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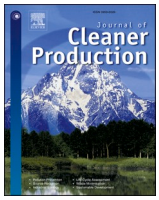

ESG investing: Does one score fit all investors' preferences?

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ABSTRACT

ESG investing has been flourishing in the last decade, but it remains unclear how ESG scores fit investors' preferences. We survey a sample of French retail investors, asking them to rate the importance given at the personal level to environmental, social, and governance (ESG) criteria used for the calculation of firms' ESG score. A factor analysis reveals that criteria's ratings reflect five distinct categories of attitudes suggesting in the first place that a unique ESG score is hardly informative to an investor with specific sustainability-related preferences. In addition, the environmental criteria (E) reflect not only one but two distinct categories; whereas the social criteria (S) reflect three categories with one of them absorbing the governance criteria (G) that do not represent a fully-fledged category. Next, we show via regression analyses that there is a great heterogeneity in the way categories of ESG attitudes predict investors' willingness to pay for investing in firms with high ESG scores, and whether investors hold ESG investment/savings products. This result is key to investment firm given the recent evolution of the regulation and their obligation to match their offer with the preferences of investors, that they are required to collect (MIFID II). In addition of the regulatory question, a better match between investment products and preferences could also lower the premium paid to invest in ESG assets, by more diversely allocating the rising demand for such placements.

> "The biggest taxonomic mistake in ESG is the category itself. This creates a handy marketing tool for asset managers such as BlackRock to sell funds to customers who do not want their investments to finance bad stuff. The problem with the acronym is that it jams together disparate and sometimes contradictory objectives."
>
> Jonathan Guthrie, associate editor of the Financial Times, Financial Times, April 4, 2022

1. Introduction

ESG investing is an investment technique that takes into account non-financial criteria, typically ESG criteria[1] (Koenigsmarck and Geissdoerfer, 2021). Recent studies tend to validate the view that ESG scores work as a marketing tool. Investors are very sensitive to the salience of these scores and sustainability-focused labels that presumably ease the assessment they can do about their investments' sustainability (Ceccarelli et al., 2021; Hartzmark and Sussman, 2019). Nevertheless, does one ESG score fits all investors' preferences?

ESG is indeed an umbrella term, and it is likely that individuals' attitudes towards each of the three pillars are not homogeneous. First, the three pillars, Environment, Social, and Governance, could be unequally endorsed by an investor. Second, one pillar (E, S, or G) taken alone covers a variety of criteria an investor may diversely appreciate. For instance, the social pillar regroups aspects as different as tax evasion and respect of human rights. A given individual might have different attitudes toward each of these.

In this paper, our objective is to put in evidence this variety of attitudes and to examine their specific impact on intention and behavior in the scope of sustainable investment (see the theory of planned behavior, Ajzen, 1991). Attitudes refer to the extent to which an individual holds a positive or negative judgment of a given object or behavior. As pointed out by Palacios-González and Chamorro-Mera (2018), the theory of planned behavior, including its attitudinal component, is one of the most widely used frameworks in ESG investing. Furthermore, Pilaj (2017) theoretical model identifies four barriers to ESG investing, including the

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[1] Note that a variety of terms have been used in the literature to designate the same general idea, which can sometimes confuse the debate (Koenigsmarck and Geissdoerfer, 2021). We use throughout this paper the term ESG investing for clarity.

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attitudinal one. These two models, in which we take our intellectual roots, thus coincide on the importance of attitudes.

Several empirical studies proceeded to show that attitudes are indeed a critical driver of ESG investing (see, for instance, Adam and Shauki, 2014 or Palacios-González and Chamorro-Mera, 2018). We take a different perspective in this paper, arguing that attitudes toward ESG might be heterogeneous.

There is a scarcity of literature documenting the extent to which the various dimensions of ESG scores match investors' preferences. Thus, there remains to define more accurately how varying are investors' attitudes reflected through the ESG criteria and how well (or bad thereof) the varying categories of attitudes predict the intentions and actual adoption of ESG financial products.

In order to answer our main research question, we survey a cross-section of French individual investors recruited on a crowdsourcing platform. We ask them to assess the given importance, at a personal level, to twenty different criteria commonly used for the calculation of an ESG score. We then perform a factor analysis to put in evidence whether there exists more than one latent category of attitudes underlaid by the criteria's ratings. We defined and named each category of attitude. Subsequently, we investigated, by use of regression, their influence on investors' willingness to pay to invest in firms with a high ESG score (*intention*); and finally, on whether they hold ESG products (*behavior*).

The results of the factor analysis show that investors rate ESG criteria based on five categories of attitudes labelled as follows: *Anti-discrimination*, *Green for the planet*, *Anti-fraud*, *Day-to-day green* and *Economic development*. Three categories rely on social criteria with one of them absorbing the governance criteria (*Anti-discrimination*, *Anti-fraud* and *Economic development)*. Two additional factors lay on environmental criteria (*Green for the planet, Day-to -day green*). This implies that one ESG score will provide inconsistent and limited information to investors whose preferences meet one of these five dimensions but not necessarily the others. In addition, our results show that the identified categories of attitudes do not properly match the three predefined subcategories E, S, or G.

Regarding intention, analyzing how each category of attitudes predicts investors' willingness to pay to invest in companies with high ESG score, we find great heterogeneity. This very accurately suggests that a high ESG score would not maximize the satisfaction of many investors with specific preferences. With respect to behavior, we investigate how categories of attitudes predict the choice for a variety of ESG investment/saving products (i.e., ESG bank account, bank accounts by an ESG bank, ESG funds, ESG stocks). Concerning bank accounts at ESG banks, investors in the *Day-to-day green* and *Economic development* categories are more likely to own one. *Anti-discrimination* investors are the only ones to be more likely to select ESG funds rather than conventional funds, and both *Anti-discrimination* and *Green for the planet* investors are the categories to be more likely to invest in stocks with high ESG scores.

To the best of our knowledge, this paper is the first to propose a typology of the attitudes based on investors' ratings of the criteria used for an ESG score, and by doing so, to show how heterogeneous these attitudes are. We thus highlight that one single ESG score is unlikely to reflect all investors' attitudes. This study contributes to a relatively scarce literature that more precisely defines which specific aspect of a firm ESG performance attracts investors. This literature includes the study of Humphrey et al. (2021) that experimentally shows that when investors are specifically aware of firms' activity, they become more sensitive to the non-pecuniary motive when the firms' negative externalities are linked to charities that they specifically care about. Along the same line, Bauer et al. (2021) use survey data to investigate the preferences of Dutch pension plan participants and find that they prefer their pension fund to be specifically focused on the United Nation Sustainable development goals. In contrast, most of the literature instead focuses on the determinants of ESG investment, considering ESG attitudes as a unique block (see Döttling and Kim, 2021, for a review).

Section 2 places our paper within the extant literature and further motivates our analysis. Section 3 discusses our survey data collection. Section 4 presents our empirical approach and discusses our results. Section 5 concludes the paper.

2. Literature review

2.1. Individual investors' segmentation

Better identifying the different segments of individual investors based on their specific sustainability-related attitudes is crucial to encourage sustainable development. ESG investing is expected to promote more corporate social responsibility, which in turn should translate into sustainable development (see Pilaj, 2017; Chamorro-Mera and Palacios-González, 2019). Yet, ESG investing has historically been driven by institutional investors (Meunier and Ohadi, 2022). A better segmentation of individual customers would help in encouraging them to invest responsibly. This is essentially the path taken by the European regulation (MIFID II). Since 2 August 2022, European financial firms must obtain their clients' sustainability preferences as part of the matching process, when providing financial advice. In this regard, it is essential to document the varying types of investors that this assessment will uncover, to anticipate how to respond to investors' specific tastes.

Previous segmentation of individual investors in relation to ESG investing includes Palacios-González and Chamorro-Mera (2020) and Chamorro-Mera and Palacios-González (2019). Palacios-González and Chamorro-Mera (2020) segment Spanish investors into non-responsible potential investors, potential investors without (financial) sacrifices, and responsible potential investors. Interestingly, they show that 7 out of 10 Spanish investors could become socially responsible investors. Chamorro-Mera and Palacios-González (2019) also segment Spanish investors, using 8 stimuli and conjoint analysis. They segment their investors into potential responsible savers, charity savers, savers focused on financial returns, and conventional savers based on availability. Interestingly, they show that the type of returns and the possibility to withdraw the money early remains the most important criterion of choice, on average. The characteristic of the bank (ethical versus non-ethical) comes third. While we acknowledge these previous studies segmenting individual investors, our own take on the issue is different, as we focus on a categorization of attitudes based on individuals' rating of ESG criteria.

2.2. General determinants of ESG investment

Several determinants of ESG investment have been previously highlighted, some of which being strongly connected to the above-mentioned segmentation studies. As our work intends to segment individual investors before assessing how each of these segments behaves in relation to ESG investing, it is essential to review this literature.

2.2.1. Investors' financial concerns

A first determinant of ESG investment is based on investors' financial concerns. As highlighted by Pilaj (2017), investors might express concern regarding the profitability of ESG investment, leading to a negative attitude toward it. In their survey, Meunier and Ohadi (2022) indeed show that about 40% of investors from both the UK and the US perceive ESG investment to deliver lower performance than conventional investment. This concern of individual investors is widely echoed in the literature (see for instance Palacios-González and Chamorro-Mera, 2020). While meta-analyses tend to point that ESG investing display similar performance to conventional investing (see Revelli and Viviani, 2015 or Von Wallis and Klein, 2015), this has remained to date one of the main areas of research in the field of ESG investment (Koenigsmarck and Geissdoerfer, 2021).

Taking into account ESG dimensions might also be a way to hedge investment downside risk. The Covid-19 pandemic and economic crisis

that has impacted businesses worldwide is a perfect example. Several recent studies show that during the market crash following the onset of Covid-19, the drop in stock prices of companies that had high ESG performance was less pronounced (Albuquerque et al., 2019; Pástor and Vorsatz, 2020). Another illustration can be found in the paper of Hoepner et al. (2021), who show that shareholder activism by institutional investors on ESG-related issues had a significant negative impact on the downside risk exposure of firms. Similarly, Huang et al. (2023) show that out of the three ESG pillars, environmental and social criteria are essential to ensure the long-term performance of a merger and acquisition operation.

2.2.2. Investors' non-pecuniary utility

Second, beyond financial motivations, an extended strand of the literature has explored the non-pecuniary utility (or moral satisfaction) obtained by ESG investors. This is the concept of warm glow (Andreoni, 1989), whereby people aim to align their investments with social preferences and seek a trade-off between non-pecuniary utility and returns. The theoretical model of Fama and French (2007) shows for instance that investors with socially responsible tastes earn lower alpha when picking assets satisfying their preferences. Along the same line, Baker et al. (2018) develop a CAPM framework to provide evidence that the non-pecuniary utility obtained by investors from holding green bonds may originate from the fact that these bonds are priced at a premium. There is also evidence that the correlation between fund flows and past fund performance is weaker for ESG funds than usually observed for conventional funds, suggesting that ESG investors are less sensitive to the financial dimension of their investment (Bollen, 2007; Renneboog et al., 2011). Riedl and Smeets (2017) show a link between pro-social behavior observed in an experimental protocol (i.e., trust game) and the likelihood of holding socially responsible funds. Further, using survey data, they show that ESG funds holders are more likely to report donating to charities. Their survey data also show that ESG investors exhibit a willingness to pay to invest in ESG funds. This means that they report that they are ready to give up returns to align their investments with social preferences. Rossi et al. (2019) show that social investors are willing to pay a price to be socially responsible rather than needing a little nudge, such as a gift (a book or a voucher). Similarly, Chamorro-Mera & Palacios-González (2019) show that most investors prefer ethical banking, albeit to varying degrees – some segments place a lot more importance on financial returns or the possibly to withdraw the money earlier. Surprisingly, they show in their study that a segment of "charitable investors" exist, who are willing to make donations to a charity from the profit of their investment but are not necessarily interested in ethical banking.

In the same vein, experimental evidence in Humphrey et al. (2021) shows that individuals adjust their investment strategy if investments have negative externalities on charities they care about. Further evidence of social preferences driving investment behavior can be found in Bauer et al. (2021) who demonstrate that Dutch pension plan participants prefer their pension fund to focus on sustainable development goals, as well as in survey evidence by Brodback et al. (2019).

2.2.3. Salience of ESG scores

A third strand of literature has put forward the great sensitivity of investors to the salience of ESG scores. Hartzmark and Sussman (2019) present causal evidence that in 2016, firms being explicitly categorized by Morningstar as low sustainability resulted in net outflows of more than $12 billion while those being categorized as high sustainability led to net inflows of more than $24 billion. The same type of response by investors have been observed in 2018, when Morningstar introduced a climate-focused label for mutual funds (Ceccarelli et al., 2021).

This latter strand of the literature analyzing the importance of the salience of ESG scores suggests that out of immediately available ESG scores or labels, retail investors have great difficulty in assessing on their own whether an investment is sustainable or not, and by extension whether it fits with their own and specific sustainability preferences. One of the aim of our empirical section is to show that the presence of ESG scores may not necessarily solve this issue.

3. Data

To verify the proposed research questions, we collect our data from a cross-section of French individuals recruited on the crowdsourcing platform Crowdpanel. Crowdpanel is a crowdsourcing platform enabling to recruit French respondents for academic surveys. It could be presented as a French equivalent to Prolific Academic (which mostly focuses on UK and US respondents). The survey was online from December 1st to 6th, 2021, and 310 investors took it. The survey was calibrated to last 10 min, and respondents were remunerated by the platform. Respondents were made aware of the anonymity of the online-based survey. According to Richman et al. (1999), participants are more likely to provide accurate information when answering anonymous surveys and questionnaires. Our sampling method was based on a preliminary survey enabling us to pre-select individuals based on two criteria: respondents had to hold at least one savings/investment products (e.g, remunerated savings accounts, bonds, or stocks); and had to be involved in the financial management of their households. The objective was to obtain a population of potentially active savers/investors for which questions in the survey were relevant in their own life and hence to increase the external validity of our results.

Before diffusion, the questionnaire was reviewed by a retail finance professional (a wealth manager) who provided feedback about the consistency and the readability of the questionnaire, as if it was intended to be filled by his own clients. In addition, to make sure that respondents do not fill out the questionnaire randomly and are engaged while answering the questions, we insert three attention questions in the survey, positioned at different stages of the survey. Respondents are asked to select one specific answer to these attention questions, to prove that they read the statements to rate.[2] A total of 27 respondents wrongly answered to at least one attention question and thus we removed them from the analysis. Our final sample includes 283 respondents. Summary statistics of socio-demographic variables are presented in Table 1. The proportion of women and men in our sample is quite balanced (48% versus 52%), as observed in the society. The average age in the sample (42.34) is lower than the one observed for French individuals for individuals above 18 (around 51[3]). This essentially relies on the relatively

Table 1
Sample description
Note: This table provides summary statistics, number of observations, mean, standard deviation (sd), minimum and maximum, of socio-demographics variables used in the study.

	N	mean	sd	min	max
Socio-demographic variables					
Woman (Dummy)	283	0.48	0.50	0	1
Age (Years)	283	42.34	12.84	20	77
Single (Dummy)	283	0.28	0.45	0	1
Cohabiting (Dummy)	283	0.18	0.39	0	1
Married (Dummy)	283	0.36	0.48	0	1
Civil union (Dummy)	283	0.12	0.33	0	1
Separated or divorced (Dummy)	283	0.06	0.23	0	1
Urban area (Dummy)	283	0.62	0.49	0	1
Education level (4-point scale)	283	2.37	0.90	1	4
Have children (Dummy)	283	0.56	0.50	0	1
Income (12-point scale)	283	6.24	2.71	1	12
Gross wealth (6-point scale)	283	2.99	1.32	1	6
Debt to wealth ratio (5-point scale)	283	1.94	1.03	1	5

[2] The attention questions are: "test of attention: please select [*answer*]".
[3] Authors' calculation based on 2022 INSEE data (https://wwwinseefr/fr/statistiques/2381474#Fig. 1_radio1).

low representation of respondents from the category *70 years old +* in our sample (1.4% of the sample), as compared to its large proportion in the French society (19%). We will thus keep in mind in our conclusions that the result of our study mainly applies to relatively young investors. Regarding marital status, 36% of respondents are married against 43% in the whole population in 2018.[4] Looking at households' income, we observe a clear match between our data and those of the country. The median class of income in our sample is [€ 2500; € 3000 [whereas the French median income in 2018 is € 2551.[5] The median category of gross wealth in our sample is [€25 000; €100 000[seems lower than the French national median which is € 163 100 in 2018. The comparison may however not be very accurate, since we have interval data with quite a large range. It is worth noting, as a complement, that in our sample, the modal category of gross wealth is [€100 000; €500 000[representing 37.81% of the respondents. This enables us to think that our sample is not much poorer than the French population. We should also keep in mind, that the differential in wealth between our sample and the whole population most probably emerges from the fact that our sample contains fewer old people, which constitutes the wealthiest category of individuals nationwide.[6]

4. Empirical analysis

4.1. Typology of investors' ESG attitudes

To establish a typology of investors' ESG attitudes we conducted a factor analysis on 20 items measuring the ESG personal attitudes. The items cover the main criteria that the European Commission requires companies to disclose in their extra-financial reports.[7] These criteria are those generally used by rating agencies (e.g. Bloomberg, Thomson Reuters) to derive ESG ratings. Respondents are asked to rate the importance that they give to each criterion, at the personal level, using a 5-point Likert scale (1 = *Strongly disagree*; …; 5 = *Strongly agree*). This means that we want them to assess the criteria out of the context of companies' behavior. That way we expect to obtain respondents' core ESG concerns for each item. 8 items are related to the environment pillar (items 1–8, e.g. Item 2 asks to rate the importance given to "*2. Your carbon footprint*"). 10 items are related to the social pillar (items 9–18, e.g. Item 9 "*To human rights*", and 2 items to the governance pillar (items 19 and 20, e.g. Item 19 "*To gender parity on the Board of Directors*"). Table 2 displays the wording of each item and summary statistics of the ratings made by respondents. On average, we find that respondents are positive about the importance that they give to the varying items that all display a mean rating above the middle point (i.e. 3 = *Don't agree nor disagree*, see Table 2). There is however heterogeneity across items. Item 3 about the importance given to fuel consumption is the least endorsed item with a mean rating of 3.31, whereas Item 9 about the importance given to the respect of human rights is the most endorsed item (4.39). It is also interesting to note that there is heterogeneity depending on the pre-defined dimensions of ESG criteria (E, S or G). The average rating of the S items is higher than that of the E items (resp. 4.03 and 3.72), and that of the G items (3.48). Thus, a preliminary conclusion to put forward is that on average, social concerns are the most important to retail investors in general, whereas governance appears to be the least important.

Table 2
Items summary statistics
Note: This table provides summary statistics, number of observations, mean, standard deviation (sd), minimum and maximum, of the rating of items used for the factor analysis and the calculation of the *Willingness to pay* variable (5-point scale).

	N	mean	sd	min	max
ESG attitude: items					
1. Your greenhouse gas emissions *(E)*	283	3.34	1.05	1	5
2. Your carbon footprint *(E)*	283	3.29	1.02	1	5
3. Your fossil fuel consumption *(E)*	283	3.31	1.05	1	5
4. Your use of renewable energies *(E)*	283	3.34	1.06	1	5
5. Your energy consumption *(E)*	283	4.24	0.80	1	5
6. Your impact on biodiversity *(E)*	283	3.70	0.98	1	5
7. Your waste management *(E)*	283	4.34	0.76	2	5
8. Your water consumption *(E)*	283	4.24	0.84	1	5
9. To human rights *(S)*	283	4.39	0.69	1	5
10. Labor rights *(S)*	283	4.34	0.69	1	5
11. In the fight against corruption *(S)*	283	4.08	0.84	1	5
12. To gender equality *(S)*	283	4.13	0.89	1	5
13. To diversity *(S)*	283	3.89	0.97	1	5
14. Development of local/regional activity *(S)*	283	3.81	0.93	1	5
15. Access to training *(S)*	283	3.76	0.96	1	5
16. In the fight against discrimination *(S)*	283	4.07	0.90	1	5
17. Respecting different points of view *(S)*	283	4.16	0.73	1	5
18. In the fight against tax evasion *(S)*	283	3.71	1.04	1	5
19. To gender parity on the Board of Directors *(G)*	283	3.55	1.08	1	5
20. Representation of minorities on the board of directors *(G)*	283	3.40	1.15	1	5
Willingness to pay for ESG investment: items					
1. The reduction of greenhouse gas emissions	283	3.29	1.16	1	5
2. The reduction of its carbon footprint	283	3.28	1.16	1	5
3. Declining consumption of fossil fuels	283	3.30	1.19	1	5
4. The decrease in energy consumption	283	3.43	1.14	1	5
5. Reducing the impact on biodiversity	283	3.53	1.20	1	5
6. The best waste management	283	3.56	1.17	1	5
7. The best control of water consumption	283	3.55	1.16	1	5
8. Human rights	283	3.49	1.16	1	5
9. Labor rights	283	3.30	1.15	1	5
10. The fight against corruption	283	3.26	1.18	1	5
11. gender equality	283	3.27	1.18	1	5
12. The diversity	283	3.17	1.16	1	5
13. Local/regional business development	283	3.35	1.16	1	5
14. Promoting access to training	283	3.10	1.10	1	5
15. The fight against discrimination	283	3.32	1.17	1	5
16. The fight against tax evasion	283	3.25	1.22	1	5
17. Gender parity on the board of directors	283	2.98	1.19	1	5
18. Representation of minorities on the board of directors	283	2.89	1.16	1	5

The purpose of a factor analysis is to analyze the correlation between several observed variables (items) with the aim of identifying a subset of latent variables underlying these variables. Therefore, this method fits our research objective which is to better understand whether the ratings of ESG criteria by investors reflect one or several distinct categories of attitudes. Our approach is distinct from an exploratory factor analysis (EFA) since we do not want to exclude any items from the analysis. Instead, for each item, we want to know the extent to which it can be associated to others to form a coherent index. With 283 observations, the size of our sample is in line with the literature's recommendation. Hair et al. (2006) recommend at least 100 observations while Tabachnick et al. (2007) more conservatively advise to have 300 participants. Costello and Osborne (2005) indicate a ratio of the number of participants to the number of items of 10:1 as a rule of thumb. In our case, this ratio is above 14:1 (i.e., 283/20). Next, we calculate the Kaiser-Meyer-Ohlin (KMO) statistic that measures the sampling adequacy of our data. It is 0.87, a level assessed as *meritorious* (*i.e.* between 0.8 and 0.9, Kaiser and Rice, 1974), entailing that a factor analysis based

[4] See INSEE (https://www.insee.fr/fr/statistiques/4277624?sommaire=4318291).

[5] Median comparison is used since we have an interval variable for Income. Figure is from INSEE (https://www.insee.fr/fr/statistiques/5371205?sommaire=5371304).

[6] See INSEE (https://www.insee.fr/fr/statistiques/5371253?sommaire=5371304).

[7] Either available on the European commission website: https://eur-lex.europa.eu/legal-content/FR/TXT/PDF/?uri=CELEX%3A52017XC0705%2801%29&from=EN; or on the French government website: https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000035250851.

on the rating of these items is relevant. At last, we run a Bartlett test of sphericity which shows a p-value equal to 0.00. This led us to reject the null hypothesis that the correlation matrix is an identity matrix, and to conclude to the suitability of a factor analysis (Hair et al., 2006; Tabachnick et al., 2007).

We decide to retain five factors from the factor analysis, explaining 67% of the variance. The number of factors to retain was decided following the Kaiser rule that prescribes retaining factors with eigenvalues above 1 (Kaiser, 1960). To validate the outcome provided by the Kaiser rule, we follow Field (2013)' recommendation positing that for a sample containing more than 250 observations, the mean of communalities (1 – uniqueness) for all items should be above the cutoff of 0.60. In our case, with five factors, the mean of communalities for all items is 0.67, well above the prescription. As an additional check for the number of factors to be retained, we verify that, after running the varimax rotation, the five factors have at least three coefficients above 0.5 (Meyers et al., 2016; Tabachnick et al., 2007). This allows to make sure that the analyzed factors are solid enough. Finally, following the recommendation of Costello and Osborne (2005), we were attentive to whether the interpretation of the factors makes sense from an economic point of view (see next paragraph).

As most commonly done in social science, we use a varimax rotation (Costello and Osborne, 2005). Varimax rotation is used to orthogonalize the factors such that it produces more interpretable results. Table 3 shows factor loadings after rotation. To interpret the meaning of retained factors and establish categories of attitudes, we rely on items that have factor loadings above the cut-off value of 0.5. The analysis reveals that the criteria used to measure the Environmental dimension (i.e. Table 3, Panel A: Items 1–8) reflect two distinct categories of attitudes (Factor 2 and Factor 4). The first one is based on criteria addressing issues related of global warming (Items 1, 2, 3 and 4) but also the one related to biodiversity problems (Item 6). We named this category of attitudes *Green for the planet* since it reflects environmental awareness related to worldwide environmental issues. The other category based on environmental criteria focuses on attitudes toward day-to-day household environmental actions like reducing the household's consumption of water or energy (i.e., Items 5, 7, 8). We named this category of attitudes *Day-to-day green*.

Social attitude criteria (Panel B, Items 9–18) reflect three distinct categories of attitudes rather than one. The most prominent social factor is also the most prominent factor resulting from the analysis as it explains the greatest amount of variance after rotation. It is based on items related to the reprobation of discrimination and the promotion of equality (i.e. Items 9, 12, 13, 16 19, and 20). Importantly, this factor heavily relies on the Governance criteria (Items 19–20). As a result, we do not find that the governance criteria form a single dimension of attitudes across investors. We named this first social factor *Anti-discrimination*. The second factor emerging from the social criteria (Factor 3) relies on items based on the attitude of disliking fraudulent behaviour, for instance those related to corruption/tax evasion. We named this factor *Anti-fraud*. A third factor lays on social criteria (Items 14,15, and 17). It reflects attitudes related to economic development such as local economic growth and employee training. We named this category of attitudes *Economic development* (Factor 5). The extant of five distinct categories of attitudes leads to the conclusion that there exists a wide heterogeneity of attitudes when it comes to the criteria used for the calculation of an ESG score. This heterogeneity departs from the view that one ESG score can fit all attitudes. Neither can do the predefined E, S, G sub-categorization that does not fit with our typology of attitudes.

Following the factor analysis, we extract the factor scores corresponding to the five categories of attitudes for further analysis.

4.2. Socio-demographic influence on attitudes

We conducted a series of linear regressions to test the relationships between an individual sociodemographic profile and each of the five ESG categories of attitudes obtained from the factor analysis (see Table 4). Women, older, and high-income respondents are more likely to exhibit *Anti-discrimination* attitudes, whereas individuals having children and wealthy respondents are less likely to show this attitude. With respect to *Green for the planet*, women are less likely to display this attitude. On the opposite, separated or divorced respondents are more likely to display it. Compared to men, women are much less likely to show *Anti-fraud* attitudes, as is the case of younger respondents and those with a high debt-to-wealth ratio. Concerning *Day-to-day green* attitudes, only gender influences this category with women being more likely to display it. Regarding *Economic development* attitudes, we again find that only one socio-demographic variable influencing it, that is wealth, that has a positive impact.

4.3. Intention: willingness to pay (WTP) to invest in ESG

We next examine how the five categories of attitudes influence respondents' intention to invest responsibly, as measured by respondents' willingness to pay for investing in firms having a good ESG score. The analysis of willingness to pay refers to the non-pecuniary motives for investing in firms or investment products that show an extra financial performance (Bauer et al., 2021; Humphrey et al., 2021; Riedl and Smeets, 2017) To measure willingness to pay, we asked respondents to answer the following question: "*In the context of a financial investment, would you accept to forgo financial return were the company in which you invest is involved in the following environmental/social causes*".[8] To make sure that respondents clearly understand the question and have an order of magnitude in mind when imagining the situation, we immediately after indicated that "*for instance, for a € 10 000 investment over 10 years, a decrease in the rate of return from 5% to 4% would represent a loss of € 3240*". The environmental and social causes in which a firm may be involved and for which investors must rate their willingness to pay were based on the ESG items previously presented and used to analyze individuals' personal preferences. These items are reported in Table 2 along with summary statistics of the ratings. Willingness to pay in a (fictitious) company with a high ESG score, is measured by calculating respondents' mean rating of all these criteria (*WTP ESG all criteria*). We similarly create variables for a (fictitious) company with a high E score (i.e., respondents' mean rating of Environmental criteria, *WTP environmental criteria*), a high S score (*WTP social criteria*), and a high G score (*WTP governance criteria*). Summary statistics of these dependent variables are available in Table 5.

Respondents with *Anti-discrimination* attitudes have a strongly significant positive willingness to pay to invest in companies with high ESG scores (Table 6, column 1). Taking each of the E, S, and G dimension separately, we find that, although not equal, they show a significant endorsement. The anti-discrimination link with willingness to pay is greater for the governance criteria (column 4), followed by the social criteria (column 3), and then come at last the environmental criteria (column 2).

Respondents showing high *Green for the planet* attitudes are also significantly willing to pay for companies with high ESG scores, but to a lesser extent than those in the *Anti-discrimination* category (see column 1). The order of willingness to pay also seems to be different from the *Anti-discrimination* category: logically, the environmental criteria are the most endorsed by investors in the *Green for the planet* category, whereas the social and governance criteria come next, with almost the same level of adherence.

Individuals showing *Anti-fraud* attitudes are willing to pay for companies with high ESG scores but in a much lesser proportion than individuals in the two aforementioned categories of attitudes (column 1). In fact, they would solely renounce to returns in exchange for high social performance. In contrast, they show no willingness to pay for companies involved in the environmental and governance criteria.

[8] Translation from the authors.

Table 3
Factor Analysis ESG criteria – Factor loadings after rotation
Note: this table presents the result of a factor analysis. The method used is principal-component factor with an orthogonal varimax rotation. Retained factors are those with eigenvalues above 1 (i.e. Kaiser criterion). Factor loadings above 0.5 are in bold. Factors are displayed by order of variance explained (descending order). Variable names given to factor scores by the author are in italic in the head of columns. Observations = 283.

	Factor1 *Anti-discrimination*	Factor2 *Green for the planet*	Factor3 *Anti-fraud*	Factor4 *Day-to-day green*	Factor5 *Economic develop-ment*	Uniqueness
Panel A: Environmental criteria (E)						
1. Your greenhouse gas emissions	0.09	**0.89**	0.10	0.07	−0.05	0.17
2. Your carbon footprint	0.12	**0.87**	0.05	0.05	0.02	0.23
3. Your fossil fuel consumption	0.05	**0.83**	−0.02	0.16	0.13	0.26
4. Your use of renewable energies	0.19	**0.67**	−0.07	0.25	0.22	0.40
5. Your energy consumption	0.08	0.35	−0.03	**0.71**	0.00	0.37
6. Your impact on biodiversity	0.12	**0.58**	0.22	0.29	0.24	0.45
7. Your waste management	0.16	0.13	0.14	**0.59**	0.20	**0.55**
8. Your water consumption	0.15	0.24	−0.01	**0.76**	0.16	0.33
Panel B: Social criteria (S)						
9. To human rights	**0.51**	−0.02	0.38	0.36	0.07	0.47
10. Labor law	0.36	−0.14	**0.56**	0.42	0.06	0.35
11. In the fight against corruption	0.19	0.06	**0.80**	0.05	0.24	0.25
12. To gender equality	**0.71**	0.16	0.31	0.18	0.09	0.34
13. To diversity	**0.83**	0.11	0.09	0.08	0.17	0.25
14. Development of local/regional activity	0.16	0.23	0.19	0.16	**0.77**	0.27
15. Access to training	0.38	0.02	0.27	0.06	**0.71**	0.27
16. In the fight against discrimination	**0.78**	−0.02	0.17	0.12	0.32	0.24
17. Respecting different points of view	0.40	−0.04	0.05	0.07	**0.57**	0.51
18. In the fight against tax evasion	0.25	0.15	**0.77**	−0.11	0.13	0.29
Panel C: Governance criteria (G)						
19. To gender parity on the Board of Directors.	**0.81**	0.20	0.15	0.05	0.03	0.28
20. Representation of minorities on the board of directors	**0.83**	0.16	0.13	0.06	0.17	0.24

Table 4
Linear regression - ESG categories of attitudes
Note: This table shows linear regressions using OLS with robust standard errors (clustered by individual). The dependent variables are indicated in column headers. *t*-statistics are in brackets. The *, **, and *** marks denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
	Anti-discrimination	Green for the planet	Anti-fraud	Day-to-day green	Economic development
Woman	0.553***	−0.263**	−0.356***	0.287**	0.139
	[4.30]	[-2.07]	[-2.70]	[2.11]	[1.06]
Age	0.0141**	0.00850	0.0102*	−0.00123	−0.00524
	[2.46]	[1.35]	[1.76]	[-0.20]	[-0.80]
Cohabiting	−0.142	0.215	0.230	−0.0981	0.150
	[-0.74]	[1.15]	[1.30]	[-0.46]	[0.81]
Married	−0.187	0.121	0.180	0.125	0.111
	[-0.85]	[0.61]	[0.90]	[0.62]	[0.51]
Civil union	−0.247	0.248	0.0110	0.0323	0.0753
	[-1.20]	[1.21]	[0.04]	[0.13]	[0.32]
Separated or divorced	−0.128	0.634**	−0.0379	0.125	0.303
	[-0.53]	[2.23]	[-0.16]	[0.46]	[1.04]
Urban area	−0.0634	−0.107	−0.0589	−0.0675	−0.124
	[-0.49]	[-0.84]	[-0.47]	[-0.52]	[-0.98]
Education level	−0.0771	0.106	0.0375	−0.0363	0.0385
	[-1.07]	[1.33]	[0.57]	[-0.49]	[0.56]
Have children	−0.333**	0.0553	0.0283	−0.0739	0.199
	[-2.04]	[0.36]	[0.18]	[-0.46]	[1.23]
Income cat.	0.0723**	−0.0221	−0.0177	−0.0143	−0.0396
	[2.19]	[-0.76]	[-0.66]	[-0.40]	[-1.24]
Gross wealth	−0.135**	0.0274	−0.0254	0.0473	0.182***
	[-2.33]	[0.52]	[-0.43]	[0.71]	[3.01]
Debt to wealth ratio	−0.0831	−0.0173	−0.114*	0.0263	−0.0939
	[-1.30]	[-0.25]	[-1.70]	[0.41]	[-1.62]
Constant	−0.212	−0.507	−0.0266	−0.0588	−0.180
	[-0.61]	[-1.25]	[-0.07]	[-0.15]	[-0.47]
Observations	283	283	283	283	283
R^2	0.14	0.07	0.07	0.03	0.07

Respondents showing a high score to the *Day to day green* category appear unwilling to pay for companies with high ESG score (column 1). Looking into the subdimensions (E, S, G), we find that these investors only show a slight willingness to pay for companies with a high environmental score.

At last, we find a quite strong willingness to pay by *Economic Development* investors, although lower than that of investors in the *Anti-discrimination* or *Green for the planet* categories (column 1). Their willingness to pay is equally focused on companies showing high Environmental and Social scores, but they do not consider companies with high

Table 5
Dependent variables summary statistics
Note: This table provides summary statistics, number of observations, mean, standard deviation (sd), minimum and maximum, of dependent variables analyzed in the study.

	N	mean	sd	min	max
Willingness to pay	283	2.89	1.16	1	5
WTP environmental criteria					
WTP social criteria	283	3.42	1.04	1	5
WTP governance criteria	283	3.28	0.96	1	5
WTP ESG all criteria	283	2.94	1.13	1	5
ESG products	283	3.30	0.92	1	5
ESG savings account	283	0.38	0.49	0	1
ESG bank client	283	0.18	0.38	0	1
Share of ESG funds	68	2.10	0.87	1	4
ESG stock picking	66	4.48	2.99	0	10

Governance scores.

In summary, there is an important heterogeneity in the way individuals are willing to renounce to financial returns, depending on their categories of sustainability-related attitudes.

4.4. Behavior: ESG products choice

We finally examine how the five categories of attitudes identified in the factor analysis influence the detention of ESG products. We test this influence by considering five types of capital allocation. We ask investors whether they have saved money on a "Livret de Développement Durable et Solidaire" (LDDS). The LDDS is a classic savings account available at all French banks, with the specificity that the collected sums are used to grant loans for improving the housing's energy performance, at attractive interest rates. Then, we create a dummy variable named *ESG savings account* (summary statistics in Table 5). Surveyed investors also had to indicate whether they are customers of a Banque "sociale et solidaire" (*ESG bank client*). These are specific banks whereby the collected sums are used to finance environmental or social projects. We next asked investors who previously reported that they have money invested in mutual funds, the percentage invested in ESG funds (*Share of ESG* funds). Finally, to respondents who reported investing directly their money in stocks and bonds, we asked them to rate (on a 0 to 10 scale) their propensity to choose companies with high ESG scores (*ESG stock picking*).

Results from regressions show that having *Anti-discrimination* attitudes increase the percentage invested in ESG funds among fund holders, ($p<5\%$, see column 3 of Table 7). Such attitude is also associated with a greater propensity to give importance to companies with high ESG scores among stock pickers (column 4) There is however no association of this category with having money saved in an ESG savings account nor in an ESG bank (columns 1 and 2).

Preferences related to the category *Green for the planet*, are especially positively associated to a greater propensity to invest in companies with high ESG scores among stock pickers (column 4). It also slightly increases the adoption of an ESG bank account (significance at the 10%

Table 6
Linear regression - Willingness to Pay
Note: This table shows linear regressions using OLS with robust standard errors (clustered by individual). The dependent variables are indicated in column headers. *t*-statistics are in brackets. The *, **, and *** marks denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
	WTP ESG all criteria	WTP environmental criteria	WTP social criteria	WTP governance criteria
Anti-discrimination	0.404***	0.302***	0.439***	0.606***
	[7.82]	[4.50]	[8.88]	[9.88]
Green for the planet	0.325***	0.441***	0.241***	0.296***
	[6.27]	[7.28]	[4.44]	[4.68]
Anti-fraud	0.123**	0.0446	0.197***	0.0685
	[2.42]	[0.71]	[3.83]	[1.09]
Day to day green	0.0499	0.0995*	0.0219	0.00243
	[1.01]	[1.78]	[0.40]	[0.04]
Economic development	0.159***	0.164***	0.178***	0.0598
	[3.33]	[2.88]	[3.46]	[1.11]
Woman	−0.101	−0.184	−0.0655	0.0270
	[-0.87]	[-1.37]	[-0.55]	[0.21]
Age	0.000557	0.000389	−0.000478	0.00580
	[0.12]	[0.07]	[-0.10]	[1.06]
Cohabiting	0.0782	0.0981	0.0480	0.145
	[0.52]	[0.57]	[0.30]	[0.79]
Married	0.00766	−0.0527	0.0409	0.0693
	[0.04]	[-0.27]	[0.22]	[0.37]
Civil union	0.0645	−0.0530	0.109	0.273
	[0.33]	[-0.24]	[0.51]	[1.36]
Separated or divorced	−0.122	−0.0110	−0.196	−0.176
	[-0.49]	[-0.04]	[-0.75]	[-0.66]
Urban area	−0.000900	0.0955	−0.0486	−0.124
	[-0.01]	[0.74]	[-0.41]	[-0.98]
Education level	0.0455	0.0533	0.0471	0.0111
	[0.81]	[0.82]	[0.79]	[0.18]
Have children	−0.0259	−0.0468	0.0160	−0.141
	[-0.19]	[-0.29]	[0.12]	[-0.94]
Income cat.	−0.0150	−0.00846	−0.0152	−0.0372
	[-0.61]	[-0.31]	[-0.57]	[-1.28]
Gross wealth	−0.0295	−0.0136	−0.0299	−0.0838
	[-0.54]	[-0.22]	[-0.53]	[-1.45]
Debt to wealth ratio	0.0762	0.0680	0.0898*	0.0433
	[1.56]	[1.24]	[1.70]	[0.73]
Constant	3.246***	3.304***	3.226***	3.133***
	[11.75]	[10.52]	[10.87]	[10.15]
Observations	283	283	283	283
R^2	0.36	0.30	0.34	0.41

Table 7
Linear regression - ESG products adoption
Note: This table shows regressions with robust standard errors (clustered by individual). The dependent variables are indicated in column headers. The estimation method is logit regression for the two first regressions that have a binary dependent variable, interval regression for the third regression that has an interval dependent variable, and ordinary least square (OLS) for the fourth regression that has a 10-point scale dependent variable. Average marginal effects are reported for the logit regressions (columns 1–2). All variables are defined in Table 1 and their summary statistics are in Table 2 *t*-statistics are in brackets. The *, **, and *** marks denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
	ESG savings account *Logit*	ESG bank client *Logit*	Share of ESG funds *Interval regression*	ESG stock picking *OLS*
Anti-discrimination	−0.025	0.027	4.333**	0.794**
	[-0.91]	[0.98]	[2.22]	[2.60]
Green for the planet	0.035	0.045*	2.667	1.033**
	[1.24]	[1.65]	[1.41]	[2.23]
Anti-fraud	−0.030	0.001	5.383***	−0.498*
	[-1.06]	[0.04]	[2.97]	[-1.76]
Day to day green	0.003	0.0414	0.0507	0.472
	[0.10]	[1.48]	[0.03]	[1.10]
Economic development	−0.009	0.055**	0.251	0.417
	[-0.34]	[2.13]	[0.13]	[1.02]
Woman	−0.0613	−0.058	2.633	0.555
	[-1.02]	[-1.18]	[0.74]	[0.61]
Age	0.006**	−0.004*	−0.559**	0.0222
	[2.12]	[-1.67]	[-2.36]	[0.52]
Cohabiting	0.028	0.067	6.247	1.410
	[0.31]	[1.03]	[1.17]	[1.02]
Married	−0.102	0.003	7.765	1.860
	[-1.11]	[0.04]	[1.62]	[1.55]
Civil union	−0.009	−0.009	1.757	0.831
	[-0.09]	[-0.11]	[0.37]	[0.66]
Separated or divorced	−0.127	0.145	6.603	1.808
	[-0.71]	[1.39]	[0.95]	[1.07]
Urban area	0.0959	−0.047	2.635	−0.229
	[1.60]	[-1.04]	[0.75]	[-0.28]
Education level	0.060*	0.038	0.644	0.0490
	[1.82]	[1.37]	[0.31]	[0.11]
Have children	0.028	0.047	7.284	−1.117
	[0.39]	[0.82]	[1.59]	[-1.15]
Income cat.	0.012	−0.001	−1.549	0.108
	[0.86]	[-0.06]	[-1.55]	[0.48]
Gross wealth	0.059**	−0.023	2.322	−0.204
	[2.19]	[-1.15]	[0.80]	[-0.34]
Debt to wealth ratio	0.006	0.037*	2.318	−0.184
	[0.20]	[1.66]	[1.13]	[-0.42]
Constant	0.023***	0.239	22.17*	3.394
	[4.15]	[-1.17]	[1.91]	[1.41]
Observations	283	283	68	66
R^2				0.46
Pseudo R^2	0.10	0.10	0.33	

risk level, see column 2). *Anti-fraud* investors are more likely to choose ESG funds (significant at the 1% risk level, see column 3) but less likely to pick companies with high ESG scores (significant at the 5% level, see column 4). People in the category *Day-to-day green* appear unlikely to choose any of the ESG products analyzed. Finally, respondents with *Economic development* attitudes are more likely to be clients at ESG banks (significance at the 5% risk level) but are not more likely to hold other types of products.

5. Conclusion

This study analyses investors' ESG attitudes based on the ratings of criteria inspired by those used for the calculation of firms' ESG scores. With a factor analysis, we put forward that these criteria reflect no less than five categories of attitudes. This result leads to a key conclusion: one ESG score is not well adapted to investors with specific attitudes in the scope of sustainability. In other words, some investors belonging to one category of attitudes but not to the others may not be interested in investment products with a high ESG score. Investing in such products may not only foster some aspect of sustainability they are not interested in, but also, they may incur a financial loss due to higher prices and fees (Baker et al., 2018; Fama and French, 2007; Raghunandan and Rajgopal, 2021).

Interpreting the meaning of the five categories of attitudes, we propose to define five score variables: *Anti-discrimination*, *Green for the planet*, *Anti-fraud*, *Day-to-day green* and *Economic development*. Investment firms may use this typology to better personalize offerings of ESG products and increase their adoption. These five categories of attitudes may provide precise information about how investors might be segmented. Interestingly, the result shows that even funds or products focused on one or the other pillar (E, S or G) may not always be relevant since some categories of attitudes sometimes overlap two pillars, and/or the criteria traditionally associated with one pillar sometimes reflect two distinct categories of attitudes. This is for instance the case of the social pillar, often given priority by investors, corporations and the public (Keeley et al., 2022), which is reflected in several categories of attitudes. Our results also complement Keeley et al. (2022) in that regard, who underlined the importance of the social pillar of ESG. Items from the social pillar are also in our case the ones being given the most importance by our respondents, on average. The social pillar is in our case represented in three dimensions, namely *Anti-fraud*, *Anti-discrimination*, and *Economic development*. Both anti-fraud and anti-discrimination are related to the share invested in ESG funds and ESG stock picking, underlining once again the importance of the social aspect, as in Keeley et al. (2022).

We also believe that this typology could be used by companies to improve financial communication towards their (potential) shareholders or to orientate the effort of firms aiming at improving their CSR score to attract ethically minded investors. Such efforts typically constitute a costly endeavor (Yoshida et al., 2023). Our results can provide firms with some insight as to which CSR indicators should be maximized in order to attract investors. Regarding investment funds, our results can also help to design specific thematic funds targeted at specific segments of investors.

The study next documents how the five categories of attitudes predict intention to invest in firms with high ESG scores. Whereas some categories show quite a homogeneous willingness to pay to invest in firms with good performances regarding the three pillars, E, S and G, separately, some others focus their non-pecuniary motivation to good performance to only one or two pillars. One category (*Day-to-day green*) is interested in almost none of them. These results reinforce the earlier conclusion that ESG products appear to be a poor fit for some investors with specific attitudes, even though these respondents might be sustainability-motivated. This connects with Chamorro-Mera and Palacios-González (2019), who showed that a category of investors exist which would be willing to donate to charity out of their investment profit but are not interested in ethical banking per se. We find similar results with our category of *day-to-day green* respondents. These results might be driven by lack of knowledge of many investors regarding ESG investment, ultimately leading to a form of defiance towards it and a lack of investment, despite positive attitude toward green or pro-social beahviors (Meunier and Ohadi, 2022).

At last, we study the actual behavior of respondents. The study provides evidence of cross-category heterogeneity with respect to the actual choice of ESG investment/saving products. Some categories of

attitudes are more associated with choosing funds or stocks with high ESG scores whereas some others are not, and rather influence the choice to save money at an ESG bank. The ESG savings account offered by all French banks is not associated with any of these attitudes. This finding might not be particularly surprising, as the ESG component of this account is not particularly salient. Additionally, this account offers an attractive return, and might simply attract investors with all types of preferences due to this simple fact. Overall, these results accentuate the view that ESG products, in their current design, are not perceived as a good fit by all investors due to differing attitudes toward specific ESG subdimensions.

From a theoretical perspective, our work inscribes itself in the general model of the theory of planned behavior of Ajzen (1991). In particular, we focus on the effect of attitude on intention and behavior. We underline that ESG attitudes actually are composed of 5 sub-dimensions, which have a heterogeneous impact on subsequent intentions to invest and investment behaviors. Our work thus echoes other empirical works in the same vein, notably Adam and Shauki (2014) or Palacios-González and Chamorro-Mera (2018) who also show the importance of the attitudinal factor as a driver of ESG investment. As in Palacios-González and Chamorro-Mera (2018) and Adam and Shauki (2014), we underline that the attitudinal variables we measure indeed drive intention. We also show that these variables also have an effect on behavior, as predicted by the theory of planned behavior of Ajzen (1991). Our study thus complements Palacios-González and Chamorro-Mera (2018) as well as Adam and Shauki (2014), by focusing on ESG attitude and showing that this umbrella term could advantageously be unpacked into its five subdimensions.

Our study suffers from several limitations which could be tackled by future work. For instance, we recruited our sample on a crowdsourcing platform, which of course limits the generalizability of our results, compared to a representative sample. While our sample is reasonably representative of the French population in terms of demographics, it is slightly younger. Future research could investigate whether the dimensions we uncover are also valid for older individuals. Similarly, while we inscribe ourselves in the general framework of Ajzen (1991) theory of planned behavior, we chose to zoom in on attitude and did not include perceived behavioral control or social norms in our model. This approach is similar to the one adopted by Palacios-González and Chamorro-Mera (2018). Adam and Shauki (2014) who choose to measure all dimensions of Ajzen (1991) model show that in the case of ESG investing, norms indeed have an effect, even though perceived behavioral control does not. Further study on this point could be warranted. Finally, regarding the willingness to pay approach, we rather took a long-term perspective, giving the example of a €10 000 investment over 10 years. Results could be different with smaller investment amounts or on a shorter period.

We also think that an interesting path for future research could be to use the five categories of attitudes we uncovered to design more effective nudges aimed at encouraging ESG investing (Gajewski et al., 2022; Meunier and Richit, 2023). For instance, Gajewski et al. (2022) found mixed evidence regarding the impact of priming on ESG investing. A finer and possibly more powerful approach could consist in adapting the nudges to the various attitudes we have uncovered here, as it appears from our study that one size does not fit all.

CRediT authorship contribution statement

Cynthia Assaf: Conceptualization, Methodology, Project administration, Validation, Writing – original draft, Writing – review & editing, Formal analysis. **Jerome Monne:** Conceptualization, Data curation, Formal analysis, Methodology, Writing – original draft, Writing – review & editing. **Loïc Harriet:** Conceptualization, Writing – original draft, Funding acquisition. **Luc Meunier:** Validation, Writing – original draft, Writing – review & editing, Methodology.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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