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Environmental, Social and Governance Responsibility, financial performance and assets: A study of Exchange Traded Funds

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Abstract

Two research questions are examined in this study with a sample of 168 passive Exchange Traded Funds (ETFs). The first one asks whether a high Environmental, Social and Governance Responsibility (ESG) rating induces investors to allocate more money in an ETF. The empirical findings indicate that the level of assets is not affected by the ESG rating whatsoever, but it is affected by factors such as the historical performance, the expense ratio and the age of each fund. The second question raised concerns the relationship between the performance of an ETF and its ESG rating. The hypothesis examined is that the higher the ESG rating of an ETF is, the higher the return of the ETF should be. The results do not confirm this hypothesis. Not surprisingly, to a large extent, the performance of ETFs is driven by the return of the tracking indexes. To a lesser degree, expense ratio bears a negative impact on ETFs' performance.

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Keywords

- Exchange Traded Funds
- Environmental, Social and Governance Responsibility
- performance
- assets
- ratings

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Introduction

Sustainable long-term investing has gained significant popularity over the recent years with investors taking very seriously the environmental, social and governance aspects (ESG) of their investments. As of September 2021, European sustainable funds held about 3.4 trillion US dollars of assets. The respective amount in the United States was 331 billion dollars, while worldwide, sustainable funds managed about 3.9 trillion dollars (Statista, 2021).

In this paper, we use data of a sample of 168 passively managed iShares during a period covering the inception date of each fund in the sample till 31 December 2020 to address two main research issues surrounding ESG investing. The first issue concerns the general factors that affect the level of assets managed by ETFs. The focus is paid on the relationship between the ESG rating awarded to an ETF and the assets that flow into the fund. The hypothesis examined says that the higher an ETF's ESG rating is, the higher the money flow into the fund should be. The statistical and regression empirical analysis performed does not confirm this assumption. In particular, the results indicate that there is not any significant correlation between the various ESG measures assessed and the assets held by ETFs. Other factors, such as the historical return of a fund, age and expense ratio seem to be some of the explanatory factors of ETFs' assets. Based on our results, investors place more money to seasoned funds with significant historical performance records. On the other hand, expenses deter investors from an ETF.

The second research issue examined regards the relationship between the return of an ETF and its ESG rating. On this matter, the assumption that is examined says that the higher the ESG rating of an ETF is, the higher the demand for this ETF should be and, thus, the higher the financial value or return of the ETF should be too. Trying to answer this question, other factors, such as the tracking index and the fund's age and expense ratio, are assessed as the explanatory variables of ETFs' return.

The empirical results do not confirm any significant correlation between the ESG rating of ETFs and their performance. However, a minor negative relationship between the two variables is found in the case of ESG rating provided by Morningstar. To a high degree, the return of ETFs is driven by the return of their benchmarks. This finding is not surprising, given the passive nature of ETFs in the sample. However, a perfect index return replication is not the case. This fact results in an average underperformance (tracking error) of 25 basis points (bps) over the entire trading history of the examined ETFs. Along with the return of the tracking index, the performance of ETFs is affected by expenses. Not surprisingly, this impact is negative.

Apart from the issues examined above, the relationship between the ESG rating and performance rating is investigated. The assumption that is examined says

that ETFs awarded with high ESG rating, should also be awarded with high return rating. To answer this question, single-factor cross-sectional regressions of ETFs' Morningstar return rating on relevant ESG ratings are applied. The results reveal a weak positive relationship between Morningstar return rating and Morningstar ESG rating.

At the last step, we seek to verify whether there is any trade-off between ESG exposure and tracking error, as well as expense charges, as it is frequently assumed by the investment community. This trade-off means that the higher the exposure to sustainable investments is, the higher the tracking error and the expense ratio of an ETF will be. The empirical results do not confirm such a relationship. On the contrary, some weak evidence is obtained on a negative correlation between Morningstar ESG rating and ETFs' tracking error, which entails that the higher the ESG rating of an ETF is, the lower the tracking error of this fund is too.

This paper contributes to the ESG literature in several ways. To our knowledge, while sustainable investing with mutual funds has drawn significant interest among researchers, this issue is under-researched in the case of ETFs. This inference is very strong when the issues surrounding the relationship between ESG rating and the return of ETFs are concerned. Moreover, the existing literature on ESG investing with ETFs has focused mainly on the risk and return attributes of these funds, their performance versus the performance of non-sustainable ETF peers, and the value of the diversification offered to investors by the ESG ETFs. Issues such as the relationship between ESG rating and assets, ESG rating and return rating, ESG rating and tracking error or expenses have been neglected in the literature. Our paper fulfills this gap by providing significant empirical evidence on these neglected issues.

The rest of the paper is structured as follows: Section 2 discusses some of the key findings of the literature on ESG investing with mutual funds and ETFs. Section 3 presents the research hypotheses and the methodology used in our empirical research, as well as the data and statistics of the sample. The results are presented in Section 4 and the conclusions are discussed in the last section.

1. Literature review

In this section we discuss some of the key findings of the literature on sustainable investing. We focus on stocks, mutual funds and ETFs and examine issues that mainly relate to the performance of these securities.

In an early stage, Hamilton et al. (1993) compare the excess monthly returns of socially responsible (SR) equity mutual funds to the corresponding return of non-SR

mutual funds over the period between 1981–1990. The authors find no statistically significant return differences between the two fund groups. In the same context, Statman (2000) compares the monthly risk-adjusted return of the Domini Social Index (DSI), which is an index of socially responsible companies, to the return of the S&P 500 Index during the period between 1990–1998. He finds that the DSI performed better than the broad US stock market, represented by the S&P 500 Index, during the period under study. Moreover, Statman (2000) compares the returns of socially responsible and conventional mutual funds over the same period, finding that the SR funds performed better than their conventional counterparts. However, this outperformance is not statistically significant. Kreander et al. (2005) provide similar results on 60 European so-called "ethical funds" from the UK, Sweden, Germany and the Netherlands over the period between 1995–2001. Other studies supporting the similarity in performance between SR stock investing and traditional stock investing are those of Goldreyer and Dlitz (1999), Shank et al. (2005), Statman (2006), Renneboog et al. (2011), Cortez et al. (2012), Jacobsen et al. (2019), Niblock et al. (2020), and Plagge and Grim (2020).

Other studies find that sustainable or socially responsible investing can be sufficiently rewarding to investors. In this respect, Kempf and Osthoff (2007) assess a trading strategy of buying stocks with high SR ratings and selling stocks with low SR ratings. The authors conclude that this strategy can result in significant abnormal returns (up to 8.7% annually), even after allowing for transaction costs. In the same spirit, Gil-Bazo et al. (2010) report that over the period between 1997–2005, the SR funds in the US performed better than comparable conventional mutual funds, both in before-fee and after-fee return terms. This outperformance is detected in SR funds that are managed by companies specialised in socially responsible investing. However, this return advantage of SR funds reverts to a disadvantage when SR and traditional mutual funds managed by companies which do not specialise in SR investing are compared. Other studies that conclude that SR investing can be profitable from a financial perspective are those of Derwall et al. (2005), Statman and Glushkov (2009), Edmans (2011), Derwall et al. (2011), Nofsinger and Varma (2014), Chong and Phillips (2016), and Filbeck et al. (2019).

On the other hand, several studies find evidence that applying ESG or other ethical criteria in stock investments comes with a cost. This cost regards a return disadvantage of responsible investing relative to "non-responsible" investing. In this respect, Bauer et al. (2006) report that during the period between 1992–1996 ethical funds in Australia underperformed significantly their conventional peers. However, during 1996–2003, the performance of ethical funds approximated the performance of conventional funds. Renneboog et al. (2008) find that SR funds in the US and the UK, as well as in many continental European and Asia-Pacific countries, underperform their domestic benchmarks by 2.2% to 6.5%. This underperformance is interpreted as the "price" paid by investors for

being ethical. Adler and Kritzman (2008) estimate the cost of SR investing, from a return perspective, by questioning whether imposing restrictions on the available investment universe is the most efficient method for promoting social ideals. The authors compare the return of a skillful investor in an unrestricted and in a restricted investment universe and find that the financial sacrifice, i.e. lost performance, of SR investing is substantial. Other studies concluding that environmental, social and ethical responsibility comes with a high cost in terms of financial performance are those of Girard et al. (2007), Lee et al. (2010), Chang et al. (2012), Muñoz et al. (2014), Capelle-Blancard and Monjon (2014), and Silva and Cortez (2016).

In a slightly different context, Halbritter and Dorfleitner (2015) investigate the ESG marketplace in the US over the period 1991 to 2012. In particular, the authors construct a high and low portfolio of stocks including ESG out- and underperformers. The results of the empirical analysis show that there is no significant difference in returns between companies with high and low ESG ratings. Dolvin et al. (2019) assess Morningstar sustainability ratings of mutual funds against their performance. The main finding of the authors is that the risk-adjusted return of funds with high sustainability scores approximate the corresponding returns of funds without such high scores. Therefore, based on these findings, SR investors can pursue their social or sustainability targets without significant losses in financial performance terms, but also without realising any financial benefits as well. On the same matter, Chang et al. (2020) examine the relationship between sustainability and mutual fund returns by using Morningstar sustainability ratings, star ratings and analyst ratings. The findings of the authors show that the correlation between sustainability and returns is very low. From a practical point of view, the results entail that SR investors do not have to suffer any financial loss when investing with a positive social inclination.

In the case of ETFs, Rompotis (2016) assesses the performance of water ETFs against the performance of the tracking indexes, the S&P 500 Index and the market portfolio built by Fama and French. The findings show that, regardless of the benchmark that is used, the water ETFs cannot offer investors significant above-market returns. On the contrary, in several cases negative and significant alphas are estimated. These negative alphas are comparable to the fees charged by the funds. Marozva (2014) compare the return of ETFs listed in the Johannesburg Stock Exchange to the return of the JSE SRI Index during 2004–2014. The author finds that there are no significant return differences between ETFs and the index during the period of economic growth. However, the JSE SRI Index underperformed significantly the ETFs during the period of economic decline. Rodríguez and Romero (2019) add that the Global SR ETFs provide better international diversification than the traditional ETFs. Finally, Kanuri (2020) examines the risk and return characteristics of the ESG ETFs since February 2005 through July 2019 and compares them

with investable proxies for US and global equity markets. Even though the ESG ETFs outperformed the market indexes in some periods, during the entire period, the indexes outperformed the ESG ETFs.

2. Hypotheses and methodology

In this section we develop the hypotheses that will be investigated and describe the methodology that will be implemented in our study.

2.1. Analysis of assets

The first issue that will be examined concerns the relationship of ETFs' assets with their ESG ratings. The hypothesis made here is that an ETF with a high ESG rating should attract more money than an ETF with a lower ESG rating. This increased money inflow to an ETF should be reflected in a significantly positive correlation between the ESG rating and the assets undermanaged by the fund.

Along with the relationship between ETFs' assets and ESG ratings, we try to detect other features of ETFs that could affect the level of assets managed by them. The factors that are tested are the age of ETFs, the expense ratio, the historical return, the trailing yield over the last 12 months, the star rating of performance awarded by Morningstar, and the carbon intensity of ETFs.

The analysis of assets is applied with the following cross-sectional Model (1):

$$Assets = \lambda_0 + \lambda_1 Age + \lambda_2 ExpRat + \lambda_3 Ret + \lambda_4 Yield + $$
$$+ \lambda_5 StarRet + \lambda_6 ESGRate + \lambda_7 Carb + u \qquad (1)$$

where: *Assets* is the natural logarithm of ETFs' assets under management as of 31.12.2020; *Age* is the age of ETFs in years as of 31.12.2020; *ExpRat* is the latest published expense ratio of ETFs; *Ret* is the historical return of ETFs since the inception of each fund through the end of 2020; *Yield* is the percentage trailing yield of ETFs over the last 12 months as of 31.12.2020; *StarRet* is the Morningstar performance star rating as of 31.12.2020; *ESGRate* is the ESG rating of ETFs as of 31.12.2020; *Carb* stands for ETFs' carbon intensity as of 31.12.2020.

Regarding the age, the hypothesis that is examined says that the aged ETFs are more experienced and, consequently, they should seem more reliable or attractive to investors. Investors would respond to this accumulated experience and

knowledge by placing more money to these funds. The opposite should be the case about the relationship between assets and expenses. In particular, one should expect that ETFs charging higher fees will hold less assets than the low-cost ETFs.

Going further, the historical return should be positively related to assets, given that investors tend to invest more money in funds with great historical performance records, even though past returns do not guarantee the future ones. A similar positive relationship would be expected between assets and ETFs' trailing dividend yield. Given that dividends, along with capital gains, constitute the entire financial profit realised to an ETF investor, the higher the dividends paid by an ETF, the more attractive the ETF will be. If this assumption is true, investors should invest more money in ETFs with significant dividend payments.

From the plethora of ETFs, strong Morningstar return ratings should probably allure more ESG investors, who could probably combine responsible investing with significant financial gains. On the other hand, strong ESG ratings should obviously entail that the corresponding ETFs enjoy increased popularity with ESG investors, who will allocate more money to them. Finally, when it comes to carbon intensity, which is a measure on an ETFs' exposure to carbon intensive companies, the correlation with the assets held by an ETF should be negative. This means that the ESG-sensitive investors should withdraw their money from ETFs with a high carbon exposure in favor of ETFs with a low carbon intensity.

2.2. Analysis of performance

The second issue examined regards the factors that possibly affect the performance of ETFs. The focus is paid on the relationship between ETFs' performance and ESG rating. The key assumption made here is that ESG investors should award ETFs having an increased ESG sensitivity with an increased demand for their shares. The increased demand will raise the prices of ETFs and, thus, returns will ascend too.[2]

Additional elements that might affect the returns of ETFs that are considered in our analysis are the return of the underlying indexes along with the age of ETFs, expense ratios, Morningstar return rating and carbon intensity.

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[2] The boosting impact on ETF performance by the ESG records is probably more indirect than this assumption suggests. In particular, the increased demand for the shares in ETF could affect the premium or discount of ETFs, but finally the return depends on NAV, which is strongly correlated with the tracked index. However, increasing the demand for an ETF may affect the value of the index and, consequently, the NAV of ETFs, as the accumulated funds are invested in the relevant stocks. Moreover, when the return of ETFs is computed with trade prices, the increasing demand for their shares should result in a rise in their trade prices and, thus, in their returns, for a given level of supply.

The analysis of performance is applied using the following cross-sectional regression Model (2):

$$Ret = \lambda_0 + \lambda_1 Ind + \lambda_2 Age + \lambda_3 ExpRat + \lambda_4 StarRet + \lambda_5 ESGRate + \lambda_6 Carb + u \ (2)$$

where: *Ind* is the historical return of each ETF's benchmark that spans the same period as the historical return of the ETF. The other variables are defined as above.

When it comes to the return of benchmarks, it is obvious that, as ETFs are passively managed and track specific indexes, their performance should be explained to a large extent by their benchmarks. Consequently, a highly significant and positive estimate of the *Ind* factor in the model is expected.

A positive estimate of the age factor could be expected as well. The reason behind this expectation is that the more aged a fund is, the most skillful its managers should be. Enhanced managerial skills could entail that profitable investment opportunities are exploited resulting in higher financial gains for investors. However, the literature has shown (e.g. Howell, 2001) that young funds outperform the oldest ones. If this finding applies to ETFs too, a negative sign for the age factor would not surprise us.[3]

As far as expenses are concerned, it is well-documented in the literature on the actively managed mutual funds, index funds and ETFs that expenses erode performance (e.g. Carhart, 1997; Blitz et al., 2012). Therefore, the estimate of the expense ratio factor must be negative and significant.

The Morningstar return rating of an ETF should bear a positive correlation with the actual return of the fund. In addition this factor is added to the model in order to detect whether investors perceive performance rating as an indicator of promising returns in the short- or the longer-run. If this assumption is true, the increased buying activity of investors for an ETF should trigger higher returns.

Finally, when it comes to the ESG metrics that are taken into consideration in the model, two hypotheses are made. The first one says that the higher the ESG rating of an ETF is, the higher the performance of this fund will be, due to the increased demand of investors for it. The second hypothesis says that the carbon intensity of an ETF should exert a negative influence on its performance, as ESG investors will avoid this fund, due to its exposure to carbon intensive firms. In other words, the second assumption says that the higher the carbon intensity of an ETF is, the lower the performance of the fund should be.

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[3] In another view, given that the primary target of the passively managed ETFs is to replicate the performance of benchmarks, rather than achieving higher returns than the benchmark, the age factor can be considered as an explanatory variable of an ETF's tracking error or expense ratio. To explain the factors that affect the tracking error and the expense ratio of ETFs is out of the scope of the current paper.

2.3. ESG rating vs performance rating

Along with the key issues described above, we assess the relationship between the performance rating of ETFs and their ESG rating. We do so by applying the following single-factor cross-sectional Model (3):

$$StarRate = \lambda_0 + \lambda_1 ESGRate + u \qquad (3)$$

where: *StarRate* and *ESGRate* are defined as above. Should the two rating measures significantly relate to each other, a positive estimate of the λ_1 coefficient approximating unity will be obtained. If this expectation is verified, the inference to be reached will be that responsible investing goes hand in hand with profitable financial targets.

2.4. ESG rating vs tracking error and expenses

The last research questions that are examined concern the relationship between the ESG rating of ETFs with their tracking error and expenses. We have already noted that, due to the screening techniques that are usually applied by the ESG ETFs,[4] increased tracking errors and expenses are to be expected. We assess whether this assumption is true by applying the following single-factor cross-sectional Models (4) and (5):

$$TE = \lambda_0 + \lambda_1 ESGRate + u \qquad (4)$$

and

$$ExpRat = \lambda_0 + \lambda_1 ESGRate + u \qquad (5)$$

where: *TE* is an unsophisticated measure of ETFs' tracking error that is calculated as the difference in historical returns of ETFs and benchmarks; *ExpRat* and *ESGRate* are defined as above. If our assumption about the relationship between the ESG rating of ETFs and their tracking error and expenses is right, a positive λ_1 coefficient in Models (4) and (5) will be estimated.

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[4] Screening techniques may entail that some stocks are avoided by the ESG ETFs (of course if they are allowed to do so, due to their passive nature). If this is true, higher tracking errors (in absolute terms) could be expected. This is the common belief in the fund industry.

2.5. Data and statistics

In this section we provide information on the sample of the study, the ESG profiles of the examined ETFs and data on their performance.

2.5.1. Sample

The sample of the study includes 168 equity ETFs (called iShares), which are managed by BlackRock, that is, the leader in the global ETF market. All these ETFs are evaluated by MSCI and Morningstar for ESG purposes. They are also monitored and evaluated by Morningstar for financial performance purposes. The availability of ESG and performance ratings was the main selection criterion for the consideration of an ETF in the sample. The sufficiency of return data (at least three years of returns as of 31.12.2020) was another selection criterion. Therefore, the minimum return period covered by each fund in the sample spans from 1.1.2018 to 31.12.2020.

It should be noted here that we deem the sample of ESG iShares as quite representative of the entire market of ESG ETFs in the US. We believe so, because BlackRock, which is the managing company of iShares, possesses the biggest market share in the United States.[5] In addition, as ESG ETFs are basically passively managed, as most ETFs, we believe that no significant declines are to be observed in the managing practices of ESG ETFs between BlackRock and other companies. For these two key reasons, we deem that we can use iShares to draw general conclusions about ESG ETFs.

Table 1 presents the financial profile of the sample, which includes the age of the funds (in years) as of 31.12.2020, their latest expense ratio, which is computed as the total portion of an ETF's assets (in percentage terms) devoted to the administration of the fund, the 12m percentage trailing yield, which is the percentage income an ETF portfolio returned over the past 12 months as of 31.12.2020, calculated as the weighted average of the yields of the stocks that compose the portfolio, and the net assets under management of ETFs as of 31.12.2020. In addition, ETFs are classified according to their asset class, i.e. the capitalisation level of stocks they select, the region focus and the state of the underlying market, which is developed or emerging.[6]

The age of ETFs is about 14 years, both in average and median terms. The majority of ETFs (110 funds) are more than 10 years old (not shown in the Table 1).

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[5] BlackRock's market in the ETF market as of February 2022 is 33.99%. This is the leader in the market. The second company is Vanguard with a market share of 29.12%. For more information on market shares in the US, refer to Statista (2022).

[6] All the information presented here has been found on www.iShares.com.

Table 1. Profiles of ETFs

Stats	Age	Expense ratio (%)	12m trailing yield (%)	Net assets (USD)	
Average	13.67	0.38	1.66	9,189,587,862	
Median	14.31	0.39	1.44	1,603,910,039	
St. Dev.	5.88	0.22	0.97	24,309,971,242	
Minimum	3.15	0.03	0.08	3,331,562	
Maximum	24.82	1.48	5.44	255,556,728,943	
Total	N/A	N/A	N/A	1,543,850,760,793	
Asset Class	**No of ETFs**	**Region**	**No of ETFs**	**Market**	**No of ETFs**
All cap	67	Asia Pacific	18	Developed	147
Large cap	15	Europe	6	Emerging	21
Large/mid cap	59	Global	58	**Total**	**168**
Mid cap	9	Latin America	3		
Mid/small cap	1	North America	83		
Small cap	17	**Total**	**168**		
Total	**168**				

Source: https://www.ishares.com

The age of ETFs indicates that they are well-established in the market. In addition, the managers of these funds must be quite experienced, a factor that should contribute to the efficient management of the funds and, possibly, to their financial performance.

The expense ratio is about 0.4%, which is quite low compared to fees charged by actively managed mutual funds or ETFs, as a result of the passive nature of ETFs in the sample. However, the data shows that there is a wide dispersion in expense ratios. The lowest expense ratio amounts to 3 basis points (bps), while the highest approximates 150 bps. From a further analysis of expense ratios, we note that the highest expense ratios mainly concern ETFs with an international focus. This finding is not new in the literature. In any case, the dispersion of expense ratios entails that investors should be very careful when choosing ETF products, because they might end up with expensive funds that will erode the profits of their investments.

When it comes to the dividends accrued to ETF portfolios, an average 12m trailing yield of 1.66% is reported in Table 1. The lowest yield is 0.08%, and the maximum yield well exceeds 5%. A deeper examination of the trailing yields shows that the highest yields mainly concern ETFs that focus on domestic or international companies that have provided consistent high dividend yields over time. Whether these dividend records are satisfactory or not depends on the preferences and income targets of each investor.

In regard to assets, the total amount of money invested in the sample's ETFs as of 31.12.2020 was 1.54 trillion dollars.[7] The average amount of assets held by ETFs is 9.2 billion dollars. However, there is a wide variation in assets held by the individual funds in the sample. The smallest fund manages only 3.3 million dollars, while the biggest one holds more than 255 billion dollars.[8] By descending the assets held by each ETF, we observe that the top ten funds are mainly focused on the US market, with the exception of two ETFs that invest in the EAFE region and other two ETFs which cover indexes from emerging markets.

With respect to the asset class, about half of ETFs in the sample invest in stocks with mid or large capitalisation. The regions covered mostly concern the stock markets in the North America, whereas the second biggest group of ETFs have a global orientation. Finally, 88% of ETFs invest in stocks of developed capital markets.

2.5.2. ESG profiles

The ESG profiles of ETFs (found on iShares.com) are presented in Table 2. These profiles include the ESG Quality Score (0–10), which is provided by MSCI, the Weighted Average Carbon Intensity (tons CO2E/$m Sales), which is measured by MSCI as a proxy for the exposure of an ETF to carbon intensive companies, the MSCI ESG % Coverage, which is the percentage of an ETF's holdings that have MSCI ESG ratings data, and the MSCI ESG Rating, which is calculated as a direct mapping of ESG quality scores to letter rating categories. An alternative ESG Rating of ETFs estimated by Morningstar is also provided in Table 2. This rating is a measure of the financially material ESG risks in an ETF portfolio relative to the ETF portfolio's peer group. The MSCI ESG ratings range from leader (AAA, AA), average (A, BBB, BB), to laggard (B, CCC). The Morningstar ESG rating ranges from 1 star (low) to 5 stars (high). The assets in each ESG rating range (i.e. MSCI and Morningstar) are provided as well so as to make a first assessment of whether there is a direct relationship between the ESG rating of an ETF and its assets.

The average (and median) MSCI ESG quality score is 5.75. This figure shows that the majority of ETFs in the sample (121 out of 168 funds) are "a pass" for ESG purposes. The minimum and maximum MSCI ESG scores are 1.65 and 9.78, respectively. The average carbon intensity measure is 221 tons of CO2E per mil-

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[7] By the end of 2020, the net assets held by ETFs worldwide amounted to about 7.74 trillion dollars (Statista.com). Thus, the 1.54 trillion dollars managed by iShares in the sample approximates 20% of the global ETF market. This figure verifies that our sample is quite representative of the entire ETF market and, consequently, the empirical findings of this study can be applicable to ETFs as a whole.

[8] Not surprisingly, the biggest ETF in the sample is the iShares Core S&P 500 ETF (IVV), which tracks the S&P 500 Index.

Table 2. ESG profile of ETFs

Stats	MSCI ESG quality score (0–10)	MSCI weighted average carbon intensity (tons CO2E/$m sales)	MSCI ESG (% coverage)
Average	5.75	220.82	98.49
Median	5.75	141.72	99.57
St. Dev.	1.26	287.17	3.24
Minimum	1.65	2.85	78.65
Maximum	9.78	2,501.95	100.00

MSCI ESG Rating	Range	No of ETFs	Net assets average	Net assets minimum	Net assets maximum
AAA	leader	1	1,311,762,859	1,311,762,859	1,311,762,859
AA	leader	24	8,953,159,773	6,294,267	87,562,446,175
A	average	62	3,825,225,966	3,492,199	29,241,578,662
BBB	average	63	15,086,056,004	3,331,562	255,556,728,943
BB	average	16	8,686,617,480	64,517,796	67,761,827,657
B	laggard	2	545,872,776	324,444,335	767,301,218
CCC	laggard	0	0	0	0
Total		**168**			

Morningstar ESG Rating	Range	No of ETFs	Net assets average	Net assets minimum	Net assets maximum
5 stars	high	11	2,631,493,707	48,941,330	6,572,078,865
4 stars	above average	38	3,539,532,266	143,027,229	19,966,300,264
3 stars	average	72	13,714,429,273	3,331,562	255,556,728,943
2 stars	below average	39	9,307,232,980	30,745,286	79,625,508,965
1 star	low	8	3,747,638,756	64,517,796	15,878,800,468
Total		**168**			

Source: the MSCI ESG metrics are found on https://www.ishares.com. The Morningstar ESG metrics are found on https://www.morningstar.com

lion of sales. By descending the individual measures of ETFs, we see that 50 funds present carbon intensity metrics exceeding the average term of the sample. The average MSCI ESG percentage coverage is very high approximating 100%. So far, we draw a view of a relatively positive ESG impact of ETFs in the sample.

In regard to the overall ESG rating awarded by MSCI, we see in Table 2 that the majority of ETFs are averages or above. More specifically, 141 funds are rated as average for ESG purposes, 25 ETFs are classified as leaders and only 2 funds are laggards. The 3A rating is credited just to one ETF, while no ETF receives the bottom ESG rate.

On the relationship between the MSCI ESG rating and the assets held by ETFs, we see that the fund with the absolute 3A rate manages only 1.3 billion dollars. The highest average term of assets among the 7 ESG classes of ETFs concerns the fourth one. This group also contains the lowest and the highest records of assets among all ETFs in the sample. This unsophisticated analysis offers a first hint on an insignificant correlation between ESG rating and assets.

Similar inferences are reached through the analysis of Morningstar ESG rates. In particular, the majority of ETFs (121 out of 168 funds) receive 3 ESG stars or above. The average (3 stars) class contains the highest records of assets, while the top class (5 stars) includes the lowest ones. Therefore, once again, it seems that the ESG rating of ETFs and their assets are not correlated to each other.

To summarise this section, the data on the ESG performance of iShares show that these ETFs exert a rather positive influence, from an environmental, social and governance perspective. However, it seems that investors do not reward the good ESG behavior of ETFs with more money, given that the funds with the highest ESG metrics do not attract the highest asset records.

2.5.3. Performance of ETFs

The raw return of ETFs is discussed in this section. Table 3 presents the average quarterly percentage return in Net Asset Value (NAV) and price terms over 1 year, 3 years, 5 years, 10 years and since the inception for each ETF. The minimum period covered by each ETF in the sample spans from 1.1.2018 to 31.12.2020. The returns have been found on the website of iShares. A measure of return premium is presented as well. This premium is calculated as the difference between the price and NAV returns of ETFs. A simple measure of ETFs' tracking error is also presented. The tracking error is computed as the difference in returns between ETFs and benchmarks, in NAV and price terms. The performance rating of Morningstar is also presented along with the assets in each rating range. Morningstar performance rating ranges from 1 star (low) to 5 stars (high). These ratings are published on the website of Morningstar.

Table 3. Performance of ETFs

Stats	1 year (%)	3 year (%)	5 year (%)	10 year (%)	Since inception (%)
Average quarterly NAV returns of ETFs					
Average	12.21	7.90	11.38	9.55	7.23
Median	11.55	6.65	10.61	10.28	7.37
St. Dev.	16.50	8.40	6.56	6.09	4.09
Minimum	−42.87	−30.57	−18.87	−13.48	−8.69
Maximum	56.00	32.43	35.06	22.67	17.64
No of ETFs	168	168	155	110	168
Average quarterly price returns of ETFs					
Average	12.13	7.86	11.38	9.52	7.22
Median	11.50	6.60	10.59	10.26	7.35
St. Dev.	16.50	8.39	6.57	6.11	4.09
Minimum	−42.89	−30.61	−18.88	−13.49	−8.69
Maximum	56.25	32.38	35.04	22.66	17.64
No of ETFs	168	168	155	110	168
Return premium of ETFs (average quarterly price return—average quarterly NAV return)					
Average	−0.07	−0.04	0.01	−0.03	−0.01
Median	−0.03	−0.04	0.01	−0.01	0.00
St. Dev.	0.40	0.11	0.30	0.05	0.03
Minimum	−1.44	−0.40	−3.46	−0.29	−0.13
Maximum	1.40	0.63	0.50	0.08	0.10
No of ETFs	168	168	155	110	168
Tracking error of ETFs (NAV return terms)					
Average	−0.29	−0.22	−0.25	−0.28	−0.25
Median	−0.24	−0.21	−0.22	−0.24	−0.23
St. Dev.	0.40	0.28	0.28	0.25	0.29
Minimum	−2.78	−1.23	−1.57	−1.04	−1.20
Maximum	0.68	0.87	0.32	0.40	1.46
No of ETFs	168	168	155	110	168
Tracking error of ETFs (price return terms)					
Average	−0.36	−0.26	−0.24	−0.31	−0.25
Median	−0.30	−0.26	−0.21	−0.26	−0.23
St. Dev.	0.60	0.30	0.39	0.26	0.29
Minimum	−3.38	−1.36	−3.61	−1.09	−1.23
Maximum	1.19	0.55	0.43	0.35	1.37
No of ETFs	168	168	155	110	168

Stats	1 year (%)	3 year (%)	5 year (%)	10 year (%)	Since inception (%)
Morningstar performance rating	Range	No of ETFs	Net assets		
			average	minimum	maximum
5 stars	high	21	18,540,396,199	47,603,080	255,556,728,943
4 stars	above average	47	12,064,664,442	51,979,770	87,562,446,175
3 stars	average	64	7,355,566,350	6,294,267	79,625,508,965
2 stars	below average	30	3,741,706,861	3,331,562	29,241,578,662
1 star	low	6	742,626,600	15,825,115	2,946,705,265
Total		**168**			

Source: the returns of ETFs and indexes are found on https://www.ishares.com

Focusing on short-term returns, it seems that iShares performed very well during 2020. The average return of the sample for the year is about 12%, both in NAV and price terms. Moreover, the average return of ETFs in each time frame considered is positive and significant. In the long-run, the average historical (since inception) return of ETFs is about 7%. By examining the historical return records of individual ETFs, we see that more than half of ETFs perform above the average term. Overall, these return records indicate that the performance that has been received by an investor in ETFs over time is quite satisfactory.

From the comparison of ETF returns computed with NAVs and trade prices, we see that there are no significant differences between them. In addition, the minimum and maximum discounts/premiums just exceed 10 bps. These measures entail that the mispricing of iShares, namely the differences between the prices of ETFs on the stock exchange and the net value of their assets per share, is minor and possibly very short lasting. This is possibly due to the unique "in-kind" creation and redemption process of ETF shares and the high liquidity of the relevant market, which enhances this process.

In regard to tracking error, Table 3 shows that ETFs slightly underperform their benchmarks on a constant basis. In each period considered, the average tracking errors are negative, either when the NAV returns of ETFs or when the price returns of ETFs are assessed. An additional interesting element is that, with the exception of the "since inception" period, the highest underperformance of ETFs (in absolute terms) is considerably greater than the respective outperformance. The average historical tracking error (underperformance) of ETFs in NAV and trade price terms is –0,25%. Even though this figure is not that high, being, at the same time, lower

than the average expense ratio, it shows that the absolute return alignment between ETFs and their benchmarks is not feasible.

The tracking error could be attributed to the expenses charged by ETFs, which are taken into consideration in the calculation of their NAVs, while the benchmarks do not reflect any expenses at all. Moreover, in the case of ETFs with an international focus, the differences in the trading hours between the stock exchange in the US and the local stock exchanges, where the international stocks are traded, also induce the tracking error.

In addition to raw returns, we pay attention to the performance rating awarded to ETFs by Morningstar with respect to the assets held by each rating group. In particular, the most crowded group is the average one (three stars), which includes 64 ETFs. 47 ETFs receive a four-star rating and just 21 out of 168 ETFs get five stars. On the "below average" side, 30 ETFs take two stars and only 6 receive 1 star. This analysis confirms in another way that, overall, the performance of ETFs overtime is quite considerable.

When it comes to assets, we see the five-star group to possess, on average, the highest levels of assets. This group also includes the biggest ETF in the sample. Moreover, as we move to the lower groups, we see that the average amounts of assets held by each group descends. This simplified analysis of performance and assets entails that a positive correlation between ETFs' return and assets must exist and provides a first verification of our expectation about this relationship.

3. Empirical findings

The empirical findings of the econometric analysis are presented in this section. We begin with the analysis of assets and continue with the results on performance and the relationship between ESG and performance rating. We conclude with the correlation between the ESG rating of ETFs with their tracking error and expense ratios.

3.1. Analysis of assets

The results of the regression Model (1) on the explanatory variables of ETFs' assets are presented in Table 4. The table contains the estimates of the independent factors considered along with the *T*-test *n* the statistical significance of the estimates. The *R*-squared is included as well. We note that several versions of Model (1) are presented. In particular, the model is applied with the two alter-

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Table 4. Regression analysis of assets

Variable	Estimate	T-test	Variable	Estimate	T-test
Constant	8.49*	17.57	Constant	8.50*	17.58
Age	0.06*	5.63	Age	0.06*	5.62
Expense ratio	−1.30*	−4.54	Expense ratio	−1.31*	−4.54
Historical return (NAV)	0.05*	2.65	Historical return (price)	0.04*	2.62
12m trailing yield	0.01	0.10	12m trailing yield	0.01	0.09
Morningstar return rating	0.01	0.20	Morningstar return rating	0.01	0.21
MSCI ESG rating	0.02	0.29	**MSCI ESG rating**	0.02	0.28
Carbon intensity	0.00	−1.06	Carbon intensity	0.00	−1.06
R-squared	0.34	–	*R*-squared	0.34	–
Obs.	168	–	Obs.	168	–
Constant	8.50*	17.78	Constant	8.50*	17.79
Age	0.06*	5.64	Age	0.06*	5.68
Expense ratio	−1.30*	−4.54	Expense ratio	−1.31*	−3.71
Historical return (NAV)	0.05*	2.65	Historical return (price)	0.04*	3.21
12m trailing yield	0.01	0.10	12m trailing yield	0.01	0.09
Morningstar return rating	0.01	0.22	Morningstar return rating	0.01	0.22
MSCI ESG score	0.01	0.27	**MSCI ESG score**	0.01	0.29
Carbon intensity	0.00	−1.06	Carbon intensity	0.00	−1.45
R-squared	0.34	–	*R*-squared	0.34	–
Obs.	168	–	Obs.	168	–
Constant	20.25*	21.57	Constant	20.27*	21.59
Age	0.14*	5.84	Age	0.14*	5.83
Expense ratio	−2.98*	−3.76	Expense ratio	−2.99*	−3.76
Historical return (NAV)	0.11*	3.27	Historical return (price)	0.10*	3.23
12m trailing yield	−0.03	−0.16	12m trailing yield	−0.03	−0.17
Morningstar return rating	0.04	0.27	Morningstar return rating	0.04	0.28
Morningstar ESG rating	−0.17	−1.36	**Morningstar ESG rating**	−0.17	−1.36
Carbon intensity	0.00	−1.38	Carbon intensity	0.00	−1.38
R-squared	0.35	–	*R*-squared	0.35	–
Obs.	–	–	Obs.	–	–

Note: * statistically significant at 1%.

Source: own study.

native types of raw return examined, that is the NAV return and the trade price return. In addition, with respect to ESG rating metrics, we successively use the MSCI ESG rating, the MSCI ESG score and the Morningstar ESG rating. Finally, we note that we have applied multicollinearity testing, finding no such bias; whereas, when necessary, the results are corrected for heteroskedasticity.

With respect to the intercept of the model, we observe that all the individual estimates are high and statistically significant. This fact indicates that the model has not captured all the factors that possibly affect the level of assets managed by ETFs.

In regard to age, all the versions of the model offer positive and statistically significant estimates. Even though the magnitude of estimates is not that high (it ranges from 0.06 to 0.14), their statistical significance and the positive sign verify our assumption about a direct relationship between the assets held by an ETF and its age.

The opposite relationship is accentuated by the empirical results between assets and the expense ratios of ETFs. All the relevant coefficients in Table 4 are significantly negative, while their magnitude is high. The lowest estimate for the expense ratio factor is –1.30 and the highest is –2.99. In any case, our expectation about a negative correlation of the level of assets managed by an ETF and the expenses charged to investors by the fund is verified.

Another assumption confirmed by the empirical findings is that about the positive relationship between assets and the historical returns of ETFs. All the single coefficients are positive and statistically significant at the 1% level. The estimates range from 0.04 to 0.11. Even though these coefficients are quite small, the significantly positive impact they reveal verifies that ETFs with great historical return records should be more attractive to investors.

The coefficients of returns are the last statistically significant estimates of the model. The other factors considered, namely the 12m trailing yield, the Morningstar performance rating, the various types of ESG rating and the carbon intensity factor offer no statistically significant estimates.

The most interesting inference drawn from this lack of statistically significant estimates is that the ESG behavior of ETFs does not seem to be relevant to investors when they make their investment decisions. In other words, the ESG responsibility of ETFs is not rewarded with more money by investors. This conclusion aligns with the respective inference we reached when assessed the relationship between the ESG profile of ETFs and their assets, in Section 4.2.

3.2. Analysis of performance

The results of the econometric analysis of ETFs' performance are presented in Table 5. Similarly to Model (1), several versions of Model (2) are applied with

the use of several alternative types of raw returns and ESG metrics. The table reports the estimates of the explanatory variables, *T*-test and the *R*-squared of each model. Multicollinearity testing has been applied with no such findings and, when necessary, the results have been corrected for heteroskedasticity.

Table 5. Regressions analysis of performance

Dependent variable: ETFs' NAV return			Dependent variable: ETFs' price return		
variable	estimate	*T*-test	variable	estimate	*T*-test
Constant	0.16	0.74	Constant	0.14	0.66
Index return	0.99*	170.12	Index return	0.99*	170.23
Age	−0.02*	−3.69	Age	−0.02*	−3.70
Expense ratio	−0.52*	−4.98	Expense ratio	−0.51*	−5.01
Morningstar return rating	0.03	1.42	Morningstar return rating	0.03	1.54
MSCI ESG rating	0.00	−0.10	**MSCI ESG rating**	−0.01	−0.13
Carbon intensity	0.00	0.64	Carbon intensity	0.00	0.68
R-squared	1.00		*R*-squared	1.00	
Obs.	168		Obs.	168	
Constant	0.22	0.92	Constant	0.19	0.84
Index return	0.99*	175.43	Index return	0.99*	175.18
Age	−0.02*	−3.73	Age	−0.02*	−3.74
Expense ratio	−0.52*	−4.95	Expense ratio	−0.51*	−4.98
Morningstar return rating	0.03	1.31	Morningstar return rating	0.03	1.43
MSCI ESG score	−0.01	−0.33	**MSCI ESG score**	−0.01	−0.36
Carbon Intensity	0.00	0.68	Carbon intensity	0.00	0.71
R-squared	1.00		*R*-squared	1.00	
Obs.	168		Obs.	168	
Constant	0.24**	2.09	Constant	0.21***	1.81
Index return	0.99*	182.02	Index return	0.99*	184.28
Age	−0.01*	−4.30	Age	−0.01*	−4.25
Expense ratio	−0.51*	−5.24	Expense ratio	−0.50*	−5.24
Morningstar return rating	0.03	1.40	Morningstar return rating	0.03	1.53
Morningstar ESG rating	−0.05**	−2.20	**Morningstar ESG rating**	−0.04**	−2.04
Carbon intensity	0.00	0.71	Carbon intensity	0.00	0.78
R-squared	1.00		*R*-squared	1.00	
Obs.	168		Obs.	168	

Note: * statistically significant at 1%; ** statistically significant at 5%; *** statistically significant at 10%.

Source: own study.

The estimates of benchmark returns are all positive and highly significant. In fact, these estimates approximate unity. This finding is not surprising, given the passive nature of the ETFs in the sample. Therefore, more or less, the raw return of ETFs is explained by the return of the tracking indexes.

When it comes to the age factor, the results do not verify our hypothesis about a positive relationship between the performance of an ETF and its age. On the contrary, we obtain negative and significant ones, in all the versions of the model. These findings are not surprising because the literature has already shown that, in several cases, the young funds outperform the oldest ones. However, their absolute magnitude does not exceed 2 bps. Therefore, though being statistically significant, the economic significance of these negative estimates for age should be considered limited.

On the contrary, the relationship between the raw returns of ETFs and their expense ratios is significant, both from a statistical and an economic perspective. The single coefficients for the expense ratio variable are around −50 bps and verify the common knowledge in the industry that administrative and other fees charged by ETFs erode the performance that is received by investors.

The Morningstar return rating is irrelevant since no statistically significant estimates are obtained for this factor. This is also the case for the MSCI ESG metrics and carbon intensity. However, the Morningstar ESG rating seems to be negatively related to the raw returns of ETFs. The model derives two negative estimates which are significant at the 1% level. These estimates amount to −4 and −5 bps, respectively. This negative correlation indicates that investors may assume that ESG responsibility on behalf of ETFs may result in a financial sacrifice, in terms of lower returns.

3.3. ESG rating vs performance rating

The results of Model (4) on the relationship between the ESG rating of ETFs and their performance rating are presented in Table 6. The model is applied with the Morningstar performance rating as a dependent variable and, successively, with the MSCI and the Morningstar ESG rating metrics as an independent variable. We note that, for comparability purposes, before running the first version of the model, we graded the leader class per the MSCI ESG rating (score) method with 3 points, the average class with 2 points and the laggard class with 1 point. Similarly, we graded the 5-star and 4-star classes per the Morningstar ESG rating system with 3 points, the 3-star class with 2 points and the 2-star and 1-star classes with one point. In the second version of the model we kept the ESG and return star-ratings awarded by Morningstar with no adjustments.

Table 6. ESG Rating vs Performance Rating

Variable	Estimate	T-test	Variable	Estimate	T-test
Constant	2.30*	9.83	Constant	2.60*	9.44
MSCI ESG rating	−0.05	−0.48	MSCI ESG score	−0.07	−1.51
R-squared	0.00		*R*-squared	0.01	
Obs.	168		Obs.	168	
Morningstar ESG rating	0.14**	1.73			
R-squared	0.12				
Obs.	168				

Note: * statistically significant at 1%; ** statistically significant at 10%.

Source: own study.

When we consider the relationship between the Morningstar returns ratings and the MSCI ESG metrics, no significant relationship is revealed. On the contrary, in the case of the Morningstar return and ESG ratings, there seems to be some correlation between them. The coefficient of the model's slope is 0.14 being significant at the 10% level. This estimate indicates that, to some extent, the performance and the ESG rating of ETFs offered by Morningstar relate to each other. This could entail that responsible investing does not necessarily result in financial sacrifices. However, this relatively significant estimate of the model's slope might be the result of similarities in the methods applied by Morningstar when rating ETFs from a performance and an ESG perspective.

3.4. ESG rating vs tracking error and expenses

The results on the correlation between ETFs' ESG metrics and tracking error and expense ratios are provided in Table 7. As in the previous models, several versions are examined with the alternative types of ESG rating and score and two kinds of tracking errors resulting from the use of ETFs' NAV and trade price returns.

With respect to the tracking efficiency, the only significant slope estimated is that concerning the relationship between the tracking error and the ESG rating of Morningstar. For both versions of tracking error, the coefficient of the Morningstar ESG rating is significantly negative and amounts to −0.06. This result contradicts our expectation, as well as the belief of the industry, about a positive correlation between responsible investing and tracking error. Based on this finding, and despite the small magnitude of the estimates, we may infer that, even though tracking error in ETF investments is unavoidable, high ESG ratings could be a sign

Table 7. ESG rating vs tracking error and expenses

Dependent variable: ETFs' NAV tracking error			Dependent variable: ETFs' price tracking error		
Variable	**Estimate**	**T-test**	**Variable**	**Estimate**	**T-test**
Constant	−0.32*	−2.91	Constant	−0.33*	−2.96
MSCI ESG Rating	0.02	0.71	MSCI ESG Rating	0.02	0.66
R-squared	0.00		*R*-squared	0.00	
Obs.	168		Obs.	168	
Constant	−0.25	−2.40	Constant	−0.26	−2.46
MSCI ESG Score	0.00	0.06	MSCI ESG Score	0.00	0.00
R-squared	0.00		*R*-squared	0.00	
Obs.	168		Obs.	168	
Constant	−0.07	−0.90	Constant	−0.09	−1.20
Morningstar ESG Rating	−0.06**	−2.58	Morningstar ESG Rating	−0.06**	−2.43
R-squared	0.04		*R*-squared	0.03	
Obs.	168		Obs.	168	
Constant	0.35*	4.14	Constant	0.32*	4.02
MSCI ESG Rating	0.01	0.36	MSCI ESG Score	0.01	0.78
R-squared	0.00		*R*-squared	0.00	
Obs.	168		Obs.	168	
Constant	0.38*	6.81			
Morningstar ESG Rating	0.00	−0.11			
R-squared	0.00				
Obs.	168				

Note: * statistically significant at 1%; ** statistically significant at 5%.

Source: own study.

of lower tracking errors. This element could be a selection criterion for investors when choosing among the vast universe of ETF investments.

When it comes to the expenses, no significant slopes are obtained. Therefore, a material relationship between the expenses of ETFs and their ESG ratings cannot be established. Based on these results, the belief in the industry which says that responsible investing comes with a higher cost (and not only in performance terms) is not verified.

Conclusions

This paper employs a sample of 168 passive ETFs and tries to answer two key questions concerning the application of environmental, social and governance criteria when choosing ETF products. The first one asks whether investors reward ETFs having high ESG scores by entrusting more assets to them. The hypothesis that is made in this respect is that the more responsible ETFs should attract more money than the less responsible ETFs. In other words, a positive correlation should exist between the ESG metrics of an ETF and the magnitude of the assets it manages. The empirical findings do not confirm this assumption. In fact, the results show that there is no relationship between the ESG rating and the level of assets managed by an ETF.

Our analysis shows that there are other factors that can affect the assets of ETFs, such as their historical return. On this matter, the results indicate that ETFs with strong past returns are more alluring to investors, who choose to allocate more money to the most performing funds. An opposite correlation is the case between the assets and the expense ratios of ETFs. This means that the more expensive an ETF is, the lower the amount of its assets should be. Finally, the age of ETFs seems to have a minor but significantly positive relationship with assets. This fact entails that the aged ETFs are perceived as those with the most experienced and skillful managers. Skills and experience might be indicative of more efficient management, which, in turn, should mean that available profitable investment choices are exploited.

The second issue examined concerns the factors that affect the performance of ETFs. Special focus is put on whether the ESG metrics of ETFs are somehow related to their returns. The regression analysis performed reveals that such a relationship does not exist. In other words, the responsible behavior of ETFs is not reflected in higher or lower returns. The main factor that defines the returns of ETFs is the return of the underlying indexes. The expense ratio is another factor that affects the performance of ETFs. More specifically, a negative and significant coefficient for the expense ratio is obtained from the regression analysis.

Along with the key research questions raised above, we assess whether the ESG metrics and the performance rating of ETFs are related to each other. This issue is examined with the use of MSCI and Morningstar ESG ratings and metrics on the one hand, and the Morningstar performance rating on the other. The results show that the MSCI ESG ratings and scores hold no relationship with the Morningstar return ratings. On the contrary, there is a slightly positive correlation between the ESG and return ratings awarded by Morningstar. It might be considered that the latter evidence indicates that an ETF with a high ESG rating stands some chances of being ranked at the top performing classes, from a financial perspective.

In the last step, we investigate whether there is a relationship between the ESG metrics of ETFs and their tracking errors and expenses. This possibility is examined because it is frequently believed in the industry that a high ESG responsibility entails that higher tracking errors and expenses are shouldered to investors. Our results show that there is no relationship, of any kind, between the ESG metrics and the tracking errors and expense ratios of the ETFs in the sample.

Overall, our study belongs to that strand of the literature which favours the idea saying that ESG investing and financial performance cannot be related to each other. Based on this conclusion, ETF investors should choose their investments based on their targets and preferences, either financial or ESG, because a profitable combination of different aims does not seem to be feasible.

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