoid any distortion in the results related to different geographical areas. Those zones are categorized as Europe, US and Canada, and Other investment areas. Funds investing mainly in a country or region zones are grouped into the subsample corresponding to the investment zone that country or region belongs to. Then, funds in each subsample are sorted again into several groups, according to the level of the environmental score assigned to their portfolio.

Concerning the results obtained in relation to: i) a performance diagnosis, we find an inverse relationship between scores and performance, in a sense that the lower (higher) the score the best (worst) the performance. This evidence is strongly identified for European' SI and with less impact for the United States case. Furthermore, and if we compare the overall performance of the funds with different levels of environmental attributes, we observe that the alphas achieved by Low-level socially responsible funds are greater than the alphas experienced by their High-level counterparts; and according to ii) a double sorting by environmental scores, we observe that the worst performance is achieved by funds characterized the highest level of both carbon risk and fossil fuel involvement. In contrast, funds presenting the relatively lowest scores on fossil fuel portfolio involvement usually performed better than their comparable counterparts. This

evidence is strongly identified for the European funds and with less impact for the environmental investments from United States and Canada.

In summary, we provide insights on the informativeness of these new scores depending on the investment area, but also corroborate that funds' performance is aligned occasionally with the region involvement towards SI concerns.

Keywords: *environmental, mutual fund, performance, SI, sustainability*
JEL codes: G2, N20, Q56

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