

**Financial return and environmental impact information promotes ESG investments:
Evidence from a large, incentivized online-experiment**

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Author contributions

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Abstract

Sustainable investments are characterized by considerations about financial returns as well as environmental impact. We investigate how information on both aspects alone and in combination impacts the decision to invest sustainably. Moreover, we test whether letting investors express their sustainability preferences in a more detailed way affects their investment decisions. We run an incentivized online experiment with experienced retail investors and a representative sample of the Austrian population (N = 2,254 in total). We find that information on financial returns and information on environmental impact both stimulate sustainable investments. However, presenting the two types of information in combination yields no greater effect than presenting one of them alone. Furthermore, we find no evidence that investment decisions are affected by whether sustainability preferences are elicited generally or in a more detailed format. Results also show that sustainable investments are positively correlated with investors' biospheric values and their financial literacy.

Keywords: Sustainable investments; ESG investments; socially responsible investments; investor behavior; financial return information; environmental impact information; incentivized experiment

JEL classification: D90, M14, G11, G02, C25

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1. Introduction

Sustainable investments that fulfill Environmental, Social, and Governance (ESG) criteria have arguably a great potential to mitigate climate change (Eurosif, 2018) by promoting a more sustainable economy (International Panel on Climate Change, 2018). After remarkable growth in the recent past, sustainable investment assets under management account now for about 35.9% of global assets under management (Global Sustainable Investment Alliance, 2021). However, recent literature suggests that the interest in sustainable investments may be even higher (Rossi et al., 2019) and that insufficient supply of such investments options as well as a lack of information for investments have been limiting take-up (Brunen and Laubach, 2022; Gutsche and Zwergel, 2020; Wins and Zwergel, 2016).

The importance of ESG investments is, for example, reflected in the European Green Deal Action plan on Sustainable Finance which aims to mobilize one trillion euros into sustainable investments (European Commission, 2020). As part of the EU's action plan, the delegated regulation (EU) 2021/2616, which aims at increasing sustainable investments, came into force on August 2, 2022. Similar to other initiatives (e.g., the World Bank's ESG guide, The World Bank, 2020), this regulation requires financial institutions to actively inform their clients about the availability of ESG investments and to elicit and account for clients' sustainability preferences in their investment advice. To maximize the regulation's impact on sustainable investments we need to learn how information on sustainable investments and the way in which sustainability preferences are elicited affect the choice between sustainable and non-sustainable investments.

We start by considering, first, what information should be provided to prospective investors. The previous literature yields mixed results. Some studies suggest that information on possible future returns stimulate sustainable investments more than information on moral aspects of the investment (Døskeland and Pedersen, 2016, 2021). Others show the opposite and suggest that the moral aspect of sustainable investments increases the willingness to invest sustainably more than the financial aspect (Glac, 2009). Looking more closely into studies which use moral information without comparison to financial information (Barreda-Tarrazona et al., 2011; Bassen et al., 2019; Bauer et al., 2021), it appears that this positive effect of moral information could be driven less by moral considerations (what one should *do*) per se and more by showing the positive impact of sustainable investments (what one can *achieve*). So far, however, the literature on investment decisions does not provide conclusive results on whether providing information about financial returns or information about environmental impact increases sustainable investments more effectively. Also, little is known about the effect of combining information on financial returns and environmental impact. Indeed, overjustifying ESG investment can lead to a motivational crowding out: highlighting financial rewards could reduce the intrinsic motivation to protect the environment.

Second, we consider how to elicit the sustainability preferences of clients of investment advice, in particular whether it is worth to put finer-grained methods of elicitation in place. Few studies cover this issue. An exception is a recent study suggesting to let investors express their sustainability preferences by voting for sustainable engagement based on selected United Nations Sustainable Development Goals (Bauer et al., 2021).

Driven by these questions, our study aims to provide important input for the implementation of the EU regulation mentioned above, as well as to inform other countries that would like to

implement similar regulations on ESG information provision and ESG preference elicitation.¹ The types of information we test are in line with the two main arguments for sustainable investments in EU-regulations: financial considerations (e.g., avoiding assets stranded by regulatory and climate change) and environmental impact (e.g., directing capital flow to sustainable corporate investments). Moreover, to the best of our knowledge, we are the first to experimentally test two versions of a sustainability preference elicitation mechanism that were discussed by EU lawmakers: asking only generally about sustainability preferences or giving investors the choice to further specify the focus of their sustainable investments. The latter version was ultimately applied in the EU regulation (EU) 2021/2616, where a distinction was made between avoiding negative environmental impacts and promoting environmental goals.

We answer our research questions by running a preregistered, incentivized, online field experiment that tests different ways of conducting a financial-investment consultation that would be in line with the new EU regulation. We collect a total sample of 2,254 participants, consisting of retail investors (N = 871) and a representative panel of the Austrian population (N = 1,383).² We endowed our participants with 600 euros to invest and randomly assigned them to different treatments, differing in whether they either received information on the

¹ We worked together with the relevant authorities (Financial Market Authority, FMA) and eight leading banks in Austria to ensure that the information provided about financial and environmental aspects and the alternative ways of eliciting sustainability preferences would fulfill the requirements of the EU regulation and be relevant to financial professionals and institutions.

² Preregistrations can be found on <https://osf.io/pe4g2> and <https://osf.io/3zymq> for the retail investors and general Austrian representative panel, respectively.

financial benefits of sustainable investments, on the environmental impact of such investments, on both of those aspects, or no such information. In addition, we randomly assigned participants to two different modes of preference elicitation. Specifically, in the general elicitation mode, participants were asked: “*What is the minimum amount of your investment that should go into investment products that meet ESG sustainability criteria?*”. In the specific elicitation mode, we additionally gave participants control over whether they primarily wanted to avoid the negative impact of investments (e.g., investment in mineral oil) or whether they mainly wanted to favor investments that live up to legal standards of sustainability (i.e., the EU taxonomy). Participants then received a non-binding investment recommendation over four different equity funds based on their sustainability preferences. The participants could either accept the recommendation or adapt their investment. We incentivized their investment decisions by informing that 15 participants would be randomly selected, whose decisions would be implemented on the stock exchange. The resulting final portfolio value will be paid to the selected participants after one year (as in Gutsche et al., 2020). Finally, we used a post-experimental survey to assess the robustness of investment decisions and satisfaction with the way the financial investment consultation was conducted.

We find that financial return as well as environmental impact information stimulate sustainable investments compared to the control group, who received only a short explanation of ESG factors (common to all participants). Combining financial return and environmental impact information yields a similar effect size as presenting participants with only one of the two. The financial return information and the environmental impact information do not materially affect investor satisfaction. The general and the specific sustainability preference assessments do not markedly differ in how they affect sustainable investments and satisfaction. Regarding investor-individual effects, we find that participants who care more about biospheric values, are more financially literate, have higher education and income, and trust more in ESG

products, tend to invest more sustainably than others. So do women and more risk-averse participants. Stability of investments (i.e., whether investors are willing to keep their investments unchanged in the face of underperformance) remains mostly unaffected by information and the mode of elicitation.

Our research expands upon existing studies in the field by providing experimental results employing incentivized investment decisions with a large sample of experienced investors and the general population. With few exceptions (Barreda-Tarrazona et al., 2011; Gutsche et al., 2020; Riedl and Smeets, 2017), the literature on investment decisions is based on non-incentivized decisions (Apostolakis et al., 2018; Glac, 2009) or correlational, cross-sectional questionnaire studies (e.g., Nilsson, 2008; Wins and Zwergel, 2016). Thus, our contribution to the literature is twofold. First, our research contributes to the conversation on how financial and environmental impact information affects sustainable investments (e.g., Barreda-Tarrazona et al., 2011; Døskeland and Pedersen, 2016, 2021; Glac, 2009; Heeb et al., 2022; Siemroth and Hornuf, 2021). We particularly extend previous findings by investigating the effect of combining financial return and environmental impact information on sustainable investments. Second, we contribute to the literature on eliciting sustainability preferences. Thus far, there has been little research on a general versus a more specific mode of eliciting sustainability preferences and the translation into actual investment decisions (see Bauer et al., 2021 for a recent exception). We fill this gap by investigating whether allowing participants to specify the type of sustainability goals their investments have to fulfill (in a way that is in line with EU regulations) affects their investment behavior. Answering this question is particularly relevant for practical efforts in promoting sustainable investments.

The remainder of this paper is organized as follows: Section 2 reviews the literature and develops our hypotheses. Section 3 describes the experimental setup, including the sample, the experimental design and outcome variables. Section 4 presents the empirical results. Section 5

discusses the results in the context of the previous literature. Section 6 concludes with policy recommendations.

2. Literature review and hypothesis development

This chapter presents the theoretical background and develops our hypotheses on the effect of financial return and environmental impact information, the mode of sustainability preference elicitation and the impact of individual characteristics. All hypotheses were preregistered.³

2.1. Financial return and environmental impact information

Previous studies show that the way in which information regarding financial return and environmental impact considerations is explained affects pro-environmental behavior (Bolderdijk et al., 2012) and take-up of sustainable funds (Markowitz et al., 2011). Financial return information (i.e., information about the possibility of using sustainable investments to achieve financial gains and reduce financial risks related to environmental factors) is a classical driver for sustainable investments (e.g., Nilsson, 2008). A natural field experiment with 140,000 investors in Norway reveals that newsletters with financial return information are effective in increasing sustainable investments: investors buy more green funds within one month after receiving the newsletter (Døskeland and Pedersen, 2016, 2021). Thus, if investors are shown financial return information that makes them feel confident that they will be able to gain returns with sustainable investments, they invest more sustainably. Other studies (Nilsson,

³ We preregistered both of our survey waves, on <https://osf.io/pe4g2> and <https://osf.io/3zymq>. Both preregistrations contain identical hypotheses. To streamline the present paper, we only discuss the most important, overarching hypotheses in the body of the paper. The Appendix provides a detailed analysis of all preregistered hypotheses.

2008; Riedl and Smeets, 2017) similarly show that financial return information and considerations increase the willingness to invest sustainably.

Information about the positive impact of a certain investment on the environment, e.g., that a certain investment behavior can mitigate climate change, is another potential determinant for sustainable investments. The belief in the effectiveness of one's own behavior is central to any human action – including actions against climate change, as a meta-analysis of 106 studies on climate change adaptation behavior shows (van Valkengoed and Steg, 2019; note that the analysis does not specifically focus on investment behavior). In a large natural field experiment, Hartzmark and Sussmann (2019) show that marketwide demand for sustainable funds depends on information regarding sustainability ratings. Similarly, survey studies show that perceived effectiveness is related to sustainable investments in Sweden (Nilsson, 2008), Germany (Wins and Zwergel, 2016), the Netherlands (Apostolakis et al., 2018) and Spain (Palacios-González and Chamorro-Mera, 2018). However, there are only few experiments on the effect of environmental impact information on investment decisions. A recent lab-in-the-field experiment with 399 crowdfunding investors revealed that most participants forgo financial gains for sufficiently large environmental impact (Siemroth and Hornuf, 2021). In addition, Heeb et al. (2022) used an incentivized field experiment with 537 Dutch retail investors to show that, although there was willingness to pay extra fees for sustainable investments, the willingness to pay did not vary with the amount of CO₂ abated.

Other studies have focused on moral arguments for sustainable investments, such as arguing that investing sustainably is “the right thing to do”. Instead of outlining the environmental impact, many experiments on investment behavior use moral information in the form of labels (Bassen et al., 2019), explicit naming of the funds (Barreda-Tarrazona et al., 2011) or moral framing of the decision (Glac, 2009). Yet, investors might be less influenced by moralizing about investment behavior (what one should do) than by information on whether a given

investment behavior is effective and has a positive impact on the environment (what one could achieve). This study therefore differs from previous ones in stressing the effectiveness of sustainable investments, that is the degree to which sustainable investments affect companies' ESG activities and environmental impact. Moreover, we investigate the effect of combining environmental impact information with financial return information.

To the best of our knowledge, there are only few studies which directly compare whether financial or moral information is more effective, and these yield mixed outcomes. While Døskeland and Pedersen (2016, 2021) find that financial return information is more effective than moral information, Glac (2009) suggests the opposite. The reasons might be found in differing strengths and focuses of the manipulations, or in the decision frames and (non-incentivized) designs of these studies. Based on the literature, we hypothesize that financial as well as environmental impact information will increase sustainable investments. Thus, we posit the following hypothesis:

H1: *Both information on financial return and information on environmental impact increase sustainable investments compared to a no-information condition.*

Evidence regarding the impact on sustainable investments when combining financial and environmental impact information is scarce. Both financial and environmental impact information are potentially important (Gutsche and Ziegler, 2019; Hartzmark and Sussman, 2019; Hong and Kostovetsky, 2012; Riedl and Smeets, 2017), so that providing a combination of the two might be more effective than just providing one form of information. Indeed, those who are not convinced by one argument may be convinced by the other so that more get convinced overall. Thus, we posit the following hypothesis:

H1.1: *The combination of financial return information and environmental impact information increases sustainable investments more than either financial or environmental impact information alone.*

Besides investment decisions, customer satisfaction is an important factor for banks as well as for any other business, since satisfaction is strongly related to customer loyalty and contributes to secure profitability (Seiler et al., 2013). Our information about financial considerations and the ESG performance of investments may also impact satisfaction (Nilsson et al., 2014). For example, Yoon (2010) finds that satisfaction is influenced by the information content of online banking portals, e.g., information that is useful and easy to understand. Thus, we conjecture that providing information on the positive financial and environmental aspects of sustainable investments will increase participants' satisfaction, making them feel better informed about financial and sustainability matters. We posit the following hypothesis:

H2: *Both information on financial return and information on environmental impact increase investor satisfaction with the information received about ESG compared to a no-information condition.*

Given our line of argument in H1.1, presenting financial and environmental impact information together should increase satisfaction more than presenting only one aspect. Thus, we posit the following hypothesis:

H2.1: *The combination of information on financial return and on environmental impact increases investor satisfaction with the information received more than does financial return information or environmental impact information alone.*

2.2. General and specific elicitation of sustainability preferences

In addition to the type of information, investment decisions may also be affected by the mode of the elicitation of investors' sustainability preferences. We, therefore, compare a general elicitation mode with a specific elicitation mode in how they affect sustainable investments and participants' satisfaction with the preference elicitation. We expect the effects of the elicitation mode to be similar in the different information treatment conditions.

Previous studies on the elicitation of sustainability preferences (see, e.g., Bauer et al., 2021, who suggested asking for the willingness to contribute to different United Nations Sustainable Development Goals) do not give a clear indication of how elicitation methods will affect sustainable investments, and which one will generate greater satisfaction. To our knowledge, there is no experimental literature that tests the two possible modes of eliciting sustainability preferences that we discuss (general vs. specific), even though the specific mode has now become mandatory in the EU. The effects of different elicitation modes could go in either direction. The general version might be perceived as straightforward and easy to understand and may thus increase sustainable investments and satisfaction. Yet it could also have the opposite effect, in that the general version might be perceived as insufficiently detailed or less trustworthy because it is not sufficiently transparent. The specific version gives investors more control over their investment and may thus increase investors' utility. A greater number of options may yield a better fit of the resulting investments with investors' preferences (Johnson et al., 2012) and thus increase the willingness to invest. On the contrary, investors might not care about the differences, be confused or affected by information overload. Scheibehenne et al. (2010, p. 409) refer to this problem as the "choice overload hypothesis". Thus, we posit the following, non-directional hypothesis:

H3: *Sustainable investments and satisfaction differ between a general and a specific mode of eliciting sustainability preferences.*

2.3. Individual characteristics of investors

The previous literature shows that a person's biospheric and social values, i.e., their goals and guiding principles regarding environmentally friendly behavior and the consideration of others' utility, are positively related to sustainable investments (Bassen et al., 2019; Bauer et al., 2021; Gutsche, et al., 2020). Research on the relationship between household income and sustainable investments finds a positive (Cheah et al., 2011; Escrig-Olmedo et al., 2013; Gutsche et al., 2020) or no significant relationship (Hoffmann et al., 2019; Nilsson, 2008; Riedl and Smeets, 2017). A recent study by Gutsche et al. (2020) that applied an objective measure of literacy developed by Lusardi and Mitchell (2008) finds that financial literacy, i.e., the understanding of financial concepts, increases sustainable investments. However, other studies which employed self-reported financial literacy found a slightly negative effect on sustainable investments (Bauer and Smeets, 2015; Gutsche et al., 2021; Riedl and Smeets, 2017).

H4: *Investors who care more about biospheric and altruistic values and who have greater household income and financial literacy invest more sustainably.*

2.4. Exploratory analysis: Revision of investment decisions

Stability in one's investment decisions can be a success factor when considering long-term investments. Investors with unstable investment decisions may suffer losses due to being affected by temporary changes in prices of their investments. For example, they may be subject to the disposition effect (Shefrin and Statman, 1985) or to buying at high prices and selling at low prices (Bucher-Koenen and Ziegelmeyer, 2014). In an investigation of investor cash flows from 1980 to 2002, Bollen (2007) shows that those investors who invest in sustainable funds

respond more positively to positive returns and less negatively to negative returns (compared to conventional investors) and are more loyal to sustainable funds. Recent results from a survey study additionally reveal that loyalty to sustainable funds is positively related to ethical motives, while financial motives reduce loyalty (Peifer, 2014). Also, individuals who already hold sustainable investments tend to be more interested in new sustainable products (Rossi et al., 2019). In our experiment, we therefore explore the impact of our treatments, in particular, whether financial return and/or environmental impact information was given, on the extent to which participants report they would revise their investment decisions in two hypothetical scenarios about future developments of their conventional and ESG investments.

3. Experimental design

To test our hypotheses, we conducted an incentivized online experiment in two survey waves, with the first wave targeting experienced retail investors and the second wave targeting a representative sample of the Austrian population with no specific financial expertise. Treatments in both survey waves were identical, besides small changes in the wording of the attention check and the percentage of the participants that were randomly chosen for payout.⁴ The procedure and data analyses follow the preregistration of the representative sample.

⁴ The following are all the adaptations in the material and procedures compared to survey wave one (<https://osf.io/pe4g2>), preregistered for survey wave two (<https://osf.io/3zymq>): based on a power analysis of the preliminary results of the retail investor sample, we increased the sample size of the population sample to $N = 1,400$. Participants were informed that only five (instead of 10) winners would be selected in the lottery. We adapted the attention check to suit non-investors and added a question on participants' response reliability.

3.1. Treatment manipulations

For both samples we used a 4 x 2 between-subjects design varying information and elicitation mode as displayed in Table 1.

Table 1. Treatment conditions and number of participants.

		Survey wave			
		Retail		Population	
		Elicitation mode			
		General	Specific	General	Specific
Information	None	116	105	170	172
	Financial return	103	106	171	172
	Environmental impact	111	111	172	178
	Combined	109	110	172	176

Information. In the *financial return information* treatment, ESG funds were described as achieving financial gains and reducing specific risks. After a headline (“Earning returns with ESG investments”), a short text informed participants about ESG investments as a promising financial investment in future technologies with reduced risks related to ESG factors. In the *environmental impact information* treatment, ESG funds were described as promoting sustainability and having an impact for a sustainable economy. After a headline (“Promoting sustainability with ESG investments”), a short text informed participants that ESG investments can be promising with regard to environmental impact and the promotion of companies that fulfill ESG criteria. In the *combined information* treatment, we presented information on both, financial returns and environmental impact.⁵ In the no-information treatment, we only provided

⁵ A pretest with 58 participants in September 2021 showed that the information has the intended effect. Participants were randomly presented with the information and were asked for their

general information about ESG that was also shown in all other treatments (see Section 3.4., Procedure). We include the English translation of the manipulations in section I of the Appendix. A balance table (see Table A.1 in the Appendix) shows that the randomization with regards to the information treatment was successful for most variables, except for *biospheric values* ($p = 0.045$) and the control variable *trust in ESG products* ($p = 0.023$).

Sustainability preference elicitation. The *general sustainability preference elicitation* asked participants for the minimum percentage of their investment that should fulfill ESG criteria (*What is the minimum amount of your investment that should go into investment products that meet ESG sustainability criteria?*; 1 = 0 % - no sustainable products; 2 = up to 25%; 3 = up to 50%; 4 = up to 75%, and 5 = 100% - only sustainable products.) The *specific sustainability preference elicitation* additionally asked about the preferred focus of the investment (*If you choose an ESG investment, you can choose one or both of the following two product categories*; 1 = Investment products that avoid important negative impacts on ESG factors; 2 = Investment products that invest in activities that are considered sustainable

agreement on three items (*With sustainable investments I can ... earn money; have an impact; follow my values*). All items were answered on a 7-point Likert scale (1 = I totally disagree / 7 = I totally agree). The results of *t*-tests show that the financial information ($M = 5.46$, $SD = 0.98$) received significantly ($p = 0.03$) higher ratings for “earn money” than did the environmental impact information ($M = 4.65$, $SD = 1.70$). The environmental impact information, conversely, was rated higher ($p < 0.01$) on “have an impact” ($M = 5.62$, $SD = 1.10$) than the financial information ($M = 4.50$, $SD = 1.38$). However, the environmental impact information was not rated significantly more highly ($p = 0.14$) on “follow my values” ($M = 5.74$, $SD = 1.44$) than was the financial information ($M = 5.16$, $SD = 1.45$).

according to legal requirements (*Disclosure Regulation, Taxonomy Regulation*)). A balance table (see Table A.2 in the Appendix) shows that the randomization with regards to the mode of sustainability preference elicitation was successful for all variables (all $p > 0.05$).

3.2. Measured variables

Outcome variables

The most important outcome variable, *sustainable investments*, is the percentage of their total endowment of 600 euros that a participant invested in sustainable funds. Participants were presented with four equity funds (similar as in Gutsche et al., 2020) and a non-binding investment recommendation, based on their stated sustainability preferences.⁶ Participants made an investment decision by accepting the non-binding recommendation or by allocating their 600 euros to the four funds themselves. As Figure 1 shows, the four funds (two conventional and two sustainable) were identical in terms of risk and performance but differed in terms of ESG considerations and the respective economic sectors. The funds' names were not made explicit to ensure that decisions were solely based on the information provided.

--- Insert Figure 1 around here ---

⁶ Fund ISINs and names: Fund A: AT0000805460 “Raiffeisen Osteuropa Aktien T”; Fund B: AT0000764758 “Raiffeisen US Aktien R T”; Fund C: AT000UMWELT5 “Kepler Umwelt Aktienfonds T”; Fund D: LU2257980289 “Mandarine Global Transition R”. Please note that performance in the last year was relatively high due to the recovery after COVID-19.

As an additional outcome variable, we assessed *satisfaction with the information on ESG investments* using the average over four items (*The information I received at the beginning about ESG investing was ... understandable, simple, informative, helpful*; standardized Cronbach's $\alpha = 0.91$), elicited on a 7-point Likert scale (1 = *I totally disagree* / 7 = *I totally agree*). The variable *satisfaction with the sustainability preference elicitation* was similarly assessed using the average over four items (*The way I was asked how much I would like to invest in ESG investment products was understandable, simple, informative, helpful*; standardized Cronbach's $\alpha = 0.92$), elicited on the same 7-point Likert scale. We displayed screenshots of the initial information and the sustainability preference assessment during the satisfaction assessment.

As an exploratory outcome variable, *stability of investment decisions* was assessed in two hypothetical, not payoff-relevant scenarios (after 6 months, conventional funds have performed 5% better than sustainable funds, and vice versa). Participants had the possibility to hypothetically revise the amount initially invested into sustainable funds in each of these two scenarios, with their answer being elicited on a 5-point Likert scale (1 = *significantly reduce* / 3 = *neither reduce nor increase* / 5 = *significantly increase*). We constructed a binary variable indicating whether participants have adapted their sustainable investments in at least one scenario (stability = 0) or not (stability = 1).

Explanatory variables

Biospheric and altruistic value orientation each consist of the average of four items (based on De Groot and Steg, 2007, 2008). Participants indicated how important the four items on biospheric values (*preventing pollution, respecting the earth, unity with nature, protecting the environment*, Cronbach's $\alpha = 0.93$) and the four items on altruistic values (*equality, a world at*

peace, social justice, helpfulness, Cronbach's $\alpha = 0.89$) are as guiding principles of their lives, again elicited on 7-point Likert scales (1 = *Opposed to my values* / 7 = *Extremely important*).

Household income was measured with a standard procedure by dividing the income of all household members by household size. Adults (*How many people including you live permanently in your household?*) were weighted by 1 and minors under 18 years by 0.5 (*How many of the people in your household are under 18?*). Income of all household members was measured with a single-choice question, answered in 1,000 euros increments from *less than 1,000 euros* to *more than 8,000 euros*.⁷

As a measure for *financial literacy*, we used the percentage of correct questions of the scale by Lusardi and Mitchell (2008). The scale consists of three questions on interest rates, inflation, and risk (e.g., *Suppose you have 100 euros credit balance in your savings account. This balance earns interest at 2% per year and you leave it in this account for 5 years. What do you think: How much will your balance be after 5 years? 1 = higher than 102 euros, 2 = exactly 102 euros, 3 = lower than 102 euros, 4 = do not know*).

⁷ As preregistered, we used multiple imputation by chained equations (van Buuren and Groothuis-Oudshoorn, 2011) in the R statistical package "MICE" to impute missing data in the two covariates income (10.3%) and number of minors in the household (3.5%). Multiple imputation is considered the appropriate method to fill in missing data (Hanss and Böhm, 2013, Tabachnick et al., 2007). An iterative algorithm creates 10 datasets that include plausible values for the missing values of income and number of minors. The regression analyses in the main text are pooled regressions over these imputed datasets.

Control variables and other variables

Gender, age, education, risk preference, experience in investing, and perceived relevance of the incentives were assessed as control variables (see experimental material in section I in the Appendix). We additionally add dummy variables for the provision of the email address (prerequisite to participate in the incentive lottery) and the survey wave as well as an attention-check question.

Trust in ESG products (adapted from Nilsson, 2008 and Wins and Zwergel, 2016) was assessed with one item on a 7-point Likert scale (*I trust that providers follow ESG guidelines; 1 = I totally disagree / 7 = I totally agree*).

Trust in the information on ESG investments and *trust in the sustainability preference elicitation* were each assessed with one item (*The information I received at the beginning about ESG investing was trustworthy / The way I was asked how much I would like to invest in ESG investment products was trustworthy*), elicited on a 7-point Likert scale (1 = I totally disagree / 7 = I totally agree). Screenshots of the initial information and the sustainability preference assessment were presented during the trust assessment.

3.3. Participants

We recruited 2,254 participants in two survey waves between October 2021 and February 2022.⁸ The sample was composed of 56.70% men (average age: 48.20 years, $SD = 15.52$). In

⁸ Corresponding to the two preregistrations for the retail investor sample and the population sample. We applied the preregistered exclusion criteria of the population sample: 7 participants in the first survey wave and 18 participants in the second survey wave were excluded from the initial sample of completed observations due to repeated participation.

the first wave, participants were invited via newsletters or website banners on the homepages of eight Austrian banks ($N = 871$).⁹ In the second wave, participants were recruited by a market research agency to ensure representativeness in terms of age (above 18 years) and gender (female and male) of the Austrian population (“Talk Online Panel”; $N = 1,383$).

One-third each of the participants had a high school or university degree. Most participants reported a monthly household income between 2,001 euros and 5,000 euros. In the retail investor sample, 9.99% report less than one year of investment experience, while 51.44% indicated more than 11 years of experience. In the population sample, 52.20% report no investment experience and only 16.12% indicate more than 11 years of experience (see Table A.3 in the Appendix for separate descriptions of both survey waves). Comparable to results from a German study (Gutsche et al., 2020), average financial literacy amounted to 0.80 ($SD = 0.28$), equaling 2.4 out of 3 questions answered correctly. Participants stated high biospheric ($M = 6.00$, $SD = 1.07$) and altruistic values ($M = 5.88$, $SD = 1.04$).

⁹ We specifically aimed to recruit investors via investor-specific newsletters or an entry on the website/online banking portal in the case of smaller banks. Therefore, we could not determine the sample size *ex ante*. As an orientation point for the sample size to be expected, we used the available data: one mid-sized bank reported 40,000 newsletter recipients. Smaller banks posted the study invitation on their websites and online banking tools, with about 1,800 clicks per day. We expected a participation rate of 1–2% and aimed to reach a minimum of 1,200 participants. Yet, due to the unexpectedly low participation rate (despite reminders), the number of participants did not reach the preregistered sample size.

3.4. Procedure

Upon invitation to a study on investment decisions, we linked the participants to the survey platform Qualtrics and provided them with general instructions, terms of participation, and privacy statements.¹⁰ Moreover, we informed participants about the incentives based on the lottery, in which 15 participants (10 in survey wave 1 and 5 in survey wave 2) were randomly selected. For these participants, we invested the amount allocated to each fund, promised to sell the funds after one year and to pay out the resulting ending values to the participants, similar to what was done in previous experiments (Gutsche et al., 2020).

To mimic a financial advice setting, we asked participants to imagine themselves asking for financial advice in a bank about how to invest 600 euros. In this setting, their advisor would inform them about the term *ESG*, ESG investments, and that, besides liquidity, returns and risk, they could also consider ESG factors in their investment choices. We provide all participants with some basic information about ESG (see Section I of the appendix).

Depending on the treatment, we presented information on financial returns, information on environmental impact, combined information or no information, followed by the sustainability preference elicitation. We informed the participants that, based on the sustainability preference elicitation, they would receive a non-binding recommendation for their investment decision (e.g., a choice of 75% in the general elicitation resulted in a

¹⁰ The procedure was approved by the Ethics Committee of the Institute for Advanced Studies and a representative of interests for investors of the Austrian Chamber of Labor. Compliance with the EU's General Data Protection Regulation (GDPR) was audited by the data protection officer of the Institute for Advanced Studies.

recommendation of 225 euros in each of the two sustainable funds and 75 euros in each of the two conventional funds). Participants then made their investment decisions by accepting the non-binding investment recommendation or by individually allocating their endowment to the four funds. At this stage, we reminded the participants of the incentives, i.e., the lottery procedure.

In a follow-up questionnaire (see section 3.2. for details), the participants answered questions on their satisfaction and trust regarding the information provided and the way their sustainability preferences were elicited. Moreover, we surveyed individual differences (i.e., biospheric values and financial literacy) and collected information related to previous investments and sociodemographic characteristics. At the end, participants could leave their email address for participating in the lottery and/or receiving information about the study results. Finally, we thanked them for their participation.

4. Results

In the following, we present descriptive statistics of our outcome variables, the main results, and exploratory analyses. For clarity, we present all results based on the total sample, including a dummy for the survey wave. The Appendix contains the results for each survey waves separately (Section D). We control for multiple hypothesis testing by applying the Benjamini-Hochberg procedure (Benjamini and Hochberg, 1995). All results reported in the main paper referring to the hypotheses ($H1 - H4$) remain significant when applying this procedure (see section H in the Appendix).

We find that participants invest, on average, 394.39 out of 600 euros in sustainable funds (i.e., 65.73%, $SD = 27.94\%$; see Table A.4 in the Appendix for details). This indicates that participants invest 94.93 euros more sustainably than would be expected based on the 1/n strategy or naïve-diversification strategy which would prescribe investing equal amounts into

each fund. Moreover, the participants on average allocated more than one third of their endowment to Fund D which invests in activities considered sustainable by law (i.e., the EU taxonomy). Satisfaction with the information ($M = 5.60$, $SD = 1.13$) and with the mode of sustainability preference elicitation ($M = 5.64$, $SD = 1.16$) is relatively high on the 7-point Likert scale. In the general sustainability preference question that all participants answered, 3.86% indicate a preference for 0% sustainable products, while 26.31% indicate a preference for 100% sustainable products. In the specific sustainability preference question that only participants in the *specific sustainability preference elicitation* treatment answered, 48.93% exhibit a preference for products that are sustainable according to law (i.e., the EU taxonomy).

4.1. Financial and environmental impact information

To test our hypotheses on whether financial and/or environmental impact information increase sustainable investments compared to no information (*HI*), we conduct OLS regressions (Table 2). In Model (1), we regress sustainable investments (defined as the percentage of the total endowment invested in sustainable funds) on treatment dummies indicating whether financial return and/or environmental impact information was presented. We add the elicitation mode dummy in Model (2), household income, biospheric and altruistic values, and financial literacy variables in Model (3), and other control variables in Model (4) (see Table B.1 in the Appendix for the regression coefficients of the control variables). We use the same control variables in subsequent models. All models' F-tests are highly statistically significant ($p < 0.001$).

The results show that financial return information significantly increases sustainable investments compared to the no-information condition by about 5 percentage points (pp) across all models. The environmental impact information also significantly increases sustainable investments, with a point estimate of about 7pp (e.g., in Model 1, this corresponds to an

increase of 13.48% relative to the control condition). In other words, investors who are provided with environmental impact information invest 411.87 euros sustainably on average, while investors in the control condition invest only 362.94 euros sustainably. We find no significant difference between the financial return and environmental impact treatments (Wald test for coefficient equality, $\chi^2(1) = 2.04$, $p = 0.153$). The negative interaction effect for the combination of financial return and environmental impact information indicates that the two types of information are substitutes rather than complements. As Figure 2 shows, sustainable investments are essentially unaffected when information is presented in combination rather than in isolation, meaning that providing both types of information yields a similar effect size as providing one of them alone.

Table 2. OLS models: Impact of information on sustainable investments.

	(1)	(2)	(3)	(4)
Financial return	0.055*** (0.017)	0.055** (0.017)	0.049** (0.016)	0.041** (0.015)
Environmental impact	0.082*** (0.016)	0.082*** (0.016)	0.071*** (0.016)	0.063*** (0.015)
Financial * environmental	-0.064** (0.023)	-0.064** (0.023)	-0.058** (0.022)	-0.045* (0.022)
Specific elicitation mode		0.001 (0.012)	0.003 (0.011)	0.005 (0.011)
Biospheric values			0.071*** (0.009)	0.063*** (0.009)
Altruistic values			0.003 (0.009)	-0.014 (0.009)
Household income			0.018** (0.006)	0.024** (0.007)
Financial literacy			0.090*** (0.021)	0.074*** (0.022)
Constant	0.605*** (0.012)	0.604*** (0.013)	0.062+ (0.037)	0.001 (0.058)
Control variables	NO	NO	NO	YES
N	2254	2254	2254	2254
Adjusted R ²	0.012	0.011	0.116	0.172
F	9.797	7.349	37.795	24.338
p	0.000	0.000	0.000	0.000

Note. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Robust standard errors in parentheses. Information is included as dummy variables (0 = no financial return information, 1 = financial return information; and the same for environmental impact information). Control variables: age, gender, education, children, experience, risk preference, trust in ESG products, relevance of the incentive, email address dummy (0 = no, 1 = yes), attention check question dummy (0 = passed attention check, 1 = failed), sample dummy (1 = retail investor sample, 2 = population sample).

--- Insert Figure 2 around here ---

To exclude interaction effects of our treatment variables (financial return and/or environmental impact information and the mode of sustainability preference elicitation), we calculate OLS regression models including the interaction between the information dummies and the mode of eliciting sustainability preferences (see Table B.2 in the Appendix). We do not find a significant interaction of the information with the mode of eliciting sustainability preferences.

To test whether financial and environmental impact information affects satisfaction with the information (*H2*) we conduct OLS regression analyses (Table C.1 in the Appendix). After controlling for multiple hypothesis testing, we find no significant effect of information on satisfaction with the information. Bivariate *t*-tests reveal that the increase in trust is significant for the environmental impact information ($p = 0.032$) and the combination of information ($p = 0.015$), yet not for the financial return information alone ($p = 0.147$).

4.2. Elicitation of sustainability preferences

To analyze the relationship between the sustainability preference elicitation mode and sustainable investments (*H3*), we calculate OLS models with sustainable investments and satisfaction with the elicitation, respectively, as the outcome variables (details can be found in section E in the Appendix). While Models (2)-(4) are the same as the ones we reported for sustainable investments (Table 2), we include only the elicitation mode as a predictor in Model (1). We do not find evidence that the elicitation mode affects sustainable investments. The point estimates are close to zero and not statistically significant. The same holds for satisfaction with the elicitation mode (Table E.1). Bivariate *t*-tests additionally reveal that trust

in the preference elicitation does not significantly differ between a general and a more specific sustainability preference elicitation ($p = 0.122$).

4.3. Differences in personal values, income, and financial literacy as determinants for sustainable investments

We use Models (3) and (4) in Table 2 to examine which participant-level differences determine sustainable investments. Our results show that participants who care more about biospheric values, who have greater household income and who are more financially literate invest significantly more sustainably, while altruistic values do not seem to play a role. Additionally, the results show that greater trust in ESG ($b = 0.043, p < 0.001$) and higher education ($b = 0.017, p < 0.001$) are associated with greater sustainable investments. Greater preferences for risk taking ($b = -0.011, p < 0.001$) are related to lower sustainable investments. Men invest less sustainably than do women ($b = -0.038, p < 0.01$). The effect for non-binary gender is not interpretable due to too few observations. We show the results for treatment heterogeneity, testing whether the information provided affects specific subgroups differently, in Table F.1 in the Appendix. Except for one positive effect (financial return, environmental impact and above-median altruistic values), the results do not remain significant after controlling for multiple hypothesis testing.

4.4. Exploratory analyses: Sustainability preferences and stability of investment decisions

Sustainability preferences. To explore whether financial and environmental impact information affect participants' sustainability preferences in the general elicitation mode, we calculate ordered probit models that mirror our models for sustainable investments (Table 2), yet use the ordinal sustainability preference score from the general elicitation as their outcome variable (1

= 0 % - no sustainable products; 2 = up to 25%; 3 = up to 50%; 4 = up to 75%, and 5 = 100% - only sustainable products). Sustainable investments (as discussed in Section 4.1.) might be influenced by the selection of funds we present in the experiment. Sustainability preferences as elicited in the general elicitation mode are less context-dependent and hence interesting to look at as well. The results in Table 3 show that both financial return and environmental impact information significantly increase the indicated sustainability preference in the general elicitation mode. A Wald test shows that the coefficient of environmental impact information is significantly greater than the coefficient of financial return information in Model (1) ($\chi^2(1) = 5.51, p = 0.019$). The large and negative interaction coefficient of financial return and environmental impact information again indicates that the choice is essentially unaffected when information is presented in combination rather than in isolation. In an additional analysis, we explore whether financial and environmental impact information affect the choices in the specific preference elicitation. The χ^2 test does not indicate a significant influence of the information on choices ($\chi^2(6) = 4.84, p = 0.565$).

Stability of investment decisions. Participants were allowed to revise their initial investment decision in two scenarios of investment performance by either decreasing, keeping constant, or increasing the amount invested in sustainable funds. To explore whether financial and environmental impact information increase the stability of investments (no revision) compared to the no-information condition, we calculate logit models with stability of investment (SOI) as the binary outcome variable (0 = no stability of investments, 1 = stability of investments, $M = 0.33, SD = 0.47$). The predictors and control variables are the same as in the models for sustainable investments (Table 2). The results do not indicate significant effects of financial and environmental impact information on investment stability (minimum $p > 0.1$, see Appendix G.1 for the full results).

Table 3. Ordered probit models: Impact of information on stated sustainability preferences.

	(1)	(2)	(3)	(4)
Financial return	0.169*** (0.063)	0.170*** (0.063)	0.157* (0.064)	0.135* (0.064)
Environmental impact	0.318*** (0.063)	0.318*** (0.063)	0.293*** (0.063)	0.274*** (0.064)
Financial * environmental	-0.207* (0.089)	-0.208* (0.089)	-0.198* (0.090)	-0.164+ (0.091)
Specific elicitation mode		-0.036 (0.045)	-0.031 (0.045)	-0.029 (0.045)
Biospheric values			0.307*** (0.035)	0.288*** (0.036)
Altruistic values			0.036 (0.036)	-0.028 (0.036)
Household income			0.044+ (0.026)	0.067* (0.030)
Financial literacy			0.267*** (0.084)	0.235* (0.092)
Control variables	NO	NO	NO	YES
N	2254	2254	2254	2254
Nagelkerke Pseudo R^2	0.014	0.015	0.154	0.205

Note. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Robust standard errors in parentheses. The dependent variable is the outcome of the general sustainability preference elicitation (*What is the minimum amount of your investment that should go into investment products that meet ESG sustainability criteria?*, 1 = 0% - no sustainable products; 2 = up to 25%; 3 = up to 50%; 4 = up to 75%, 5 = 100% - only sustainable products). Information is included as dummy variables (0 = no financial return information, 1 = financial return information; and same for environmental impact information). Control variables: age, gender, education, children, experience, risk preference, trust in ESG products, relevance of the incentive, email address dummy (0 = no, 1 = yes), attention check question dummy (0 = passed attention check, 1 = failed), sample dummy (1 = retail investor sample, 2 = population sample).

Further analyses of SOI independent of the treatment variations reveal some interesting insights though. If sustainable funds perform better after the initial investment decision, then 39.49% maintain their sustainable investment and 55.10% increase it (*median* = 4). Only 5.41% of the participants increase their conventional investment, as indicated on a 5-point Likert scale (*1* = significantly reduce / *3* = neither reduce nor increase / *5* = significantly increase). In the opposite case, if conventional funds perform better, 67.30% maintain their sustainable investment, 17.84% increase it, and only 14.86% increase their conventional investment (*median* = 3).

Further, we explore whether participants who invested below and equal/above the median of sustainable investments differ in their revision choices. A Mann–Whitney *U* test shows that participants below and above the median did not systematically differ in the revisions of their conventional investments (*median* = 3 for both groups, $p = 0.290$). However, participants who invested at or above the median of sustainable investments also increased sustainable investments significantly more ($p < 0.001$) in the hypothetical scenario (*median* = 4) where sustainable investments performed better, compared to participants with lower sustainable investments (*median* = 3).

5. Discussion

To increase the share of investments into firms that fulfill ESG criteria, it is essential to understand how financial advisors should design the information about sustainable investments and the mode of eliciting sustainability preferences. Starting with August 2, 2022, by EU Regulation (EU) 2021/2616, investment advisors in the European Union have been legally required to elicit clients' sustainability preferences. Outside of Europe too, sustainable investments are one of the most important topics in financial advisory (The World Bank, 2020).

5.1. Financial and environmental impact information

In line with *Hypothesis 1*, we find that emphasizing financial return considerations increases sustainable investments by about 5pp. Also, emphasizing environmental impact considerations increases sustainable investments by about 7pp. In contrast to *Sub-Hypothesis 1.1.*, however, the combination of financial and environmental impact information did not increase sustainable investments more than each type of information in isolation. Reasons for this finding may be the occurrence of motivational crowding out (Frey and Jegen, 2001), whereby calling on extrinsic, financial motivations may reduce moral, intrinsic motivations. In other words, investors might lose the intrinsic desire to foster ESG goals when they are also told that sustainable investing is financially rewarded. Another reason could be that there is an individual upper bound (or ceiling effect) for sustainable investments that participants do not want to exceed. If financial and environmental impact information by themselves already increase sustainable investments to this upper bound, combining the two types of information would leave no additional room for increasing sustainability compared to presenting information in isolation. Yet, we also find that this upper bound does not conform to the 1/n heuristic, i.e., naïve diversification of the investment (Benartzi and Thaler, 2001), based on which we would expect an investment of 25% per fund, or 50% (equal to 300 euros) in sustainable investments in total. The results show that participants invest more into sustainable funds than predicted by this strategy, indicating that participants actively choose to invest more sustainably, and that this effect is not due to a desire to diversify.

Related to this conjecture, our results show that participants (particularly those with more sustainable investments) are willing to further revise their investments towards more sustainability. Participants who were asked for what they would do after experiencing favorable performance of sustainable investments relative to conventional investments indicated that they would increase their sustainable investments. This suggests that participants may be willing to

shift this conjectured upper bound if the return on sustainable investments turned out to be relatively high.

The results of our study challenge the claim that financial considerations are the single most important driver for sustainable investments (Døskeland and Pedersen, 2016, 2021). Environmental impact information turns out to be similarly effective. This finding supports prior non-experimental literature (Apostolakis et al., 2018; Nilsson, 2008; Palacios-González and Chamorro-Mera, 2018; Wins and Zwergel, 2016) and experimental literature (Heeb et al., 2022, Siemroth and Hornuf, 2021), both of which show that emphasizing the potential environmental impact of sustainable investments promotes such investments. However, compared to previous studies that emphasized that either financial returns or environmental impacts matter (Barreda-Tarrazona et al., 2011; Bassen et al., 2019; Bauer et al., 2021), our study, to the best of our knowledge, is among the first to show that both aspects are similarly important.

In our control group, sustainable investments amounted to 60.49% of the total investment amount. This is slightly higher than the amount of 57% in Gutsche et al. (2020). The difference could be driven by the fact that we provided a short explanation of ESG factors in all groups, including the control group, while Gutsche et al. (2020) provided no information on ESG. The difference could also be driven by a general increase in the awareness of and interest in sustainable investments in recent years. Our financial and environmental impact information treatments add to the general information on ESG provided by stressing the investment's effectiveness in terms of returns or environmental impact, respectively. Thus, our results support the use of financial return and environmental impact information for promoting sustainable investments.

In contrast to *H2* and *H2.1*, we do not find evidence that information increases satisfaction. Among the variables (*understandable, simple, informative, helpful*) that form the index for satisfaction, we find high reliability and accordance. Thus, it does not seem that there is, e.g., one lower-rated variable that counteracts the positive effect of others. The reasons why the manipulation of information did not yield increased satisfaction may be manifold and could for example be related to the layout or length of the information provided. Another reason could be that the individual differences between investors, such as financial literacy or biospheric and altruistic values, are stronger determinants of higher satisfaction than the information we provided.

5.2. Modes of preference elicitation

Testing *H3* yielded no evidence for the conjecture that a specific sustainability preference elicitation would significantly reduce the amount invested in sustainable funds or the satisfaction with the elicitation mode. Thus far, there is limited comparable research that examines how investment advisors should assess sustainability preferences (an exception is Bauer et al., 2021). We fill this gap in the literature and provide practical evidence to help industry to understand whether a general or a specific elicitation mechanism increases sustainable investments to a greater degree. In line with the intent of the new EU regulations, the results support making the elicitation of sustainability preferences mandatory, even though the specific format does not provide benefits exceeding those of the simpler general format. The participants' decision to invest sustainably did not seem to suffer from choice overload (Scheibehenne et al., 2010) by the more extensive, specific elicitation mode.

5.3. Individual differences in sustainable investment

Testing *Hypothesis 4* we find that investors who care more about biospheric values, are more financially literate and have higher income invested more sustainably. These results do not come as a surprise and are in line with the previous literature on values (Gutsche et al., 2020), literacy (Gutsche et al., 2020) and wealth (Cheah et al., 2011; Escrig-Olmedo et al., 2013; Gutsche et al., 2020). We have furthermore tested the widespread notion that sustainable investors tend to be predominantly female, young, and educated (Dorfleitner and Nguyen, 2016; Nilsson, 2008). We find that women and more educated participants in our study are indeed more likely to invest sustainably, while we find no significant effect of age on sustainable investments. We also observe that trust in ESG is a determinant of sustainable investments in line with other studies (Gutsche et al., 2020; Gutsche and Zwergel, 2020; Nilsson, 2008). Interestingly, greater risk tolerance was related to slightly lower sustainable investments. Vice versa, literature reports that sustainable investments are typically seen as less risky (Scholtens and van't Klooster, 2019; Verheyden et al. Feiner, 2016). Regarding experience with investing, we do not find a strong effect, a result that is in line with other studies that similarly report no such effect (Lagerkvist et al., 2020).

5.4. Limitations

This study has some limitations which are discussed now. First, the investment decisions were made with windfall gains, that is, money given for free, in contrast to actual investment decisions where money is mainly self-earned. Previous studies indicate that such windfall gains may increase the readiness to invest sustainably (Hoffmann et al., 2019). While the percentage of sustainable investments might thus be slightly higher in our study than with self-earned money, the same mechanisms likely apply for investors' decisions with self-earned money. Specifically, we would expect future experiments that do not use windfall gains to find lower

sustainable investments on average. Yet, we assume that the effect sizes of behavioral interventions in these studies could be even greater than the ones we document. Overall lower sustainable investments due to having no windfall gains allows for more room for interventions to increase sustainable investments.

A second potential limitation is that we observe investments not in actual capital markets, but in a controlled experimental context. To increase external validity, we designed our experiment in close cooperation with several banks and the Austrian Financial Markets Authority (FMA) to ensure that it closely mimics an actual investment decision. Finally, we employed an incentivized design involving actual investments on the stock market to closely mimic investors' potential payoffs in the situation we wished to model.

6. Conclusion and policy implications

This paper empirically examines how information provided to investors and the elicitation of sustainability preferences affects sustainable investment decisions. Previous research has focused on financial return information or moral considerations, mostly in isolation. We extend these studies by testing the effect of financial return information, environmental impact information as well as the combination of both. Moreover, to the best of our knowledge, we are the first to test two versions of sustainability preference elicitation mechanisms in a financial consultation context, in a way that is in line with existing regulations in a large economic area. Next to the contribution to the literature, this paper also provides policy-oriented insights into the recent EU regulation (EU) 2021/2616 that has come into effect in August 2022. These insights are likely to be of interest also for non-EU countries who are in the process of considering making the elicitation of sustainability preferences and the provision of sustainability-related information to investors mandatory.

The experimental results draw a multi-faceted picture of investment. Our results indicate that emphasizing the environmental impact of sustainable investments, and through this addressing investors' perception of the effectiveness of sustainable investments, can increase the amount invested in sustainable funds. Information on the possibility of earning financial returns with sustainable assets also increased sustainable investments but combining the two types of information did not yield a greater effect than providing just one type of information in isolation. Satisfaction with the information received about ESG investment was unaffected by what information was given. Allowing investors to be more specific about where to put their ESG investment did not substantially affect the level of ESG investments or the satisfaction with the way ESG investment advice was given.

While sustainable investments have gained in prominence in the recent past, many investors and prospective investors are still not aware of this option (Brunen and Laubach, 2022; Gutsche and Zwergel, 2020; Wins and Zwergel, 2016). If these investors are not explicitly asked and informed about sustainable investment options, many will therefore likely remain unaware of the option to invest sustainably even if they would, in principle, be inclined towards investing sustainably. This may present a behavioral barrier which results in an incomplete translation of their values into investment decisions (Bauer et al., 2021; Brunen and Laubach, 2022; Diouf et al., 2016; Nilsson, 2008; Paetzold and Busch, 2014; Vyvyan et al., 2007; Wins and Zwergel, 2016), contributing to the so-called value-action gap that describes why sustainable values often are not transformed into sustainable behavior (Haider et al., 2019; Kollmuss and Agyeman, 2002).

Our article carries several policy implications. Emphasizing the environmental impact of investments could be an important tool for mobilizing sustainable investments. This should therefore be part of policy discussions. The decision to invest sustainably should not only be perceived as a pathway to financial returns, but also as an avenue for personal impact.

Moreover, satisfaction with financial advice does not suffer from giving investors the possibility to be more specific in their choice where to invest sustainably. Our results underline the importance of new EU regulations that mandate providing retail investors with more information and a mandatory specific choice regarding ESG investments. Our results support the direction the EU legislation has taken.

Our results further suggest that policy should aim to transparently outline the impact of investments on the environment. Trust is a central determinant of sustainable investments (Gutsche et al., 2020; Gutsche and Zwergel, 2020; Nilsson, 2008). Lack of trust due to, e.g., sustainability washing (UNCTAD, 2021), greenwashing or cheap talk may be detrimental to a successful transition towards a more sustainable economy. Thus, to promote this transition, policy measures may be necessary. These can take the form of, on the one hand, strict and clear guidelines for sustainable investment products that make the impact of these investments transparent and counteract cheap talk. Our results regarding the investment decision and the specific sustainability preference elicitation show that investors favor Fund D which fulfills a legal definition of sustainability – specifically the "EU taxonomy for sustainable activities", as defined by EU Regulation (EU) 2020/852. Such clear – and regulatorily-backed – labels may thus increase the uptake of sustainable investment products in the first place. Financial advisors and institutions could use these regulatory standards in their communication to increase sustainable investments. Also, such regulations may increase trust in the information which in turn leads to higher investments. Future research should test this conjecture.

Further research could also investigate the effect of providing financial and environmental impact information on stock market participation. We investigated the allocation of a given investment amount into sustainable or conventional options, but not the decision of how much to invest on the stock market vs. keeping money at a regular bank account, for example. Given the need for more sustainable investments and, at the same time, challenges like high inflation

and poverty in old age, research should delve into the role of information as an instrument for increasing stock market participation and, at the same time, sustainable investments. To this end, the present study shows that the design of information can impact financial decisions such as increasing sustainable ESG investments.

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Appendix

Financial return and environmental impact information promotes ESG investments:

Evidence from a large, incentivized online experiment

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Disclaimer

We hereby declare that this paper reports all experimental sessions and treatments conducted within the course of this study. Instructions in German language and experimental data are available from the authors upon request.

Appendix A. Sample characteristics and descriptive statistics

Table A.1. Balance table by information treatment.

	None	Financial	Environ- mental	Combi- nation	Total sample	<i>p</i> - value
	<i>M</i> (<i>SD</i>), f (%)	<i>M</i> (<i>SD</i>), f (%)	<i>M</i> (<i>SD</i>), f (%)	<i>M</i> (<i>SD</i>), f (%)	<i>M</i> (<i>SD</i>), f (%)	
Biosph. values	5.91 (1.14)	5.97 (1.09)	6.07 (0.94)	6.05 (1.10)	6.00 (1.07)	0.045
Altruist. values	5.83 (1.09)	5.84 (1.04)	5.94 (0.94)	5.92 (1.10)	5.88 (1.04)	0.191
Househ. inc.	2.04 (0.89)	2.04 (0.96)	2.05 (0.92)	2.10 (0.88)	2.06 (0.91)	0.679
Fin. literacy	0.80 (0.28)	0.82 (0.27)	0.78 (0.29)	0.79 (0.29)	0.80 (0.28)	0.233
Age (in years)	48.78 (15.56)	48.58 (15.75)	47.58 (15.27)	47.88 (15.54)	48.20 (15.53)	0.518
Gender						0.385
Female	233 (41.4%)	219 (39.7%)	261 (45.6%)	259 (45.7%)	972 (43.1%)	
Male	329 (58.4%)	332 (60.1%)	310 (54.2%)	307 (54.1%)	1278 (56.7%)	
Non-binary	1 (0.2%)	1 (0.2%)	1 (0.2%)	1 (0.2%)	4 (0.2%)	
Highest educ.						0.734
Prim / Sec Deg.	14 (2.5%)	10 (1.8%)	14 (2.4%)	13 (2.3%)	51 (2.3%)	
Vocational Train.	97 (17.2%)	102 (18.5%)	96 (16.8%)	95 (16.8%)	390 (17.3%)	
Sec. Degr. (no A-levels)	59 (10.5%)	62 (11.2%)	62 (10.8%)	62 (10.9%)	245 (10.9%)	
High sch. (A-levels)	176 (31.3%)	175 (31.7%)	189 (33.0%)	203 (35.8%)	743 (33.0%)	
College / foreperson	16 (2.8%)	20 (3.6%)	30 (5.2%)	19 (3.4%)	85 (3.8%)	
University deg.	195 (34.6%)	174 (31.5%)	175 (30.6%)	164 (28.9%)	708 (31.4%)	
Other degree	6 (1.1%)	9 (1.6%)	6 (1.0%)	11 (1.9%)	32 (1.4%)	
Househ. child.	0.41 (0.77)	0.47 (0.83)	0.43 (0.80)	0.39 (0.77)	0.42 (0.79)	0.391
Experience	3.17 (2.92)	3.46 (2.92)	3.40 (3.00)	3.16 (2.93)	3.30 (2.95)	0.207

Risk pref.	5.41 (2.45)	5.53 (2.47)	5.57 (2.28)	5.44 (2.48)	5.49 (2.42)	0.675
Trust in ESG	5.20 (1.30)	5.38 (1.28)	5.40 (1.19)	5.23 (1.34)	5.31 (1.28)	0.023
Relevance of the incentive	5.19 (1.78)	5.22 (1.87)	5.27 (1.74)	5.30 (1.72)	5.24 (1.77)	0.694
Email provided	0.86 (0.34)	0.87 (0.34)	0.89 (0.32)	0.91 (0.29)	0.88 (0.32)	0.133
Attention check						0.964
Passed	352 (62.52%)	386 (69.93%)	379 (66.26%)	395 (69.66%)	1512 (67.08%)	
Other resp.	3.92 (1.53)	3.99 (1.45)	3.96 (1.53)	3.97 (1.50)	3.96 (1.50)	
Survey wave	1.61 (0.49)	1.62 (0.49)	1.61 (0.49)	1.61 (0.49)	1.61 (0.49)	0.971

Note. f = frequency, % = percent of control group ($N = 563$), financial return information ($N = 552$), environmental impact information ($N = 572$), both ($N = 567$) and the full sample ($N = 2254$), M = mean, SD = standard deviation. For categorical variables (gender, education), frequencies, and percentage of the sample (in parentheses) are displayed. For the other variables, the mean and standard deviation is presented.

^a Statistics on number of children in the household and household income are calculated over the 10 imputed datasets, as described in Section 3.2. Measured variables.

Table A.2. Balance table by mode of sustainability preference elicitation treatment.

	General	Specific	Total sample	<i>p</i> -value
	<i>M</i> (<i>SD</i>), f (%)	<i>M</i> (<i>SD</i>), f (%)	<i>M</i> (<i>SD</i>), f (%)	
Biosph. values	6.01 (1.05)	5.99 (1.08)	6.00 (1.07)	0.598
Altruist. values	5.90 (1.03)	5.86 (1.05)	5.88 (1.04)	0.321
Househ. inc.	2.09 (0.93)	2.03 (0.89)	2.06 (0.91)	0.132
Fin. literacy	0.79 (0.29)	0.80 (0.28)	0.78 (0.28)	0.326
Age (in years)	48.08 (15.46)	48.32 (15.60)	48.20 (15.53)	0.712
Gender				0.126
Female	481 (42.8%)	491 (43.5%)	972 (43.1%)	
Male	643 (57.2%)	635 (56.2%)	1278 (56.7%)	
Non-binary	0 (0.0%)	4 (0.4%)	4 (0.2%)	
Highest educ.				0.091
Prim / Sec	28 (2.5%)	23 (2.0%)	51 (2.3%)	
Deg.				
Vocational	179 (15.9%)	211 (18.7%)	390(17.3%)	
Train.				
Sec. Degr. (no A-levels)	113 (10.1%)	132 (11.7%)	245 (10.9%)	
High sch. (A-levels)	367 (32.7%)	376 (33.3%)	743 (33.0%)	
College / foreperson	44 (3.9%)	41 (3.6%)	85 (3.8%)	
University deg.	381 (33.9%)	327 (28.9%)	708 (31.4%)	
Other degree	12 (1.1%)	20 (1.8%)	32 (1.4%)	
Househ. child.	0.43 (0.80)	0.42 (0.79)	0.42 (0.79)	0.733
Experience	3.30 (2.92)	3.29 (2.97)	3.230 (2.95)	0.950
Risk pref.	5.48 (2.43)	5.50 (2.41)	5.49 (2.42)	0.848
Trust in ESG	5.29 (1.27)	5.33 (1.30)	5.31 (1.28)	0.509
Relevance of the incentive	5.21 (1.76)	5.27 (1.79)	5.24 (1.77)	0.416
Email provided	0.88 (0.33)	0.88 (0.32)	0.88 (0.32)	0.662

Attention check				0.892
Passed	748 (66.55%)	764 (67.97%)	1512 (67.08%)	
Other resp.	3.95 (1.50)	3.96 (1.51)	3.96 (1.50)	
Survey wave	1.61 (0.49)	1.62 (0.49)	1.61 (0.49)	0.687

Note. f = frequency, % = percent of general elicitation ($N = 1124$), specific elicitation ($N = 1130$), and the full sample ($N = 2254$), M = mean, SD = standard deviation. For categorical variables (gender, education), frequencies, and percentage of the sample (in parentheses) are displayed. For the other variables, the mean and standard deviation is presented.

^a Statistics on number of children in the household and household income are calculated over the 10 imputed datasets, as described in Section 3.2. Measured variables.

We provide characteristics of both survey waves and the full sample in Table A.3. The representative sample is balanced in terms of gender while the investor sample mirrors the overrepresentation of males among investors (Ebert, Grote, & Christine, 2019; Holmen, Holzmeister, Kirchler, Stefan, & Wengström, 2021). We detect no significant differences with regards to age. We find that education, household income, experience in investing and financial literacy are higher in the retail investor sample than in the representative sample. Compared to other studies (Gutsche et al., 2020) the financial literacy of the retail investor is slightly higher, while that in the representative sample is lower. This finding and the observed higher risk preference of the retail investor sample are in line with previous research comparing finance professionals with the general population (Holmen et al., 2021). We furthermore observe that biospheric and altruistic values higher in the retail investor sample.

Table Error! No text of specified style in document..3. Descriptive statistics of sample characteristics.

	Retail investor	Population	Full sample
	<i>M(SD)</i> , f (%)	<i>M(SD)</i> , f (%)	<i>M(SD)</i> , f (%)
Gender			
Female	261 (30.0%)	711 (51.4%)	972 (43.1%)
Male	606 (69.6%)	672 (48.6%)	1278 (56.7%)
Non-binary	4 (0.5%)	0 (0.0%)	4 (0.2%)
Age (in years)	47.69 (13.83)	48.52 (16.50)	48.20 (15.52)
Income ^a			
Less than 1000 euros	11 (1.26%)	62 (4.49%)	73 (3.24%)
1001 to 2000 euros	67 (7.68%)	309 (22.36%)	376 (16.68%)
2001 to 3000 euros	167 (19.15%)	321 (23.22%)	488 (21.65%)
3001 to 4000 euros	189 (21.67%)	298 (21.56%)	487 (21.61%)
4001 to 5000 euros	181 (20.76%)	214 (15.48%)	395 (17.52%)
5001 to 6000 euros	117 (13.42%)	93 (6.73%)	209 (9.27%)
6001 to 7000 euros	57 (6.54%)	37 (2.68%)	94 (4.17%)
7001 to 8000 euros	22 (2.52%)	20 (1.45%)	42 (1.86%)
8001 euros or more	61 (7.00%)	28 (2.03%)	90 (3.99%)
Household: children ^a	0.47 (0.81)	0.40 (0.78)	0.42 (0.79)
Household income ^a	2.29 (0.99)	1.91 (0.83)	2.06 (0.91)
Highest educational level			
Prim/Sec Deg.	12 (1.38%)	39 (2.82%)	51 (2.26%)
Vocational Train.	101 (11.60%)	289 (20.90%)	390 (17.30%)
Sec. Degr. (no A-levels)	72 (8.27%)	173 (12.51%)	245 (10.87%)
High School (A-levels)	287 (32.95%)	456 (32.97%)	743 (32.96%)
College/foreperson	42 (4.82%)	43 (3.11%)	85 (3.77%)
University deg.	337 (38.69%)	371 (26.83%)	708 (31.41%)
Other degree	20 (2.29%)	12 (0.87%)	32 (1.42%)
Experience			
Not invested	53 (6.08%)	722 (52.21%)	775 (34.3%)
Less than 1 year	34 (3.90%)	59 (4.27%)	93 (4.1%)
1 – 2 years	75 (8.61%)	98 (7.09%)	173 (7.7%)
3 – 4 years	87 (9.99%)	93 (6.72%)	180 (8.0%)
5 – 6 years	67 (7.69%)	91 (6.58%)	158 (7.0%)
7 – 8 years	56 (6.43%)	47 (3.40%)	103 (4.6%)
9 – 10 years	51 (5.86%)	50 (3.62%)	101 (4.5%)
More than 11 years	448 (51.44%)	223 (16.12%)	671 (29.8%)
Financial literacy	0.90 (0.20)	0.74 (0.31)	0.80 (0.28)
Biospheric values	6.21 (0.81)	5.87 (1.18)	6.00 (1.07)

Altruistic values	6.04 (0.80)	5.78 (1.16)	5.88 (1.04)
Risk preference	6.51(2.20)	4.85 (2.33)	5.49 (2.42)

Note. f = frequency, % = percent of the full sample ($N = 2254$), M = mean, SD = standard deviation. For categorical variables (gender, income, education, experience), frequencies, and percentage of the sample (in parentheses) are displayed. For the other variables, the mean and standard deviation is presented.

^a Statistics on income, number of children in the household and the resulting household income are calculated over the 10 imputed datasets, as described in Section 3.2. Measured variables.

Table **Error! No text of specified style in document.**4. Summary statistics by survey wave.

Variable	Retail investor	Population	Full sample
	$M(SD)$, f (%)	$M(SD)$, f (%)	$M(SD)$, f (%)
Sustainable investments (%)	0.69 (0.26)	0.64 (0.29)	0.66 (0.28)
Sustainable investments (euros)	411.91 (154.50)	383.35 (174.61)	394.39 (167.67)
Conventional Fund A (euros)	68.58 (88.10)	93.29 (100.17)	83.74 (96.42)
Conventional Fund B (euros)	119.52 (106.13)	123.36 (109.05)	121.87 (107.92)
Sustainable Fund C (euros) ^a	181.98 (127.35)	173.84 (133.44)	176.99 (131.16)
Sustainable Fund D (euros) ^a	229.93 (138.30)	209.51 (151.27)	217.40 (146.70)
Satisfaction with info	5.83 (0.96)	5.45 (1.21)	5.60 (1.13)
Satisfaction with elicitation	5.86 (1.02)	5.50 (1.22)	5.64 (1.16)
General sust. pref. elicited.			
0% - no sustainable products	27 (3.10%)	60 (4.34%)	87 (3.86%)
Up to 25%	108 (12.40%)	264 (19.09%)	372 (16.50%)
Up to 50%	244 (28.01%)	405 (29.28%)	649 (28.79%)
Up to 75%	264 (30.31%)	289 (20.90%)	553 (24.53%)
100% - only sustainable	228 (26.18%)	365 (26.39%)	593 (26.31%)
Specific sust. pref. elicited. ^b			
Avoid negative impact	124 (30.02%)	227 (34.19%)	351 (32.59%)
Sustainable according to law	195 (47.22%)	332 (50.00%)	527 (48.93%)
Both	94 (22.76%)	105 (15.81%)	199 (18.48%)
Acceptance of recommendation	239 (26.41%)	547 (39.55%)	776 (34.42%)
Deviation from recommendation	15.81 (95.99)	14.48 (117.11)	15.00 (109.41)
Stability of investment ^c	0.33 (0.47)	0.34 (0.47)	0.34 (0.47)

Note. f = frequency, % = percent of the retail investor sample ($N = 871$), the population sample ($N = 1383$), and the full sample ($N = 2254$), M = mean, SD = standard deviation. For categorical variables (general elicitation, specific elicitation), frequencies, and percentage of the sample (in parentheses) are displayed. For the other variables, the mean and standard deviation is presented.

^a Fund C and D match the product categories in the specific mode of elicitation: Fund C avoids negative impacts on ESG-factors while fund D invests in activities that are considered sustainable by law.

^b Only participants in the respective treatment and who chose 25% or more in the general elicitation were shown the specific elicitation. Thus, the reported sample size of the specific elicitation is reduced to $N = 1077$.

^c Stability of investment decisions equals is binary: the investment is revised on one or both hypothetical scenarios (stability = 0); the investment is not revised (stability = 1).

Appendix B. Full models for information and sustainable investments

Table B.1. OLS models: Impact of information on sustainable investments.

	(1)	(2)	(3)	(4)
Financial return	0.055*** (0.017)	0.055** (0.017)	0.049** (0.016)	0.041** (0.015)
Environmental impact	0.082*** (0.016)	0.082*** (0.016)	0.071*** (0.016)	0.063*** (0.015)
Financial * environmental	-0.064** (0.023)	-0.064** (0.023)	-0.058** (0.022)	-0.045* (0.022)
Specific elicitation mode		0.001 (0.012)	0.003 (0.011)	0.005 (0.011)
Biospheric values			0.071*** (0.009)	0.063*** (0.009)
Altruistic values			0.003 (0.009)	-0.014 (0.009)
Household income			0.018** (0.006)	0.024** (0.007)
Financial literacy			0.090*** (0.021)	0.074*** (0.022)
Age				-0.001 (0.000)

	(1)	(2)	(3)	(4)
Male				-0.038** (0.012)
Non-binary				-0.323* (0.129)
Education				0.017*** (0.004)
Children				0.012+ (0.007)
Experience				0.003 (0.002)
Risk preference				-0.011*** (0.003)
Trust in ESG				0.043*** (0.005)
Relevance incentive				0.003 (0.003)
Email address				-0.001 (0.017)
Attention check				-0.032** (0.012)
Survey wave				-0.001 (0.013)
Constant	0.605*** (0.012)	0.604*** (0.013)	0.062+ (0.037)	0.001 (0.058)
<i>N</i>	2254	2254	2254	2254
Adjusted <i>R</i> ²	0.012	0.011	0.116	0.172
<i>F</i>	9.797	7.349	37.795	24.338
<i>p</i>	0.000	0.000	0.000	0.000

Note. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Robust standard errors in parentheses. Information is included as dummy variables (0 = no financial return information, 1 = financial return information; and same for environmental impact information). Description of the dummy variables: email address dummy (0 = no, 1 = yes), attention check question dummy (0 = passed attention check, 1 = failed), survey wave dummy (1 = retail investor sample, 2 = population sample).

To test for interaction effects of our treatment variables (financial return and/or environmental impact information and the mode of sustainability preference elicitation), we calculate OLS regression models. In Model (1), we regress sustainable investments on the treatment dummies indicating whether financial return and/or environmental impact information was presented including the interaction with the elicitation mode dummy. In Model (2) we use satisfaction with the information as dependent variable, and in Model (3) we use satisfaction with the sustainability preference elicitation. We do not find a significant interaction of the information with the mode of eliciting sustainability preferences (all p -values > 0.35).

Table B.2. OLS models: Interaction of information and mode of elicitation.

	(1)	(2)	(3)
Financial return	0.049* (0.024)	0.028 (0.096)	0.172+ (0.098)
Environmental impact	0.078*** (0.023)	0.104 (0.095)	0.145 (0.097)
Fin. * environ.	-0.070* (0.033)	-0.029 (0.135)	-0.127 (0.139)
Specific elicitation mode	-0.011 (0.023)	-0.057 (0.096)	-0.029 (0.098)
Fin. * elicitation	0.011 (0.033)	0.120 (0.136)	-0.049 (0.139)
Environ. * elicitation	0.008 (0.033)	0.073 (0.135)	-0.039 (0.138)
Fin. * Env. * elicit.	0.012 (0.047)	-0.121 (0.191)	0.110 (0.196)
Constant	0.610*** (0.016)	5.535*** (0.067)	5.537*** (0.069)
N	2254	2254	2254
Adjusted R^2	0.010	0.000	0.001
F	4.332	0.936	1.469
p	0.000	0.477	0.174

Table B.2. OLS models: Interaction of information and mode of elicitation.

	(1)	(2)	(3)
<i>Note.</i> $^+ p < 0.1$, $* p < 0.05$, $** p < 0.01$, $*** p < 0.001$. Robust standard errors in parentheses. Information is included as dummy variables (0 = no financial return information, 1 = financial return information; and same for environmental impact information). The mode of eliciting sustainability preferences is included as dummy (0 = general elicitation, 1 = specific elicitation).			

Appendix C. Customer satisfaction with the information

Table C.1 OLS models: Impact of information on satisfaction with the information.

	(1)	(2)	(3)	(4)
Financial	0.088 (0.068)	0.088 (0.068)	0.056 (0.058)	0.008 (0.055)
Environmental	0.140* (0.067)	0.140* (0.067)	0.099+ (0.058)	0.047 (0.055)
Fin. * env.	-0.089 (0.095)	-0.089 (0.095)	-0.065 (0.082)	0.009 (0.078)
Specific elicitation		0.010 (0.048)	0.018 (0.041)	0.005 (0.039)
Biospheric values			0.223*** (0.032)	0.156*** (0.031)
Altruistic values			0.208*** (0.033)	0.129*** (0.031)
Household income			0.075** (0.023)	0.058* (0.024)
Financial literacy			0.947*** (0.077)	0.697*** (0.079)
Age				0.002 (0.001)
Male				-0.102* (0.043)
Non-binary				-0.192 (0.465)
Education				0.045*** (0.014)
Children				-0.057* (0.027)

	(1)	(2)	(3)	(4)
Experience				0.004 (0.009)
Risk preference				0.040*** (0.009)
Trust in ESG				0.229*** (0.017)
Relevance incentive				0.036** (0.012)
Email address				0.243*** (0.062)
Attention check				-0.209*** (0.043)
Survey wave				0.021 (0.048)
Constant	5.507*** (0.048)	5.502*** (0.053)	2.063*** (0.138)	1.187*** (0.209)
<i>N</i>	2254	2254	2254	2254
Adjusted <i>R</i> ²	0.001	0.001	0.258	0.348
<i>F</i>	1.904	1.437	99.153	60.996
<i>p</i>	0.127	0.219	0.000	0.000

Note. ⁺ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Robust standard errors in parentheses. Information is included as dummy variables (0 = no financial return information, 1 = financial return information; and same for environmental impact information). Description of the dummy variables: email address dummy (0 = no, 1 = yes), attention check question dummy (0 = passed attention check, 1 = failed), survey wave dummy (1 = retail investor sample, 2 = population sample).

Appendix D. Full models for each survey wave

We show the full models as preregistered in each survey wave. In **Error! Reference source not found.**, Models (1) and (2) are the full models for the full sample ($N = 2254$) and sustainable investments. Models (3) and (4) use the retail investor sample with application of the exclusion criteria of survey wave 1. Models (5) and (6) show the effects for the full retail

investor sample while applying the exclusion criteria of survey wave 2. Models (7) and (8) use the retail investor sample according to the preregistration of survey wave 2.

Table D.1. OLS models: Impact of information on sustainable investments by survey wave.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Financial	0.055*** (0.017)	0.041** (0.015)	0.034 (0.029)	0.028 (0.027)	0.037 (0.025)	0.025 (0.023)	0.067** (0.022)	0.053** (0.020)
Environ.	0.082*** (0.016)	0.063*** (0.015)	0.057* (0.029)	0.047+ (0.028)	0.052* (0.024)	0.037 (0.023)	0.101*** (0.022)	0.080*** (0.020)
Fin.* env.	-0.064** (0.023)	-0.045* (0.022)	-0.048 (0.041)	-0.050 (0.038)	-0.037 (0.035)	-0.024 (0.033)	-0.082** (0.031)	-0.063* (0.028)
Spec. eli.		0.005 (0.011)		-0.014 (0.019)		-0.011 (0.017)		0.015 (0.014)
Bio. val.		0.063*** (0.009)		0.086*** (0.017)		0.070*** (0.014)		0.061*** (0.011)
Alt. val.		-0.014 (0.009)		-0.027 (0.017)		-0.014 (0.015)		-0.015 (0.011)
Hous. inc.		0.024** (0.007)		-0.005 (0.012)		0.004 (0.009)		0.040*** (0.010)
Fin. lit.		0.074*** (0.022)		0.038 (0.054)		0.046 (0.044)		0.083** (0.026)
Age		-0.001 (0.000)		0.001 (0.001)		0.000 (0.001)		-0.001 (0.000)
Male		-0.038** (0.012)		-0.050* (0.023)		-0.062** (0.019)		-0.029+ (0.015)
N.-binary		-0.323* (0.129)		-0.345** (0.127)		-0.349** (0.126)		
Education		0.017*** (0.004)		0.011 (0.007)		0.012* (0.006)		0.019*** (0.005)
Children		0.012+ (0.007)		0.011 (0.013)		0.009 (0.011)		0.012 (0.010)
Experien.		0.003 (0.002)		0.007 (0.006)		0.005 (0.004)		0.001 (0.003)
Risk pref.		-0.011*** (0.003)		-0.013* (0.005)		-0.012** (0.004)		-0.010** (0.003)
TrustESG		0.043*** (0.005)		0.035*** (0.008)		0.036*** (0.007)		0.047*** (0.006)
Rel. inc.		0.003		0.006		0.005		0.001

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Email		(0.003)		(0.006)		(0.005)		(0.005)
		-0.001		0.014		-0.002		-0.006
		(0.017)		(0.036)		(0.031)		(0.021)
Att. check		-0.032**				-0.039 ⁺		-0.031*
		(0.012)				(0.020)		(0.015)
Survey		-0.001						
		(0.013)						
Constant	0.605***	0.001	0.662***	0.046	0.651***	0.095	0.575***	-0.040
	(0.012)	(0.058)	(0.021)	(0.134)	(0.017)	(0.097)	(0.016)	(0.063)
<i>N</i>	2254	2254	620	620	871	871	1383	1383
Adj. <i>R</i> ²	0.012	0.139	0.002	0.092	0.004	0.100	0.015	0.154
<i>F</i>	9.797	20.202	1.403	4.695	2.048	6.357	8.173	15.768
<i>p</i>	0.000	0.000	0.241	0.000	0.106	0.000	0.000	0.000

Note. ⁺ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Robust standard errors in parentheses. Information is included as dummy variables (0 = no financial return information, 1 = financial return information; and same for environmental impact information). Description of the dummy variables: email address dummy (0 = no, 1 = yes), attention check question dummy (0 = passed attention check, 1 = failed), survey wave dummy (1 = retail investor sample, 2 = population sample).

In Table D.2, Models (1) and (2) are the full models for the full sample ($N = 2254$) and satisfaction with the information. Models (3) and (4) use the retail investor sample with application of the exclusion criteria of survey wave 1. Models (5) and (6) show the effects for the full retail investor sample while applying the exclusion criteria of survey wave 2. Models (7) and (8) use the retail investor sample according to the preregistration of survey wave 2.

Table D.2. OLS models: Impact of information on satisfaction with information by survey wave.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Financial	0.088	0.008	0.104	0.046	0.185*	0.074	0.034	-0.040
	(0.068)	(0.055)	(0.105)	(0.098)	(0.092)	(0.085)	(0.092)	(0.072)
Environ.	0.140*	0.047	0.204 ⁺	0.173 ⁺	0.292**	0.210*	0.045	-0.062
	(0.067)	(0.055)	(0.105)	(0.099)	(0.091)	(0.084)	(0.092)	(0.072)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fin.* env.	-0.089 (0.095)	0.009 (0.078)	-0.108 (0.147)	-0.083 (0.138)	-0.192 (0.130)	-0.069 (0.119)	-0.030 (0.130)	0.062 (0.101)
Spec. eli.		0.005 (0.039)		0.015 (0.070)		0.026 (0.060)		-0.012 (0.050)
Bio. val.		0.156*** (0.031)		0.070 (0.062)		0.093+ (0.051)		0.179*** (0.039)
Alt. val.		0.129*** (0.031)		0.149* (0.061)		0.128* (0.053)		0.120** (0.039)
Hous. inc.		0.058* (0.024)		0.047 (0.041)		0.038 (0.034)		0.073* (0.034)
Fin. lit.		0.697*** (0.079)		0.344+ (0.195)		0.415* (0.161)		0.735*** (0.092)
Age		0.002 (0.001)		0.002 (0.003)		0.004 (0.003)		0.001 (0.002)
Male		-0.102* (0.043)		-0.057 (0.084)		-0.062 (0.070)		-0.135* (0.054)
N.-binary		-0.192 (0.465)		-0.467 (0.457)		-0.472 (0.457)		
Education		0.045*** (0.014)		0.055* (0.025)		0.040+ (0.021)		0.046** (0.017)
Children		-0.057* (0.027)		-0.063 (0.048)		-0.041 (0.040)		-0.061+ (0.036)
Experien.		0.004 (0.009)		-0.014 (0.022)		-0.018 (0.015)		0.010 (0.011)
Risk pref.		0.040*** (0.009)		0.041* (0.018)		0.042** (0.015)		0.040*** (0.012)
TrustESG		0.229*** (0.017)		0.199*** (0.030)		0.205*** (0.026)		0.240*** (0.021)
Rel. inc.		0.036** (0.012)		0.068*** (0.020)		0.063*** (0.017)		0.010 (0.017)
Email		0.243*** (0.062)		-0.055 (0.129)		0.040 (0.113)		0.305*** (0.075)
Att. check		- (0.043)				-0.115 (0.072)		- (0.054)
Survey		0.021 (0.048)						
Constant	5.507*** (0.048)	1.187*** (0.209)	5.738*** (0.075)	2.163*** (0.479)	5.638*** (0.064)	1.949*** (0.353)	5.423*** (0.065)	1.277*** (0.224)
N	2254	2254	620	620	871	871	1383	1383
Adj. R ²	0.012	0.139	0.002	0.092	0.004	0.100	0.015	0.154

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>F</i>	9.797	20.202	1.403	4.695	2.048	6.357	8.173	15.768
<i>p</i>	0.000	0.000	0.241	0.000	0.106	0.000	0.000	0.000

Note. $^+p < 0.1$, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$. Robust standard errors in parentheses. Information is included as dummy variables (0 = no financial return information, 1 = financial return information; and same for environmental impact information). Description of the dummy variables: email address dummy (0 = no, 1 = yes), attention check question dummy (0 = passed attention check, 1 = failed), survey wave dummy (1 = retail investor sample, 2 = population sample).

Appendix E. Modes of sustainability preference elicitation

We regress sustainable investments on the specific sustainability preference with the general elicitation method as the reference point (Table E.1). In Model (1), we regress sustainable investments on the elicitation mode dummy. In Model (2) we add the financial return and environmental impact information dummies, the explanatory and the control variables. In Models (3) and (4) we use the same models with satisfaction with the elicitation as the dependent variable. F-tests of Models (1) and (2) are not significant ($p > 0.36$), while F-tests of Models (3) and (4) are highly significant ($p < 0.001$). The results of all Models indicate no significant relationship between the mode of elicitation and sustainable investments or satisfaction with the sustainability preference elicitation.

Table E.1. OLS models: Impact of mode of elicitation on sustainable investments (Model (1) & (2)) and satisfaction with information (Model (3) & (4)).

	Sustainable Investments		Satisfaction with elicitation	
	(1)	(2)	(3)	(4)
Specific elicit.	0.002 (0.012)	0.005 (0.011)	-0.044 (0.049)	-0.053 (0.040)
Financial		0.041** (0.015)		0.058 (0.057)
Environmental		0.063*** (0.015)		0.028 (0.056)
Fin. * env.		-0.045* (0.022)		0.044 (0.080)
Biospheric values		0.063*** (0.009)		0.149*** (0.031)
Altruistic values		-0.014 (0.009)		0.127*** (0.032)
Household		0.024** (0.007)		0.058* (0.025)
Financial literacy		0.074*** (0.022)		0.743*** (0.081)
Age		-0.001 (0.000)		0.001 (0.001)

	Sustainable Investments		Satisfaction with elicitation	
	(1)	(2)	(3)	(4)
Male		-0.038** (0.012)		-0.050 (0.044)
Non-binary		-0.323* (0.129)		-0.188 (0.477)
Education		0.017*** (0.004)		0.033* (0.014)
Children		0.012+ (0.007)		-0.040 (0.027)
Experience		0.003 (0.002)		0.017+ (0.009)
Risk preference		-0.011*** (0.003)		0.038*** (0.010)
Trust in ESG		0.043*** (0.005)		0.259*** (0.017)
Relevance		0.003 (0.003)		0.025* (0.013)
Email address		-0.001 (0.017)		0.260*** (0.064)
Attention check		-0.032** (0.012)		-0.178*** (0.044)
Sample		-0.001 (0.013)		0.096+ (0.049)
Constant	0.656*** (0.008)	0.001 (0.058)	5.663*** (0.035)	1.027*** (0.215)
<i>N</i>	2254	2254	2254	2254
Adjusted <i>R</i> ²	0.000	0.172	0.000	0.347
<i>F</i>	0.032	24.338	95.311	60.907
<i>p</i>	0.858	0.000	0.364	0.000

Note. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Robust standard errors in parentheses. Information is included as dummy variables (0 = no financial return information, 1 = financial return information; and same for environmental impact information). Description of the dummy variables: email address dummy (0 = no, 1 = yes), attention check question dummy (0 = passed attention check, 1 = failed), survey wave dummy (1 = retail investor sample, 2 = population sample).

Appendix F. Treatment heterogeneity

We examine treatment heterogeneity among participants concerning the effect of the financial as well as the environmental impact information. We extend the previous literature on heterogeneity across income (Døskeland & Pedersen, 2021) by investigating heterogeneity of information and biospheric as well as altruistic values and financial literacy.

We hypothesize that individual characteristics (values, household income and financial literacy) should increase sustainable investments. Other experimental studies also indicate heterogeneity in the treatment effect across income, as financial return information increased sustainable investments particularly among wealthy investors (Døskeland & Pedersen, 2021). Given the relevance of values and financial literacy, we also test for heterogenous treatment effects related to these characteristics. Thus, we pose the following hypothesis:

H5: There is heterogeneity in the treatment effect across biospheric values, altruistic values, household income and financial literacy as well as individual differences in sustainable investments.

To test whether there is heterogeneity in the effects of the financial return and environmental impact information across individual differences (values, household income and financial literacy), we conduct further OLS regressions (Table F.1). We split each of the variables (household income, biospheric and altruistic values and financial literacy) into two groups at the median. In contrast to our expectations, only one interaction effect (financial * environmental * altruistic values) holds up under multiple hypothesis testing correction.

Table F.1. OLS models: Interaction of information and individual characteristics on sustainable investments.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fin.	0.068** (0.023)	0.061** (0.022)	0.110*** (0.026)	0.078** (0.024)	0.032 (0.025)	0.008 (0.024)	0.096*** (0.026)	0.079** (0.024)
Env.	0.067** (0.023)	0.059** (0.022)	0.115*** (0.026)	0.083*** (0.025)	0.072** (0.025)	0.052* (0.023)	0.113*** (0.025)	0.085*** (0.023)
Fin. * env.	-0.073* (0.033)	-0.058 (0.032)	-0.150*** (0.037)	-0.109** (0.035)	-0.037 (0.037)	-0.022 (0.034)	-0.116** (0.036)	-0.081* (0.033)
Elicit.		0.004 (0.011)		0.004 (0.011)		0.003 (0.011)		0.004 (0.011)
BV	0.173*** (0.022)	0.121*** (0.022)		0.112*** (0.012)		0.112*** (0.012)		0.112*** (0.012)
AV		0.037** (0.013)	0.173*** (0.023)	0.060** (0.023)		0.038** (0.013)		0.037** (0.013)
HHI		0.033** (0.013)		0.034** (0.013)	0.024 (0.024)	0.007 (0.023)		0.033* (0.013)
FL		0.042*** (0.012)		0.041*** (0.012)		0.043*** (0.012)	0.119*** (0.024)	0.078*** (0.022)
Fin. * BV	-0.036 (0.032)	-0.038 (0.030)						
Env. * BV	0.012 (0.032)	0.011 (0.030)						
Fin. * env. * BV	0.018 (0.045)	0.013 (0.043)						
Fin. * AV			-0.087** (0.033)	-0.063* (0.031)				
Env. * AV			-0.057+ (0.033)	-0.028 (0.031)				

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fin. * env. * AV ^a			0.131** (0.047)	0.092* (0.044)				
Fin. * HHI					0.040 (0.034)	0.057+ (0.032)		
Env. * HHI					0.016 (0.034)	0.024 (0.031)		
Fin. * env. * HHI					-0.050 (0.049)	-0.053 (0.044)		
Fin. * FL							-0.073* (0.034)	-0.063* (0.031)
Env. * FL							-0.050 (0.033)	-0.034 (0.031)
Fin. * env. * FL							0.087+ (0.047)	0.048 (0.044)
Constant	0.519*** (0.016)	0.271*** (0.052)	0.499*** (0.018)	0.264*** (0.052)	0.591*** (0.018)	0.292*** (0.052)	0.535*** (0.018)	0.256*** (0.052)
Control variables	NO	YES	NO	YES	NO	YES	NO	YES
<i>N</i>	2254	2254	2254	2254	2254	2254	2254	2254
Adj. <i>R</i> ²	0.098	0.180	0.067	0.181	0.016	0.180	0.032	0.181
<i>F</i>	35.854	22.491	24.215	22.633	6.128	22.531	11.492	22.581
<i>p</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
--	-----	-----	-----	-----	-----	-----	-----	-----

Note. ⁺ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Robust standard errors in parentheses. Fin. = Financial-return information. Env. = Environmental-impact information. BV = Biospheric values. AV = Altruistic values. HHI = Household income. FL = Financial literacy. Information is included as dummy variables (0 = no financial return information, 1 = financial return information; and same for environmental impact information). Description of the dummy variables: email address dummy (0 = no, 1 = yes), attention check question dummy (0 = passed attention check, 1 = failed), survey wave dummy (1 = retail investor sample, 2 = population sample). Control variables: Age, gender, education, experience, risk preference, trust in ESG, relevance of the incentive, email address dummy (0 = no, 1 = yes), attention check question dummy (0 = passed control question, 1 = failed), sample dummy (1 = retail investor sample, 2 = representative sample).
^a Only this effect holds after multiple hypothesis testing correction.

Appendix G. Exploratory results

Appendix G.1. Stability of investment decisions

Table G.1. Logit model: The impact of information on stability of investment.

	(1)	(2)	(3)	(4)
Financial	-0.025 (0.126)	-0.025 (0.126)	-0.027 (0.126)	-0.046 (0.129)
Environmental	-0.126 (0.126)	-0.126 (0.126)	-0.127 (0.126)	-0.104 (0.129)
Fin. * env.	-0.002 (0.179)	-0.003 (0.179)	-0.004 (0.179)	-0.004 (0.183)
Specific		-0.031 (0.089)	-0.028 (0.090)	-0.042 (0.092)
Biospheric values			0.031 (0.070)	0.021 (0.073)
Altruistic values			-0.030 (0.071)	0.002 (0.074)
Household			0.066 (0.049)	0.048 (0.058)
Financial literacy			0.062	0.027

	(1)	(2)	(3)	(4)
Age			(0.168)	(0.189) 0.015*** (0.003)
Male				0.115 (0.101)
Non-binary				0.607 (1.050)
Education				-0.098*** (0.032)
Children				0.069 (0.064)
Experience				0.042* (0.020)
Risk preference				-0.070*** (0.022)
Trust in ESG				-0.087* (0.039)
Relevance				-0.054+ (0.029)
Email address				-0.258+ (0.143)
Attention check				-0.322*** (0.104)
Survey wave				0.054 (0.114)
Constant	-0.612*** (0.088)	-0.596*** (0.099)	-0.789*** (0.301)	-0.038 (0.493)
<i>N</i>	2254	2254	2254	2254

Note. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Robust standard errors in parentheses. Information is included as dummy variables (0 = no financial return information, 1 = financial return information; and same for environmental impact information). Description of the dummy variables: email address dummy (0 = no, 1 = yes), attention check question dummy (0 = passed attention check, 1 = failed), survey wave dummy (1 = retail investor sample, 2 = population sample).

Appendix G.2. Deviation from the investment recommendation

The deviation from the recommendation considers the difference between the financial advisors' recommendations based on the sustainability preference elicitation and the actual investment. In this analysis, we explore whether financial and environmental impact information affect the deviation from the recommendation. Investors and especially those who start to invest are often unfamiliar or feel uninformed (Brunen & Laubach, 2022; Wins & Zwergel, 2016) and seek assistance of a financial advisors (Paetzold et al., 2015), who gives recommendations based on their stated preferences. Financial and environmental impact information might decrease the deviation from the recommendation by providing reasons for sustainable investments.

We calculate the deviation from the recommendation for investments in sustainable products as the difference between the total amount invested in sustainable funds minus the recommended amount for sustainable funds. The recommended amount was calculated based on the participants' preferences in the elicitation, e.g., a choice of 75% in the general elicitation resulted in a recommendation of 450 euros for sustainable investments (225 euros in each sustainable fund) and 150 euros for conventional investment (75 euros for each conventional fund).

We find that 34.43% of the participants accept the non-binding recommendation. For the others, the deviation from the recommended amount is on average greater than zero ($M = 15.00$, $SD = 109.41$), indicating that participants invest about 15 euros more in sustainable funds than recommended based on the preference elicitation.

To explore whether financial and environmental impact information increase the deviation from the non-binding recommendation, we conduct a multiple OLS-regression analysis. We use the same models as for sustainable investments (Table 2 in the main text), but with the

absolute deviation from the recommendation for sustainable investments as the dependent variable. While F-tests of Models (1) and (2) are not significant (min. $p > 0.33$), F-tests of Models (3) and (4) are ($p < 0.05$).

The results (Table G.2) yield no convincing evidence of financial and environmental impact information affecting the deviation from recommended sustainable investment amount. The reason for this finding might be that this recommendation for sustainable investments was based on the stated sustainability preferences. High stated sustainability preferences resulted in a recommendation to invest more of the endowment in sustainable funds and vice versa for low stated sustainability preferences. If participants indicate their preferences close to the actual preference, the resulting recommendation closely reflects their preferences. Moreover, the elicited sustainability preferences were already affected by the information (see Table 3 in the main text), before taking the investment decision. This effect then translated to recommendations for more sustainable investments.

Thus, we do not observe a value-action gap (Haider et al., 2019; Kollmuss and Agyeman, 2002) between preferences and actions (“investments”). Indeed, the value-action gap, which also seems to exist in investment decisions (Bauer et al., 2021; Brunen and Laubach, 2022; Diouf et al., 2016; Nilsson, 2008; Paetzold and Busch, 2014; Vyvyan et al., 2007; Wins and Zwergel, 2016) might occur one step earlier in the decision-making process, namely between the actual values and the reported preference.

Table G.2. OLS models: Impact of information on deviation from recommendation.

	(1)	(2)	(3)	(4)
Financial	5.860 (6.554)	5.780 (6.553)	6.003 (6.539)	5.258 (6.562)
Environmental	-3.285 (6.496)	-3.376 (6.495)	-1.970 (6.493)	-2.928 (6.513)
Fin. * env.	-4.916 (9.220)	-4.830 (9.218)	-5.568 (9.198)	-3.662 (9.232)
Specific elicit.		6.878 (4.609)	6.679 (4.602)	7.101 (4.610)
Biospheric values			-4.823 (3.600)	-4.739 (3.651)
Altruistic values			-3.857 (3.657)	-4.035 (3.722)
Household			3.757 (2.579)	4.210 (2.908)
Financial literacy			10.658 (8.603)	7.954 (9.427)
Age				-0.311 ⁺ (0.171)
Male				5.078 (5.083)
Non-binary				-43.804 (55.363)
Education				0.806 (1.608)
Children				1.515 (3.152)
Experience				2.245* (1.026)
Risk preference				-1.756 (1.120)
Trust in ESG				3.415 ⁺ (1.965)
Relevance				-0.098 (1.454)
Email address				4.193 (7.399)
Attention check				7.537 (5.145)

	(1)	(2)	(3)	(4)
Survey wave				4.351 (5.727)
Constant	14.982** (4.612)	11.598* (5.138)	46.469** (15.390)	28.012 (24.917)
<i>N</i>	2254	2254	2254	2254
Adjusted <i>R</i> ²	0.000	0.000	0.006	0.007
<i>F</i>	0.786	1.147	2.591	1.828
<i>p</i>	0.502	0.333	0.008	0.014

Note. ⁺ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Robust standard errors in parentheses. Information is included as dummy variables (0 = no financial return information, 1 = financial return information; and same for environmental impact information). Description of the dummy variables: email address dummy (0 = no, 1 = yes), attention check question dummy (0 = passed attention check, 1 = failed), survey wave dummy (1 = retail investor sample, 2 = population sample).

Appendix H. Multiple hypothesis testing

We control for multiple hypothesis testing by including the p-values of all hypothesis tests in the Benjamini-Hochberg procedure (Benjamini-Hochberg, 1995), applying the of the “p.adjust” function in in the “stats” package version 3.6.2 in R. The p-values of the regression coefficients are derived from the respective model that includes our experimental manipulations (information and mode of sustainability preference elicitation) and the explanatory variables (biospheric and altruistic values, household income, and financial literacy).

Table H.1 Results of the multiple hypothesis testing correction.

	p-value	p-Value	p-value	Hypoth.	Hypoth.
		Bonfer- roni	Benjamini- Hochberg	holds Bonfer- roni	holds Benjamini- Hochberg




H4. Biospheric values are related to higher sustainable investments	< 0.0001	< 0.0001	< 0.0001	1	1
H1. Impact info increases sustainable investments	< 0.0001	< 0.001	< 0.0001	1	1
H4. Financial literacy is related to more sustainable investments	< 0.0001	< 0.001	< 0.0001	1	1
H1. Financial info increases sustainable investments	0.002	0.050	0.013	0	1
H4. Household income is related to higher sustainable investments	0.007	0.172	0.034	0	1
H1. Combined info increases sustainable investments	0.009	0.229	0.037	0	1
H5. Heterogeneity altruistic values and combined info	0.010	0.258	0.037	0	1
H5. Heterogeneity altruistic values and financial info	0.030	0.769	0.096	0	0
H5. Heterogeneity financial literacy and financial info	0.050	1	0.144	0	0
H2. Impact info increases satisfaction	0.088	1	0.229	0	0
H5. Heterogeneity income and financial return information	0.130	1	0.289	0	0
H5. Heterogeneity financial literacy and impact info	0.148	1	0.289	0	0
H1.1. Impact info increases sustainable investments more than financial info	0.153	1	0.289	0	0
H5. Heterogeneity financial literacy and combined info	0.156	1	0.289	0	0
H5. Heterogeneity altruistic values and impact info	0.214	1	0.371	0	0

H5. Heterogeneity income and combined information	0.234	1	0.381	0	0
H2. Financial info increases satisfaction	0.335	1	0.485	0	0
H5. Heterogeneity biospheric values and financial info	0.337	1	0.485	0	0
H3. Mode of elicitation affects satisfaction	0.355	1	0.485	0	0
H2. Combined info increases satisfaction	0.430	1	0.538	0	0
H2.2. Impact info increases satisfaction more than financial info	0.435	1	0.538	0	0
H5. Heterogeneity income and impact info	0.518	1	0.612	0	0
H5. Heterogeneity biospheric values and impact info	0.565	1	0.638	0	0
H4. Altruistic values are related to higher sustainable investments	0.750	1	0.778	0	0
H3. Mode of elicitation affects sustainable investment	0.768	1	0.778	0	0
H5. Heterogeneity biospheric values and combined info	0.778	1	0.778	0	0

Note. The first column contains the hypothesis with the resulting p-values in the second column in ascending order. Columns 3 and 4 show the expected p-values according to the Bonferroni-correction and the Benjamini-Hochberg procedure. Columns 5 and 6 indicate, whether the hypothesis holds multiple hypothesis testing (0 = no, 1 = yes).

Appendix I. Experimental material (translated to English)

PAGE	TEXT (Participants' View)	Scale
Welcome	<p>Dear Sir or Madam,</p> <p>in this study we are interested in investment decisions. This study is conducted by the [author's institute] and funded by [name of funding] as a contribution to basic research.</p> <p>As part of the study, you have the opportunity to invest 600 euros in various investment products. Among all participants, [10/5] will be randomly selected and their investment decision will be financed and realized out by us. These [10/5] persons will be paid the value of the investment after one year. The winners will be informed in about two weeks by email.</p> <p>There are no right or wrong answers in this survey. Please answer spontaneously and truthfully. By conscientiously and completely filling out the questionnaire, you are making a significant contribution to our scientific research!</p> <p>Many thanks for your support.</p> <p>[Names of authors] Contact: xxx@xxx.com</p>	
	GDPR	
Data protection	<p>By confirming the stated conditions at the bottom of this page, you can proceed to the questionnaire.</p> <p>[data protection statement]</p> <p>I hereby confirm that I agree and consent to the above conditions.</p>	
	Explanation ESG	
Info ESG	<p>Please imagine the following situation. You are at an investment consultation at your bank because you want to invest 600 euros and are informed about various relevant aspects and investment options:</p> <p>In addition to classic factors such as liquidity, time horizon, return on investment and risk, ESG factors can also be taken</p>	

	<p>into account when investing your assets. ESG is an abbreviation for Environmental, Social and Governance. Specifically, you can decide whether you want to invest in investment products that pursue sustainability goals in these three areas while adhering to certain criteria. The diagram below illustrates this concept.</p> <div style="text-align: center; background-color: #1a3d4d; color: white; padding: 5px; margin-bottom: 10px;">Environmental, Social and Governance (ESG) Factors</div> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>ENVIRONMENT</p> <ul style="list-style-type: none"> • Climate protection • Adaptation to climate change • Sustainable use of water and marine resources • Prevention of waste and pollution • Promotion of biodiversity and ecosystems </div> <div style="text-align: center;">  <p>SOCIAL</p> <ul style="list-style-type: none"> • Social working conditions, including avoidance of slavery and child labor • Local and indigenous communities • Avoidance of conflicts and humanitarian crises • Promotion of health and safety • Good employee relations and diversity </div> <div style="text-align: center;">  <p>GOVERNANCE</p> <ul style="list-style-type: none"> • Fair compensation for executives • Prevention of bribery and corruption • Board diversity and structure • Fair tax strategy </div> </div> <p>Please click "Next" when you have read the criteria of these factors.</p>	
	Information [random allocation to one of the 4 possibilities]	
No information	[no text]	For treatment 1 and 2
Financial return information	<p>You receive even more information about ESG investing during the consultation:</p> <p>Earning returns with ESG investments</p> <p>By investing in companies that take ESG factors into account and report on them transparently, you can achieve returns and minimize specific risks. Companies that consider ESG factors often operate in industries of the future and are focused on achieving long-term success. An ESG investment can also pay off financially by minimizing specific risks related to environmental disasters, failure to respect labor rights, or rising carbon prices.</p>	For treatment 3 and 4
Environmental impact information	<p>You receive even more information about ESG investing during the consultation:</p> <p>Promoting sustainability with ESG investments</p> <p>By investing in companies that take ESG factors into account and report on them transparently, you can have an impact and promote sustainability. Investing in companies that consider ESG factors means strengthening their development</p>	For treatment 5 and 6

	opportunities and position in the market. With an ESG investment, you can make a difference and ensure that your money does not support companies that exploit nature and people or are among the worst CO2 emitters.	
Fin. & Env. Information	[show both, financial and environmental impact information]	For treatment 7 and 8
	Elicitation of sustainability preferences	
Text for all	Based on the information received: Please indicate how much of the 600 euros you would like to invest sustainably according to ESG criteria. According to your selection below, the next page will suggest how you could divide your investment amount of 600 euros among different funds. You can adjust this suggestion however you wish.	For treatment 1 - 8
General elicitation	What is the minimum amount of your investment that should go into investment products that meet ESG sustainability criteria? <i>[general sustainability preference elicitation]</i> <ul style="list-style-type: none"> ○ 0 % - no sustainable products [1] ○ up to 25 % [2] ○ up to 50 % [3] ○ up to 75 % [4] ○ up to 100 % - only sustainable products [5] 	For treatment 1-8
Specific elicitation [If in the <i>general elicitation</i> 25% or more is selected]	If you choose an ESG investment, you can choose one or both of the following two product categories. <i>[specific sustainability preference elicitation]</i> <ul style="list-style-type: none"> ○ Investment products that avoid important negative impacts on ESG factors. [1] ○ Investment products that invest in activities that are considered sustainable according to legal requirements (Disclosure Regulation, Taxonomy Regulation). [2] 	For treatment 2, 4, 6, and 8
	Investment decision	
Investment decision	Your bank advisor will now present you with four funds and, based on your input, tell you how you can allocate your 600 euros.	

Fund	Fund A	Fund B	Fund C	Fund D
Orientation	Conventional		Sustainable	
Type	Fund with focus on energy and finance	Fund with focus on information technology and healthcare	Fund that avoids negative impacts on ESG factors	Fund that invests in activities that are considered sustainable by law
Risk and return profile	6	6	6	6
Performance in the last year	Greater than 30 %	Greater than 30 %	Greater than 30 %	Greater than 30 %
Largest shares by sector	Finance, Oil, Gas	Microelectronics, Semiconductors, Agricultural products	Insulation technology, Metal recycling, Electricity	Plant engineering, Wind energy, Semiconductors

You can now accept or change the following proposal. **To do so, enter the amount in the respective box.**

Suggestion Fund A: €	Suggestion Fund B: €	Suggestion Fund C: €	Suggestion Fund D: €	
150	150	150	150	
Your investment in fund A:	Your investment in fund B:	Your investment in fund C:	Your investment in fund D:	Sum
<input type="text" value="150"/>	<input type="text" value="150"/>	<input type="text" value="150"/>	<input type="text" value="150"/>	<input type="text" value="600"/>

Please indicate an amount

The amount of investment must total 600 euros. Remember that [ten/five] participants will be randomly selected, where this decision will be implemented and paid out after one year according to the development of the funds.

Revision Investment [randomized question order]

Text for all

Imagine it is August 2022 and your advisor is now reporting to you how the investments previously described to you have performed in the market, giving you the opportunity to adjust your investments.

Revision conventional

Assume that the **conventional investments have 5% more increase in value** than the sustainable investments. **Would you adjust your sustainable investments?** *[revision_conv]*

- significantly reduce [1]
- reduce a little [2]
- neither reduce nor increase [3]
- increase a little [4]
- significantly increase [5]

Revision sustainable

Assume that **sustainable investments have 5% more increase in value** than the conventional investments. **Would you adjust your sustainable investments?** *[revision_sust]*

- significantly reduce [1]
- reduce a little [2]
- neither reduce nor increase [3]
- increase a little [4]

	○ significantly increase [5]	
	Questions about satisfaction with info texts	
	Finally, we are interested in your opinion.	
Satisfaction Info	The information I received at the beginning about ESG investing was (As a reminder, the information is shown again below). ... understandable [<i>sat_info_under</i>] ... simple [<i>sat_info_easy</i>] ... informative [<i>sat_info_info</i>] ... helpful [<i>sat_info_help</i>] ... trustworthy [<i>trust_info</i>]	1 = totally disagree; 7 = totally agree
	[Screenshot of information, according to treatment]	
	Questions about satisfaction with the elicitation	
Satisfaction with elicitation	The way I was asked how much I would like to invest in ESG investment products was... (As a reminder, this choice is shown again below as a screenshot). ... understandable [<i>sat_elicite_under</i>] ... simple [<i>sat_elicite_easy</i>] ... informative [<i>sat_elicite_info</i>] ... helpful [<i>sat_elicite_help</i>] ... trustworthy [<i>trust_elicite</i>]	1 = totally disagree; 7 = totally agree
	[Screenshot of information, according to treatment]	
Randomized Order of Questionnaire Blocks Start		
	Questions for values [randomized question order]	
Values	Please indicate how important the following values are to you as guiding principles in your life.	1 = totally against my; 7 = of utmost importance
Biospheric values	Preventing pollution: protection of natural resources [<i>values_pollution</i>]	DeGroot (2007, 2008)
	Respecting the earth: respectful treatment of the environment [<i>values_respect</i>]	
	Unity with nature: living in harmony with nature [<i>values_unity</i>]	
	Protecting the environment: preserving nature [<i>values_protect</i>]	
Altruistic values	Equality: equal opportunities for all [<i>values_equality</i>]	
	A world at peace: free of war and conflict [<i>values_peace</i>]	
	Social justice: correcting injustice [<i>values_justice</i>]	
	Helpfulness: working for the welfare of others [<i>values_help</i>]	
	Questions for motives and trust [randomized question order]	

Trust	<p>Please indicate how strongly you agree with the following statements:</p> <p>I trust that providers follow ESG guidelines. <i>[trust_ESG]</i></p>	<p>1 = totally disagree; 7 = totally agree; adapted from Nilsson (2008) and Wins & Zwergel (2016)</p>
	<p>Questionnaire Financial Literacy [randomized question order]</p>	
Financial Literacy	<p>Suppose you have 100 euros credit balance in your savings account. This balance earns interest at 2% per year and you leave it in this account for 5 years. What do you think: How much will your balance be after 5 years? <i>[literacy_interest_rates]</i></p> <ul style="list-style-type: none"> <input type="radio"/> higher than 102 euros [1] <input type="radio"/> exactly 102 euros [2] <input type="radio"/> lower than 102 euros [3] <input type="radio"/> do not know [4] <p>Suppose the interest rate on your savings account is 1% per year and the inflation rate is 2% per year. What do you think: After one year, will you be able to buy as much, more or less than today with the balance of the savings account? <i>[literacy_inflation]</i></p> <ul style="list-style-type: none"> <input type="radio"/> more than today [1] <input type="radio"/> as much as today [2] <input type="radio"/> less than today [3] <input type="radio"/> do not know [4] <p>Do you agree with the following statement, "Investing in stocks of a single company is less risky than investing in a fund with stocks of similar companies"? <i>[literacy_risk]</i></p> <ul style="list-style-type: none"> <input type="radio"/> agree [1] <input type="radio"/> disagree [2] <input type="radio"/> do not know [3] 	Lusardi (2008)
	<p>Attention check</p>	
Attention check for retail investor sample	<p>In which of the following countries did you already invest at the stock market? Please do not tick anything here and leave the answer blank, this is a control question. <i>[attention_check]</i></p> <ul style="list-style-type: none"> <input type="radio"/> Germany [1] <input type="radio"/> Austria [2] <input type="radio"/> USA [3] 	

	<ul style="list-style-type: none"> ○ China [4] ○ Other countries [5] 	
Attention check for population sample	<p>In which of the following countries do you have your bank accounts (savings account, checking account, etc.)? Please do not tick anything here and leave the answer blank, this is a control question. [attention_check]</p> <ul style="list-style-type: none"> ○ Germany [1] ○ France [2] ○ USA [3] ○ China [4] ○ Other countries [5] 	
	Questionnaire investments	
Risk preference	<p>How would you rate your risk preference in terms of financial investments? [risk_preference]</p>	<p>0 = totally not risk taking to 10 = totally risk taking; Dohmen et al., (2011)</p>
Investments	<p>Do you have money invested in stocks, funds or bonds? [invested_yes_no]</p> <ul style="list-style-type: none"> ○ yes [1] ○ no, I also have no interest [2] ○ no, but I'm very interested [3] 	
Experience in investing [if previous question is answered with yes]	<p>For approximately how many years have you had experience as an investor with stocks, funds, bonds, etc.? [experience]</p> <ul style="list-style-type: none"> ○ less than 1 year [1] ○ 1 to 2 years [2] ○ 3 to 4 years [3] ○ 5 to 6 years [4] ○ 7 to 8 years [5] ○ 9 to 10 years [6] ○ more than 11 years [7] 	
Randomized Order of Questionnaire Blocks End		
	Lastly, we would like you to answer a few questions about yourself:	
Gender	<p>Which gender do you feel you belong to? [gender]</p> <ul style="list-style-type: none"> ○ female [1] ○ male [2] ○ non-binary [3] 	

Age	Please indicate your age in years: [open; from 18 to 120] [<i>age</i>]	
Education	<p>Please indicate your highest level of education completed: [<i>education</i>]</p> <ul style="list-style-type: none"> <input type="radio"/> primary/secondary degree [1] <input type="radio"/> vocational training [2] <input type="radio"/> second degree without A-levels [3] <input type="radio"/> high school with A-Levels [4] <input type="radio"/> college / foreperson course / master (craftsmen) [5] <input type="radio"/> university (university/university of applied sciences) [6] <input type="radio"/> other [7] 	
Household income	<p>Please provide the monthly net household income of all persons currently living permanently in your household: (Household income is the sum of the income of all persons living together in a household and can be made up of various sources of income. Please refer to the current net monthly amount, e.g., after deduction of taxes and social security contributions, and add regular payments such as pensions, unemployment benefits, housing allowances, child support, alimony, etc. If you are not sure, please estimate the monthly amount). [<i>income</i>]</p> <ul style="list-style-type: none"> <input type="radio"/> below 1.000 euros [1] <input type="radio"/> 1,001 to 2,000 euros [2] <input type="radio"/> 2,001 to 3,000 euros [3] <input type="radio"/> 3,001 to 4,000 euros [4] <input type="radio"/> 4,001 to 5,000 euros [5] <input type="radio"/> 5,001 to 6,000 euros [6] <input type="radio"/> 6,001 to 7,000 euros [7] <input type="radio"/> 7,001 to 8,000 euros [8] <input type="radio"/> 8,001 euros or more [9] <input type="radio"/> no answer [99] 	Gutsche (2020)
Household size	<p>How many people including you live permanently in your household? [<i>household_size</i>]</p> <ul style="list-style-type: none"> <input type="radio"/> 1 person [1] <input type="radio"/> 2 persons [2] <input type="radio"/> 3 persons [3] <input type="radio"/> 4 persons [4] <input type="radio"/> 5 or more persons [5] 	

Household_c hildren	<p>How many of the people in your household are under 18? [<i>household_children</i>]</p> <ul style="list-style-type: none"> <input type="radio"/> none [0] <input type="radio"/> 1 person [1] <input type="radio"/> 2 persons [2] <input type="radio"/> 3 persons [3] <input type="radio"/> 4 persons [4] <input type="radio"/> 5 or more persons [5] 	
Relevance Incentive (only in population sample)	To me 600 euros is ... [<i>relevance_incentive</i>]	1 = no significant amount of money; 7= a significant amount of money
Best of Knowledge	I have answered in this study to the best of my knowledge and belief and my data may be processed [<i>best_of_knowledge</i>]	1 = totally disagree; 7 = totally agree
Email- Address	Among all participants, [10/5] will be randomly selected whose investment decision will actually be implemented and paid out. If you would like to participate in this prize draw, please enter your email address now: [open with check for correct input] [<i>email_adress</i>]	
Send results	Would you like to receive the results of the study? [<i>mail_results</i>]	
	<ul style="list-style-type: none"> <input type="radio"/> yes [1] <input type="radio"/> no [2] 	
End of Survey		
Thanks	Thank you very much for your participation! Your contribution helps us a lot. The questionnaire is now closed, you can now close this window. Contact: xxx@xxx.com	

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