Performance persistence of socially responsible investment funds

N. Shanthirathna [a], C. Gan [a] [ID], P. Vatsa [b] [ID] and L. Ho [a] [ID]

[a] Department of Financial and Business Systems, Faculty of Agribusiness and Commerce, Lincoln University, Christchurch, New Zealand
[b] Department of Global Value Chains and Trade, Faculty of Agribusiness and Commerce, Lincoln University, Christchurch, New Zealand
Email: neleesha.shanthirathna@lincolnuni.ac.nz

Abstract: Socially responsible investment (SRI) considers social, ethical, and environmental elements of investment strategies. SRIs are now well established, offering a variety of products to investors. Sustainable investments are popular among institutional investors as well as retail investors. Most companies have incorporated sustainable practices and sustainability reporting into their operations. SRIs have grown into a widely-followed investment practice, as there are dozens of new funds and pooled investment vehicles focusing on socially conscious investing. The fund industry is more focused on embracing sustainability practices in its operations.

The aim of this study is to analyze the performance persistence of SRI funds in the United States (US) from 2001 to 2021 including two significant financial crisis and non-financial crisis. First, we examine the performance persistence of SRI funds before, during, and after the 2008 global financial crisis. Second, the performance persistence of SRI funds before and during the COVID-19 pandemic is investigated. If performance of SRI funds persists over the two global crises, investors can use our results to guide their investment decisions and make investment decisions accordingly.

We use Carhart (1997) and Fama French (2005) models to measure the performance of SRI funds. Carhart (1997) model consists of four factors: risk, price, company size, and momentum factor. Fama French (2005) model was an extended version of Fama French (1993) model. This model consists of risk, price, company size, profitability, and investment factors to explain the fund returns. Next we follow Hendricks, Patel, and Zeckhauser (1993) and Carhart (1997) recursive methods to analyze the performance persistence of SRI funds. Funds are categorized into ten portfolios based on the previous year's performance. Finally, we compute and analyze the monthly performance of each portfolio.

The results from both Carhart (1997) and Fama French (2005) models are consistent. The results indicate that performance persistence can be seen in the best performing funds before and during the financial crisis. However, the best performing funds do not guarantee future success post the financial crisis. For the worst performing funds, we found that they continue performing poorly during and after the financial crisis. The results show that the worst performing funds had negative returns before the COVID-19 pandemic; performance persistence is absent in the best performing funds during the COVID-19 pandemic.

Identifying fund performance persistence in different market conditions is important for investors because it provides valuable information that can help them make better investment decisions, manage risk, build a diversified portfolio, evaluate investment strategies, and better understand how a fund may perform in different market conditions. By monitoring funds' performance persistence, fund analysts can identify potential problems early and make necessary adjustments to their recommendations. Fund analysts can enhance their reputation as trusted advisors by providing informed recommendations.

Keywords: *Socially responsible investment, fund performance, performance persistence, crisis*

1. INTRODUCTION

Socially responsible investment (SRI), also known as sustainable investment or ethical investment, has become increasingly popular globally during the 21st century. These investments have gained wide acceptance; they no longer cater to a niche market. SRIs consider financial and non-financial themes such as social, ethical, and environmental elements in the investment process. SRIs apply a set of investment elements (social, ethical, and ecological) to include or exclude assets from the investment portfolio. Because of this, SRIs depart from conventional investments. Socially responsible investors invest in companies meeting those predefined criteria (Chang, Krueger Thomas, & Witte, 2019; Lean & Pizzutilo, 2020; Muñoz, 2019).

Sustainable investments are generating positive societal impact, fostering economic growth, and helping overcome environmental challenges while proving profitable for investors. SRIs have opened avenues for investors to directly invest in businesses providing clean water, subsidized healthcare, early childhood care, affordable housing, and promoting small businesses (SIF, 2016). As of Q42022, global sustainable funds were worth USD 2.5 trillion (Morningstar, 2022).

Performance persistence, i.e., whether a fund's past performance will continue, is of strong interest to investors, analysts, portfolio managers, and institutions (Abdelsalam, Duygun, Matallín-Sáez, & Tortosa-Ausina, 2014). A fund's performance persistence indicates how it performs relative to either a benchmark or other funds in the short term (less than or equal to one year) or long term (more than one year) (Stafylas, Anderson, & Uddin, 2016).

Reilly, Brown, and Leeds (2019) revealed that evaluating previous trends in stock prices will assist in making predictions about their future movements. Based on past trends, active managers can assume whether performance persists positively or negatively and create the equity portfolio accordingly. Deb (2019) higlighted investigating past performance and performance persistence of funds is vital because the consistent performance of mutual funds indicates the investors select the best-performing funds and maximize the profit.

The performance persistence of conventional funds has been widely studied (see Ammann, Huber, & Schmid (2013), Bers & Madura (2000), Boyson (2008), Ferreira, Keswani, Miguel, & Ramos (2019), Grose, Dasilas, & Alexakis (2014), Mamatzakis & Tsionas (2020), Leite, Faria, & Armada, (2016)). However, there is a paucity of research on the persistence of SRIs. And the limited number of studies addressing SRIs are mainly focused on SRI mutual funds in the US. Besides, the past performance of funds does not always guarantee future results because of the changes in fund-specific characteristics and macroeconomic factors. This is especially true when changes in macroeconomic factors directly impact funds' future performance; moreover, macroeconomic factors are beyond fund managers' control (Indro, Jiang, Patuwo, & Zhang, 1999).

Therefore, in this study, we aim to analyze the performance persistence of SRI funds in the US from 2001 to 2021 and take two significant global financial and non-financial crises into consideration. This is the first empirical study to examine the performance persistence of SRI funds before, during, and after the 2008 global financial crisis, and before and during the COVID-19 pandemic in the US. If the performance of SRI funds persists over the two global crises, investors can use our results to guide their investment decisions and make investment decisions accordingly.

2. LITERATURE REVIEW

Several studies have investigated the performance persistence of SRI mutual funds with mixed evidence (see Abdelsalam et al. (2014), Das and Rao (2014), Gregory and Whittaker (2007), Lean, Ang, and Smyth (2015), Matallín-Sáez, Soler-Domínguez, Tortosa-Ausina, and de Mingo-López (2019)). Given that these studies were conducted for different countries using different sample sizes and methodologies, it is unsurprising that the evidence they have provided points in different directions.

Among the SRI funds' performance studies, several authors found performance persistence in the sample, regardless of the methods used. Analyzing the performance persistence of SRI and Islamic mutual funds globally, Abdelsalam et al. (2014) found the performance of the worst and best SRI and Islamic mutual funds to be persistent; the persistence of the best funds was noteworthy. Researchers have also noted differences in performance persistence between SRI and non-SRI funds. Gregory and Whittaker (2007) explored the performance and performance persistence of the UK SRI mutual funds and compared them with a control group of non-SRI funds using the Carpenter and Lynch (1999) model. Their results showed that the performance of SRI mutual funds persisted for three years. Differences in performance persistence can be seen between SRI and non-SRI funds in the UK. Lean et al. (2015) used non-parametric methods (CPR Z-statistic, Malkiel Z-statistics, and chi-square distribution) to study the performance persistence of SRI funds and found scant

evidence of performance persistence in Europe and North America. However, Lean et al. (2015) found evidence of the SRI funds' performance persistence in both regions.

Using the ranked portfolio method, Lean, Ang, and Smyth (2014) found positive and significant performance persistence of SRI funds during 12-month and 60-month holding periods. However, they observed temporal variations in performance persistence, finding positive performance persistence in 2003 and negative performance persistence in 2008. There was little evidence of the performance persistence of SRI funds in the Asia Pacific region.

Matallín-Sáez et al. (2019) compared the performance persistence of SRI funds globally using the recursive approach (Carhart, 1997). Their results showed performance persistence in Europe, the US, and Canada. Funds with low sustainability attribute scores exhibited greater persistence in Europe, the US, and Canada; in other regions, funds with high sustainability attribute scores showed the highest persistence.

Contrary to the findings discussed above, Das and Rao (2014) findings were different from the research findings discussed previously. The authors studied the long-term performance persistence of SRI mutual funds. Two methods were used to identify the performance persistence of SRI funds; relative percentile ranks using annual total returns and ranks based on reward-to-variability (R/V) ratios calculated using annual returns. Notably, both methods did not indicate performance persistence in SRI funds over the study period.

Notwithstanding the significance of the 2008 global financial crisis and the COVID-19 pandemic in global finance, it is surprising that the performance persistence of US SRI funds before, after, and during these periods has been ignored. Our study is devoted to filling this gap in the literature.

We postulate that SRI funds have gained momentum globally due to the positive socially responsible attributes of companies, which make them less risky in any market condition. We attempt to identify whether these SRI funds have downside risk, particularly during the crisis periods, and give extra protection to the SRI investors. We also attempt to identify the behavior of SRI funds in different market conditions. We focus on the the US since it was severely affected by the 2008 global financial crisis and the COVID-19 pandemic. In fact, the 2008 global financial crisis began in the US. The US is also the largest and most well-developed SRI market globally (MSCI, 2022); there are ample data on US-based SRI mutual funds.

3.   DATA AND METHODOLOGY

We analyzed data from 2001 to 2021; the number of SRI funds in the US varied from year-to-year. All required data were collected from Bloomberg. Only funds with 24 months of data or more were considered in the sample to eliminate the biases. The poor-performing and low market value funds disappear or merge with another fund. As a result, funds' performance is overestimated. If the survivorship bias is not addressed in the data set, the results can be misleading the readers. Therefore, it is important to address this issue in the mutual fund data set (Elton, Gruber, & Blake,1996; Prather, Bertin, & Henker, 2004). Many studies on SRI funds' performance shows the survivorship bias (see Whittaker (2007), Humphrey and Lee (2011), Becchetti, Ciciretti, Dalò, and Herzel (2015), Lean et al. (2015), and Lesser et al. (2016)). Therefore, surviving and non-surviving funds are considered to eliminate the performance and performance persistence results from bias.

Although there is not a universally accepted model for measuring the performance of mutual funds, the models proposed by Fama and French (1993) and Carhart (1993) have been widely used. Matallín-Sáez et al. (2019) pointed out the advantages of using multi-factor models to calculate the performance of mutual funds. Rao, Tauni, Ahsan, and Umar (2019) emphasized the benefits of using the Fama French (1993) and Carhart (1997) models instead of the simple Capital Asset Pricing Model (CAPM) to evaluate mutual funds' performance. We have used the Fama-French (2005) model, which is an extension of their 1993 model and Carhart (1997) model using linear regressions (Bodie, 2021). The factors for these models are obtained from Kenneth French's website. Formally, the Fama-French (2005) model is expressed as follows:

$$R_{it} - R_{ft} = \alpha_i + \beta_i(R_{mt} - R_{ft}) + s_i(SMB_t) + h_i(HML_t) + r_i(RMW_t) + c_i(CMA_t) + \varepsilon_{it} \qquad (1)$$

where R_{it} is the return on security or portfolio i for month t, R_{ft} is the risk-free rate of return, R_{mt} is the return on the value-weight market portfolio, SMB_t is the difference between the nine small stock portfolios and the average return on the nine big stock portfolios, HML_t is the difference between the average return on the two value portfolios and the average return on the two growth portfolios, RMW_t is the difference between the average return on the two robust operating profitability portfolios and the average return on the two weak operating profitability portfolios, CMA_t is the difference between the average return on the two conservative investment portfolios and the average return on the two aggressive investment portfolios, and e_{it} denotes the zero-mean residuals (French, 2022).

Carhart's (1997) model is one of the most widely used in the literature to examine performance persistence. This can be expressed in equation (2).

$$R_{it} - R_{ft} = \alpha_i + \beta_0(R_{mt-} R_{ft}) + \beta_1(SMB_t) + \beta_2(HML_t) + \beta_3(MOM_t) + \varepsilon_{it} \qquad (2)$$

where MOM_t is the difference between the average return on the two high prior return portfolios and the average return on the two low prior return portfolios (French, 2022). The other variables are as defined above.

Matallín-Sáez et al. (2019) demonstrated that the recursive portfolio approach (Carhart 1997) is the most common method in the literature to measure the performance persistence of mutual funds. Carhart (1997) model can be identified as the most significant and robust methodology to investigate the performance persistence of mutual funds. Therefore, we used the recursive approach to measure the performance persistence of SRI funds in our study by following Hendricks et al. (1993), and Carhart (1997). We ranked the SRI funds according to their performance from lowest to highest. Next, the funds were sorted into deciles based on their prior performance. In this analysis, the ranking and holding periods were equal in length. Finally, the monthly performance for each portfolio is calculated and analyzed using the Carhart 1997 and Fama French 2005 methodologies This process is repeated at the beginning of each year.

4. FINDINGS AND DISCUSSION

Table 1 presents the results of the performance persistence of SRI funds before, during, and after the 2008 global financial crisis for the sample period using the ranked portfolio approach. The model uses alpha and the corresponding p-value as measures of performance persistence. If the coefficients for a given fund are positive and statistically significant, the fund's performance is said to be persistent and is likely to continue in the future. However, the negative and statistically significant alphas reveal negative performance persistence i.e. funds continues to perform poorly in the future.

Table 1. Performance persistence of US SRI funds before, during, and after the 2008 global financial crisis

Portfolio	Carhart 1997				Fama-French 2005			
	Study period	Before the 2008 financial crisis	During the 2008 financial crisis	After the 2008 financial crisis	Study period	Before the 2008 financial crisis	During the 2008 financial crisis	After the 2008 financial crisis
Decile 1 (Worst)	-0.2875*** (0.000)	0.1844 (0.172)	-0.7567* (0.015)	-0.2749*** (0.000)	-0.2527*** (0.000)	0.2356 (0.073)	-0.6348 (0.066)	-0.2355*** (0.000)
Decile 2	-0.1571*** (0.000)	0.1245 (0.198)	-0.2391 (0.367)	-0.1926*** (0.000)	-0.2087*** (0.000)	-0.2204* (0.022)	-0.0032 (0.989)	-0.2616*** (0.000)
Decile 3	-0.0293 (0.434)	0.2182* (0.011)	-0.4827* (0.042)	-0.1406*** (0.001)	-0.1603*** (0.000)	0.0052 (0.958)	-0.0689 (0.728)	-0.2059*** (0.000)
Decile 4	-0.0625 (0.094)	0.1228 (0.158)	0.0749 (0.686)	-0.1225* (0.004)	-0.0784* (0.037)	0.1164 (0.118)	-0.0802 (0.753)	-0.0787 (0.056)
Decile 5	0.0007 (0.984)	0.0529 (0.543)	0.6044* (0.008)	-0.1003 (0.012)	-0.0013 (0.974)	0.2155* (0.028)	0.0186 (0.929)	-0.0365 (0.409)
Decile 6	0.0598 (0.134)	0.1113 (0.237)	0.9230*** (0.000)	-0.0821 (0.062)	0.0174 (0.673)	0.3671*** (0.000)	0.2661 (0.386)	-0.0569 (0.183)
Decile 7	-0.0509 (0.186)	0.1567 (0.119)	0.0913 (0.681)	-0.0903 (0.029)	-0.0316 (0.440)	0.1060 (0.265)	0.0018 (0.994)	-0.0434 (0.341)
Decile 8	-0.0138 (0.745)	0.2301* (0.013)	0.2147 (0.320)	-0.0758 (0.112)	-0.0589 (0.180)	0.1712 (0.099)	0.6134* (0.037)	-0.1718*** (0.000)
Decile 9	-0.1818*** (0.000)	0.0861 (0.411)	-0.1209 (0.622)	-0.1853*** (0.000)	-0.01364 (0.758)	0.2388* (0.043)	0.4937 (0.101)	-0.0808 (0.084)
Decile 10 (Best)	-0.2033*** (0.000)	0.3583* (0.018)	-0.1218 (0.628)	-0.2416*** (0.000)	-0.0452 (0.405)	0.2878 (0.065)	0.8269*** (0.000)	-0.2000*** (0.001)

Note: The table reports alpha values with the corresponding p-values in the parentheses. *, **, *** denote 0.05, 0.01 and 0.001 significance levels, respectively.

Source: The authors' calculation.

Table 1 illustrates the performance persistence of SRI funds based on the performance of the Carhart (1997) and the Fama French (2005) models. The results were consistent in both models. Based on the Carhart (1997) model performance persistence can be seen in decile 3, 8, and 10 at the 5% significant level. On the other hand, the results of Fama French (2005) model showed persistence in decile 2 (at 1% level), 5 (at 5%),6 (at 1%), and 9 (at 5%). The results suggest that in the US, before the 2008 global financial crisis, performance persistence

can be seen in the best funds, this is not the case for the worst funds. A reason could be the stable economic condition in the US which made the best-performing SRI funds perform well over the years.

It is evident from the p-values and significant levels of SRI funds before and during the 2008 global financial crisis, worst-performing deciles and best-performing deciles followed the same persistence pattern. The top-performing funds continue to perform well in the future and the worst-performing funds continue to perform poorly in the future. The results suggest that SRI funds' performance was not adversely affected by the 2008 global financial crisis. Based on our results, we postulate that SRI investors are more loyal and did not sell their investments during the crisis period. Bollen (2007) found monthly cash flow volatility was lower in SRI funds compared with non-SRI funds. The author concluded that SRI investors were more loyal than non-SRI investors. Peifer (2014) also identified that the among the dual investors (invest in SRI and non-SRI funds) SRI investors were more loyal than non-SRI investors.

However, the results of both models indicated the adverse impact of the 2008 global financial crisis on the performance persistence of SRI funds after the crisis. All deciles exhibited negative average returns after the 2008 global financial crisis. The worst-performing funds (deciles 1-4) and best-performing funds (deciles 8-10) are negative and statistically significant at 5% level. The results showed that SRI funds did not perform well as a whole after the 2008 global financial crisis. The results showed that the 2008 global financial crisis had a long-term adverse impact on the performance persistence of SRI funds' performance persistence.

Several studies have identified the impact of the 2008 global financial crisis on the performance of SRI funds in the US. The findings of SRI funds' performance results are consistent with the performance persistence of SRI funds. Our findings of the performance persistence of SRI funds are in line with the findings of SRI funds' performance in the previous studies. For example, Matallín-Sáez et al. (2019) found environmental funds in the US outperformed before the2008 global financial crisis and underperformed after the crisis. Nofsinger and Varma (2014) also found SRI funds in the US performed well during the 2008 global financial crisis and performance worsened after the crisis. Muñoz, Vargas, and Marco (2014) revealed that US SR funds performed well during the 2008 global financial crisis compared to the period after the crisis. Castro, Hassan, Rubio, and Halim (2020) also identified impressive SRI funds performance in the US during the 2008 global financial crisis but the performance deteriorated after the crisis.

Table 2. Performance persistence of US SRI funds before and during the COVID-19 pandemic

Portfolio	Carhart 1997			Fama French 2005		
	Study period	Before Covid pandemic	During Covid pandemic	Study period	Before Covid pandemic	During Covid pandemic
Decile 1 (Worst)	-0.2875*** (0.000)	-0.31053*** (0.000)	-0.1934 (0.111)	-0.2527*** (0.000)	-0.3924*** (0.000)	0.2523 (0.092)
Decile 2	-0.1571*** (0.000)	-0.1803*** (0.000)	-0.0673 (0.546)	-0.2087*** (0.000)	-0.2317*** (0.000)	-0.1697 (0.180)
Decile 3	-0.0293 (0.434)	-0.0419 (0.300)	0.0320 (0.737)	-0.1603*** (0.000)	-0.1753*** (0.000)	-0.1223 (0.205)
Decile 4	-0.0625 (0.094)	-0.0953** (0.010)	0.1010 (0.397)	-0.0784* (0.037)	-0.0990* (0.013)	0.0495 (0.632)
Decile 5	0.0007 (0.984)	0.0080 (0.835)	-0.0449 (0.643)	-0.0013 (0.974)	0.0099 (0.807)	-0.0289 (0.814)
Decile 6	0.0598 (0.134)	-0.0935* (0.022)	-0.1200 (0.321)	0.0174 (0.673)	-0.00132 (0.976)	-0.0282 (0.796)
Decile 7	-0.0509 (0.186)	-0.0549 (0.168)	-0.0523 (0.641)	-0.0316 (0.440)	-0.0387 (0.365)	-0.0962 (0.431)
Decile 8	-0.0138 (0.745)	-0.0193 (0.664)	0.0166 (0.886)	-0.0589 (0.180)	-0.0234 (0.629)	-0.3369* (0.002)
Decile 9	-0.1818*** (0.000)	-0.1498*** (0.001)	-0.3824*** (0.000)	-0.0136 (0.758)	-0.0454 (0.332)	0.0651 (0.610)
Decile 10 (Best)	-0.2033*** (0.000)	-0.1414* (0.022)	-0.6637*** (0.000)	-0.0452 (0.405)	-0.0236 (0.691)	-0.3469* (0.006)

Note: The table reports alpha values with the corresponding p-values in the parentheses. *, **, *** denote 0.05, 0.01 and 0.001 significance levels, respectively.

Source: The authors' calculation.

Table 2 presents the results of the performance persistence of SRI funds before and during the COVID-19 pandemic using the ranked portfolio approach. Before the COVID-19 pandemic results from Carhart (1997) and Fama French (2005) models are fairly similar. In both cases, the worst-performing funds (deciles 1-4) exhibit negative returns with statistical significance and the best-performing funds (deciles 6-10) show negative returns. However, only in the Carhart model funds in the top deciles (deciles 6-10) were negative and statistically significant at 5%, 1%, and 5%, respectively. Overall, before COVID-19 pandemic the best-

performing funds may not continue their success, and the worst-performing funds were more likely to continue their poor performance.

Based on the results of the study period, the best-performing funds (deciles 8-10) had significant negative alphas, indicating that the top-performing funds in the past did not continue to perform well in the future. The worst-performing funds did not reveal any significant persistence during that time. It is important to note that the results for the study period show that the COVID-19 pandemic has significantly impacted the performance persistence of best-performing SRI funds. These results were different during the 2008 financial crisis period. However, we have not overcome the COVID-19 pandemic and the shorter time period might have an impact on the results. Based on data availability, we can presume that financial crisis and non-financial crisis affect the performance persistence of SRI funds differently.

Omura, Roca, & Nakai (2021) found that ESG funds and SRI indices outperformed the non-SRI funds in the US during the pandemic period. The authors did not examine the performance persistence of SRI funds. Our findings show performance persistence of SRI funds contradict the findings of SRI funds' performance of our study.

5.   CONCLUSION

We analysed the performance persistence of SRI funds in the US before, during and after the 2008 global financial crisis using the Carhart 1997 model and Fama French 2005 model. Based on the results of both models, before the 2008 global financial crisis, performance persistence can be seen in the best performing funds. The results reveal that the worst and best funds' performance persisted during the 2008 global financial crisis. After the financial crisis the results suggest that poor performing funds tend continue performing poorly in the future and best performing funds does not guarantee future success.

Second we analyzed the performance persistence of SRI funds in the US before, during and after the COVID-19 pandemic based on the performance of Carhart 1997 and Fama French 2005 models. There are two similarities between the results of Carhart 1997 and Fama French 2005 models. The results from both models indicate that worst-performing funds have negative returns with statistical significance before COVID-19 pandemic. During COVID-19 pandemic results from both models indicate that funds in the top deciles had negative and significant coefficients. This suggests that there is no performance persistence in the fund's returns.

Based on our results, it is evident that the 2008 global financial crisis and COVID-19 pandemic have an adverse impact on the performance and the performance persistence of SRI funds in the US. These findings show that either a financial crisis or a non-financial crisis has an impact on the performance persistence of SRI funds. Our results revealed that SRI funds provided additional protection for investors during the 2008 global financial crisis but not after the 2008 global financial crisis. Our results also showed that SRI funds do not limit the downside risk during the COVID-19 pandemic. Our results implied that the behavior of SRI funds changes in different market conditions (financial crisis and non-financial crisis).

The results of our study showed that performance persistence of the US SRI funds was not consistent in different market conditions. We suggest that investors in the US should not solely rely on past performance of SRI funds when making investment decisions particularly during times of market volatility or economic uncertainty. SRI investors should focus on diversifying their investment portfolios due to the lack of persistence in the performance of the US SRI funds across different market conditions. Our results show the best performing funds did not show performance persistence after the 2008 global financial crisis and COVID-19 pandemic. Therefore, investors should evaluate their investment goals, risk tolerance, and time horizon to determine whether socially responsible investment funds are an appropriate addition to their investment portfolio.

By providing information about the lack of performance persistence of SRI funds in the US during the crises and non-crises period, fund managers can build trust and credibility with their investors. The analysts can manage investors' expectations and prevent them from being disappointed with the fund's performance. Our results also recommend that the analysts analyse the funds' asset allocation, sector diversification, and risk management practices in different market conditions.

REFERENCES

Abdelsalam, O., Duygun, M., Matallín-Sáez, J.C., & Tortosa-Ausina, E. 2014. Do ethics imply persistence? The case of Islamic and socially responsible funds. Journal of Banking & Finance, 40, 182-194.

Bollen, N.P.B. 2007. Mutual fund attributes and investor behavior. Journal of Financial and Quantitative Analysis, 42(3), 683-708.

Bodie, Z., Kane, A., Marcus, A.J., 2021. Investments (12th ed.): New York: McGraw-Hill Education.

Becchetti, L., Ciciretti, R., Dalò, A., & Herzel, S. 2015. Socially responsible and conventional investment funds: performance comparison and the global financial crisis. Applied Economics, 47(25), 2541-2562.

Carhart, M.M. 1997. On persistence in mutual fund performance. The Journal of Finance (New York), 52(1), 57-82.

Castro, E., Hassan, M.K., Rubio, J.F., Halim, Z.A. 2020. Relative performance of religious and ethical investment funds. Journal of Islamic Accounting and Business Research, 11(6), 1227-1244.

Das, P.K., & Rao, S.U. 2014. Performance persistence in socially responsible mutual funds. International Journal of Economics and Business Research, 8(4), 490-503.

Deb, S.G. 2019. Persistence in performance of actively managed equity mutual funds: New Indian evidence. IIMB Management Review, 31(2), 145-156.

Elton, E.J., Gruber, M.J., & Blake, C.R. 1996. Survivorship Bias and Mutual Fund Performance. The Review of Financial Studies, 9(4), 1097-1120.

French, K.R. 2022. Current Research Returns. http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html#Research

Fama, E.F., & French, K.R. 2015. A five-factor asset pricing model. Journal of Financial Economics, 116(1), 1-22.

Gregory, A., & Whittaker, J. 2007. Performance and Performance Persistence of 'Ethical' Unit Trusts in the UK. Journal of Business Finance & Accounting, 34(7-8), 1327-1344.

Humphrey, J.E., & Lee, D.D. 2011. Australian Socially Responsible Funds: Performance, Risk and Screening Intensity. Journal of Business Ethics, 102(4), 519-535.

Hendricks, D., Patel, J., & Zeckhauser, R. 1993. Hot Hands in Mutual Funds: Short-Run Persistence of Relative Performance, 1974-1988. The Journal of Finance (New York), 48(1), 93-130.

Indro, D.C., Jiang, C.X., Patuwo, B.E., & Zhang, G.P. 1999. Predicting mutual fund performance using artificial neural networks. Omega (Oxford), 27(3), 373-380.

Lean, H.H., Ang, W.R., & Smyth, R. 2014. Chapter 20 - Performance Persistence of Socially Responsible Investment Funds in the Asia Pacific Region. In (pp. 377-392): Elsevier Inc.

Lean, H.H., Ang, W.R., Smyth, R., 2015. Performance and performance persistence of socially responsible investment funds in Europe and North America. North American Journal of Economics and Finance, 34, 254-266.

Lean, H.H., & Pizzutilo, F. 2020. Performances and risk of socially responsible investments across regions during crisis. International Journal of Finance and Economics.

Leite, P., Faria, O., & Armada, M.R. 2016. The impact of the Eurozone sovereign debt crisis on bond fund performance persistence: Evidence from a small market. The Investment Analysts Journal, 45(sup1), S32-S45.

Lesser, K., Rößle, F., & Walkshäusl, C. 2016. International socially responsible funds: Financial performance and managerial skills during crisis and non-crisis markets. Problems and Perspectives in Management, 14(3), 461-472.

Matallín-Sáez, J.C., Soler-Domínguez, A., Tortosa-Ausina, E., & de Mingo-López, D.V. 2019. Ethical strategy focus and mutual fund management: Performance and persistence. Journal of Cleaner Production, 213, 618-633.

MSCI. 2022. MSCI World SRI Index (USD). https://www.msci.com/documents/10199/641712d5-6435-4b2d-9abb-84a53f6c00e4

Muñoz, F., Vargas, M., & Marco, I. 2014. Environmental Mutual Funds: Financial Performance and Managerial Abilities. Journal of Business Ethics, 124(4), 551-569.

Muñoz, F. 2019. The 'smart money effect' among socially responsible mutual fund investors. International Review of Economics & Finance, 62, 160-179.

Omura, A., Roca, E., & Nakai, M. 2021. Does responsible investing pay during economic downturns: Evidence from the COVID-19 pandemic. Finance Research Letters, 42, 101914.

Nofsinger, J., & Varma, A. 2014. Socially responsible funds and market crises. Journal of Banking & Finance, 48, 180-193.

Prather, L., Bertin, W.J., Henker, T. 2004. Mutual fund characteristics, managerial attributes, and fund performance. Review of Financial Economics, 13(4), 305-326.

Peifer, J.L. 2014. Fund Loyalty Among Socially Responsible Investors: The Importance of the Economic and Ethical Domains. Journal of Business Ethics, 121(4), 635-649.

Rao, Z.-u.-R., Tauni, M. Z., Ahsan, T., Umar, M., 2019. Do mutual funds have consistency in their performance? Portuguese Economic Journal, 19(2), 139-153.

Reilly, F.K., Brown K.C., & Leeds, S.J. 2019. Investment Analysis & Portfolio Management (Eleventh edition.. ed.): Boston, MA: Cengage

SIF, U. 2016. The impact of sustainable and responsible investment. Retrieved from https://www.ussif.org/store_product.asp?prodid=34

Stafylas, D., Anderson, K., & Uddin, M. 2016. Recent advances in hedge funds' performance attribution: Performance persistence and fundamental factors. International Review of Financial Analysis, 43, 48-61.