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Daniel Engler, Gunnar Gutsche, and Andreas Ziegler

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Daniel Engler

University of Kassel, Institute of Economics

Nora-Platiel-Str. 4, 34109 Kassel, Germany

E-Mail: daniel.engler@uni-kassel.de

Phone: +49/561/804-7573

Gunnar Gutsche

Paderborn University, Faculty of Business Administration and Economics

Warburger Str. 100, 33098 Paderborn, Germany

E-Mail: gunnar.gutsche@uni-paderborn.de

Phone: +49/5251/60-3213

and

University of Kassel, Institute of Economics

Nora-Platiel-Str. 4, 34109 Kassel, Germany

E-Mail: gunnar.gutsche@uni-kassel.de

Phone: +49/561/804-7505

Andreas Ziegler

University of Kassel, Institute of Economics

Nora-Platiel-Str. 4, 34109 Kassel, Germany

E-Mail: andreas.ziegler@uni-kassel.de

Phone: +49/561/804-3038

Does the willingness to pay for sustainable investments differ between non-incentivized and incentivized choice experiments?

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Abstract

Based on a randomized controlled trial, this paper compares individual investment decisions in pre-registered non-incentivized and incentivized choice experiments to examine hypothetical bias. Using data from a representative sample of over 2,100 individual investors from Germany and France, our econometric analysis reveals that the willingness to pay for sustainable investments is not significantly higher in the non-incentivized setting than in the incentivized setting, which is contrary to predictions from previous studies. The results are robust to various explanations of hypothetical bias and experimental design choices. Individual characteristics tend to have similar estimated effects on the preference for sustainable investments in both experimental settings. The results of our experimental analysis provide insights into the reliability of previous stated choice experiments and guidance for future experiments in (sustainable) finance. Furthermore, our estimation results improve our understanding of individual investment decisions, which is crucial from a policy perspective since individual investors play an important role in financing the transition to a sustainable economy.

1. Introduction

In recent years, leading finance and economics journals have increasingly published studies with experiments in finance (e.g. Huber and Kirchler, 2023), where individuals make decisions in synthetic settings designed to answer finance-related research questions (e.g. Noussair, 2016). Examples include the individual propensity to check pension accounts (e.g. Bauer et al., 2022), debt repayment by bank customers (e.g. Bursztyn et al., 2019), or investment decisions of financial professionals (e.g. Kirchler et al., 2018). With the rapid growth of sustainable investing as a topic (e.g. Pastor et al., 2021), an increasing number of experiments also examine individual sustainable investment behavior (e.g. Riedl and Smeets, 2017; Gutsche and Ziegler, 2019; Bauer et al., 2021; Heeb et al., 2023; Filippini et al., 2024; Seifert et al., 2024). To measure investment behavior, the participants in these experiments often have to choose between several investment alternatives. Many recent experiments include financial incentives, in which either all participants (e.g. Kirchler et al., 2018; Bonnefon et al., 2025) or a subset of participants (e.g. Bauer et al., 2022; Gutsche et al., 2023; Heeb et al., 2023; Auzepy et al., 2024; Engler et al., 2024; Filippini et al., 2024; Seifert et al., 2024) receive a payment based on their decisions related to investments.

However, when budget or other constraints prevent the use of incentives, non-incentivized experiments such as in the case of stated choice experiments are useful (e.g. Mariel et al., 2021). Data from non-incentivized (stated) choice experiments are an important source to elicit individual preferences in various economic contexts (e.g. Johnston et al., 2017). A main advantage of such choice experiments is that they allow for the flexible consideration of different decision contexts that can mimic actual decision environments. Compared to simpler forms of non-incentivized (e.g. stated preference) experiments, they allow for deeper insights into individual decision making by quantifying the trade-offs individuals face when they choose between alternatives, such as investment products, and the relative importance of different attributes of alternatives, such as fees, returns, or sustainability in the case of investment products (e.g. Train, 2009). In this way, it is possible to estimate the willingness to pay for certain attributes of an alternative, such as sustainability. Therefore, non-incentivized (stated) choice experiments are also popular in the analysis of individual financial decisions, including individual decisions on sustainable investment products (e.g. Barreda-Tarrazona et al., 2011; Gutsche and Ziegler, 2019; Hartzmark and Sussman, 2019; Lagerkvist et al., 2020; Filippini et al., 2024). In many cases, these studies reveal a high willingness to pay for sustainable investments.

However, it is well-known that individuals may make different choices in (hypothetical) non-incentivized experimental settings than in the real world, and this difference is usually termed hypothetical bias (e.g. Murphy et al., 2005). To mitigate hypothetical bias, financial incentives are the main approach to align experimental choices more closely with real-world behavior. However, the empirical evidence on the effectiveness of incentives is nuanced and mixed (e.g. Camerer and Hogarth, 1999). Various factors, including the type of products or alternatives considered, the elicitation method used, and the sample population, can influence the differences between non-incentivized choices and incentivized or real-world choices (e.g. List and Gallet, 2001; Schmidt and Bijmolt, 2020). Hypothetical bias in non-incentivized choice experiments is particularly large in contexts where the alternatives are characterized by normative attributes associated with, for example, ecological or social consequences. For example, Johansson-Stenman and Svedsäter (2012) find that the estimated hypothetical willingness to contribute to a World Wildlife Fund project is much higher than the actual willingness to contribute.

Sustainable investment products are defined by at least one normative attribute (e.g. with respect to ecological and/or social sustainability characteristics). It is therefore suspected that the estimation results based on data from non-incentivized choice experiments focusing on sustainable investments are particularly affected by hypothetical bias (e.g. Bauer et al., 2021), i.e. individuals are expected to overstate their preference or willingness to pay for sustainable investments in (hypothetical) non-incentivized settings. To examine whether this is indeed the case, we examine three key research questions: (i) Do individual investors have a higher willingness to pay for sustainable investments in non-incentivized settings (i.e. non-incentivized choice experiments) than in incentivized settings (i.e. incentivized choice experiments)? (ii) Which factors lead to differences between the willingness to pay for sustainable investments in non-incentivized and incentivized settings? (iii) Do we identify the same relevant explanatory factors for individual sustainable investing in non-incentivized and incentivized settings?

To answer these questions, our empirical analysis is based on data from a large-scale computer-assisted representative online survey of a total of 2,153 individual investors from Germany and France, conducted from May to July 2021. We define individual investors as financial decision makers in the household who either previously or currently own investment products or have sufficient knowledge about investment products. In our pre-registered investment choice experiments, the participants were endowed with €500 and asked to choose six times among four (varying) bond funds that are actually traded on the capital market and that differ

especially in terms of their strength of sustainability. In a randomized controlled trial, these experiments were incentivized for one half of the participants and non-incentivized for the other half. For our experimental groups with incentivized choices, we actually implemented the investment decisions and paid the final portfolio values to ten randomly selected participants one year later. As in other economic disciplines (e.g. Andre et al., 2024), similar approaches with probabilistic incentive schemes, which are usually characterized by a low expected value of the payment per participant (in the single-digit euro range), have also become a widely used standard in (survey) experiments in finance to reduce hypothetical bias (e.g. Bauer et al., 2022; Gutsche et al., 2023; Heeb et al., 2023; Auzepy et al., 2024; Engler et al., 2024; Filippini et al., 2024; Seifert et al., 2024).

We also collected data on factors that have been identified in the literature as potential sources of hypothetical bias, i.e. of differences in choices in (hypothetical) non-incentivized experimental settings and in the real world, including socially desirable response behavior (e.g. Lusk and Norwood, 2009), strategic answering motives (e.g. Lloyd-Smith and Adamowicz, 2018), choice certainty (e.g. Loomis, 2014), knowledge about and familiarity with the goods in question (e.g. Sanjuán-López and Resano-Ezcaray, 2020; Schmidt and Bijmolt, 2020), cross-country variations (e.g. Ehmke et al., 2008), and experimental design choices (e.g. Penn et al., 2019). To examine the effect of experimental design choices on hypothetical bias, we slightly modified the experimental design for some participants: In two non-incentivized and incentivized experimental groups, the participants could additionally choose a safe option alternative, i.e. leave their endowment on a bank account, instead of investing in a bond fund. Finally, we collected information on individual characteristics that have been shown to be correlated with sustainable investments in previous studies.

We find that the individual willingness to pay for sustainable funds is not significantly higher in the non-incentivized settings (i.e. in the non-incentivized investment choice experiments) than in the incentivized settings (i.e. in the incentivized investment choice experiments). This core result holds regardless of the country considered and also whether a safe option is included as an additional alternative or not. The willingness to pay for sustainable investments in the non-incentivized choice experiments is not significantly higher even for individuals with stronger social desirability or strategic answering motives. Surprisingly, and contrary to our expectations, the estimated willingness to pay for sustainable investments is even higher in the incentivized experimental groups than in the non-incentivized groups. Finally, the esti-

mated correlations between individual characteristics and the preference for sustainable investments in the non-incentivized and incentivized choice experiments in Germany are qualitatively and quantitatively similar, and also similar to those in previous non-incentivized choice experiments with synthetic instead of real-market investment products (e.g. Gutsche and Ziegler, 2019).

Our empirical analysis contributes to several strands of the literature: First, we contribute to the literature on differences between individual decisions made in non-incentivized and incentivized experiments that include alternatives with normative attributes (e.g. Johannson-Stenman and Svedsäter, 2012; Menapace and Raffaelli, 2020). We show that individuals do not necessarily overstate their willingness to pay for normative attributes in non-incentivized settings compared to incentivized settings. In contrast to previous studies, the estimated willingness to pay is even lower when incentives are absent. Second, the use of data from representative samples in two different countries improves the generalizability and external validity of our experimental results and especially contributes to the scarce literature on cross-country differences in hypothetical bias (e.g. Ehmke et al., 2008), particularly with respect to the willingness to pay for normative attributes. Third, we provide a novel application of choice experiments by using tradable real-market investment products that are combined (for some experimental groups) with a validated probabilistic incentive-compatible scheme from behavioral economics that is increasingly used in experiments in finance as discussed above.

Fourth, we contribute to the literature on sustainable investing by examining and partly confirming the validity of previous non-incentivized investment choice experiments in experimental and sustainable finance, especially with respect to individual heterogeneity in the preference for sustainable investments. Our experimental results on the general willingness to pay for sustainable investments and its explanatory factors are similar to the results from previous studies which use synthetic instead of real-market investment products (e.g. Gutsche and Ziegler, 2019). Fifth, we contribute to the literature on experimental design choices by examining whether the presence or absence of a safe option leads to different results in terms of hypothetical bias and the explanatory factors of sustainable investments (e.g. Penn et al., 2019). We find that the magnitude of hypothetical bias and the main explanatory variables of sustainable investing are similar regardless of the presence or absence of a safe option. Overall, our experimental analysis contributes to a better understanding of sustainable investment behavior, which is crucial from a policy perspective since individual investors play an important

role in financing the transition to a sustainable economy. In addition, we provide guidance for the design of future experiments in (sustainable) finance.

The remainder of this paper is structured as follows: Section 2 describes the survey including the investment choice experiments and defines all relevant variables for the empirical analysis. Section 3 presents descriptive statistics, discusses the main estimation results, and describes several robustness checks. Section 4 concludes.

2. Data and variables

Our econometric analysis is based on data from pre-registered[1] non-incentivized and incentivized investment choice experiments included in a representative survey conducted in two languages among 2,153 individual investors from Germany (1,324 respondents) and France (829 respondents). The survey was carried out in collaboration with the professional market research institute Psyma+Consulting GmbH from May to July 2021. Following earlier studies (e.g. Gutsche and Ziegler, 2019), the target group of the survey consisted of household financial decision makers aged 18 or older who have gained experience with or gained sufficient knowledge about financial products with variable returns (e.g. bonds, bond funds, stocks, equity funds, or more complex assets). These restrictions were intended to guarantee that the respondents were familiar with similar decision-making situations in the real world like those in our choice experiments. Nevertheless, with this approach we are still able to consider a broad group of individual investors. Restricting the analysis to too specific groups of individual investors (e.g. only investors who already own sustainable investment products or customers of a specific bank) might instead not reflect the actual investment behavior in the market (e.g. Hartzmark and Sussman, 2019).

The survey consisted of eight different parts (A-H): Part A contained questions that allowed us to screen-out respondents who did not meet the abovementioned requirements for participation in the experiments. This part also included further questions about current forms of investments. Part B comprised general questions on investment and consumption behavior. Part C captured a variety of individual characteristics such as economic preferences, personality traits, or personal attitudes. Part D consisted of the investment choice experiments which are described in the next section. Part E captured further background information on the individual sustainable investment behavior and knowledge. It particularly contained measures to

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[1] https://osf.io/q2vng

capture individual financial performance perceptions concerning sustainable investments. Part F contained questions regarding low-carbon infrastructure. Part G contained questions on financial literacy and cognitive reflection. Finally, part H comprised further questions on the socio-demographic and socio-economic background.

2.1 Experimental design

Our empirical analysis is based on data from individual investors who were randomly assigned to one of several versions of an investment choice experiment. Based on an endowment of €500, the participants made six choices among real-market bond funds in all experiments.[2] Each choice situation was constructed by randomly drawing four out of 16 real-market bond funds that had been carefully selected in advance.[3] All participants obtained the same basic information on the setting and funds. They received a short explanation of the financial products these funds could invest in (i.e. corporate bonds, public bonds, cash, and other derivatives) and learned that all funds accumulated earnings, were traded in €, had similar risk-return profiles, and mainly invested in corporate bonds. We further explained that the funds differed in terms of the four different attributes *strength of sustainability*, *annual returns in the past two years*, *share of issuers of bonds from the European Union*, and *fees*. To prevent the participants from getting additional information on these funds, for example, via websites of financial information providers, we did not show the names of the funds. Thus, the participants could only read the information provided in the experiment. We therefore also avoid that familiarity with, for example, certain funds or fund providers affect our results. In each choice situation, the participants were able to re-read the explanations of the attributes. Table 1 shows the descriptions of these attributes, which were also shown to the participants.[4]

-- Insert Table 1 here --

The attribute *strength of sustainability* was the key attribute in our choice experiments. In line with Hartzmark and Sussman (2019), we distinguished between more sustainable funds and

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[2] We selected bond funds as investment product for this experiment since there are relatively low barriers for individual investors to invest in this type of fund (e.g. in terms of liquidity, minimum investment amount, and accessibility compared to e.g. single bonds). They can also directly finance sustainable projects by buying, for example, newly issued green bonds. Therefore, individual investors could have an environmental or social impact when they buy these funds (e.g. Tang and Zhang, 2020).

[3] We describe the selection process in detail in Part A of the Online Appendix.

[4] The wording of the texts shown to the participants can be found in Part B of the Online Appendix.

less sustainable funds by using the Morningstar Sustainability Rating. The Morningstar Sustainability Rating ranges between one and five globes, where a higher number of globes indicates a higher sustainability performance in terms of environmental, social, and governance criteria.[5] Hartzmark and Sussman (2019) find significant inflows for funds with a high rating of four or five globes and significant outflows for funds with a low rating of one or two globes. In contrast, they find no significant investor reactions to medium ratings of three globes. Accordingly, we did not include funds with three globes in our choice experiments. To avoid any positive or negative reactions to the (name of the) rating agency or the presentation of the rating with globes, we only explained that the strength of sustainability was measured by a company on the basis of a five-point scale ranging from "very low" to "very high." We therefore did not mention the name of the rating agency or the sustainability rating itself.

In addition to the attribute of interest, other attributes that are of relevance to a large proportion of participants are commonly included in choice experiments to describe the alternatives (e.g. Hoyos, 2010). Since individual investors tend to chase past returns (e.g. Sirri and Tufano, 1998), we also included the attribute *annual returns in the past two years*. This attribute captured the average annual return of the funds in the years 2019 and 2020 (in %) and ranged between -0.02% and 12.75%. Furthermore, individual investors prefer to invest in their domestic economy or country (e.g. Lewis, 1999). To conduct choice experiments without differences in attributes and levels in Germany and France, we included the attribute *share of issuers of bonds from the European Union (share of bond issuers from the EU* in the following). Instead of the countries of Germany or France themselves, we thus considered the European Union (EU) as the domestic economy. The attribute levels ranged between 0.00% and 83.23%, while the remaining percentage share related to issuers of bonds not from the EU, cash, and other financial products. Finally, given the relevance of fees (as main cost attribute) in investment decisions (e.g. Barber et al., 2005; Choi et al., 2010), the funds in our choice experiments differed in the amount of fees (in % of the investment amount) that can be incurred during the one-year investment period. The levels of the attribute *fees* were calculated as the sum of the front-up fee and the management fee of each fund during the one-year holding period and ranged between 0.44% and 6.67%. Figure 1 shows an exemplary choice situation without safe option.

-- Insert Figure 1 here --

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[5] Morningstar (2022) contains a detailed description of the Morningstar Sustainability Rating methodology.

The experimental setting was nearly identical for all participants. However, while the participants from Germany were randomly divided into four experimental groups ($T1_G$, $T2_G$, $T3_G$, $T4_G$), the participants from France were randomly divided into only two experimental groups ($T1_F$, $T2_F$, see Table 2). The experimental setting for these groups differed with respect to the presence or absence of incentivized choices, the safe option, and the corresponding information on the incentives or safe option. In addition to the basic information and explanations on the various fund attributes described above, the participants in the four experimental groups $T1_G$, $T2_G$, $T1_F$, and $T2_F$ without safe option were informed that they would be shown six times four different actively managed bond funds and that they would have to indicate in each of these six choice situations which of the four bond funds they would like to purchase for an investment amount of €500. The investments ran for exactly one year and were liquidated in July 2022, i.e. one year after the end of the survey. The participants further received examples explaining that if the value of the fund increased to €550, they would receive €550 minus the fund fees. Similarly, if the value of the fund decreased to €450, they would receive €450 minus the fees. The participants in the two specific experimental groups $T1_G$ and $T1_F$ without safe option and without incentivized choices were also asked to decide as if they were selecting the fund in reality in each choice situation and to take their personal financial situation into account.

-- Insert Table 2 here --

For the participants in the two experimental groups $T2_G$ and $T2_F$ without safe option and with incentivized choices, we followed previous experimental studies analyzing individual investment behavior and using probabilistic incentive schemes (e.g. Bauer et al., 2022; Gutsche et al., 2023; Heeb et al., 2023; Auzepy et al., 2024; Engler et al., 2024; Filippini et al., 2024; Seifert et al., 2024).[6] This allowed us to provide realistically high investment amounts and reduce administrative complexity. Previous review studies show that such an approach leads to only small, if any, differences compared to the case in which all participants are paid (e.g. Charness et al., 2016; Clot et al., 2018). Specifically, these participants received the information that ten people would be randomly selected from all participants.[7] For each of these

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[6] This validated probabilistic incentive-compatible scheme from behavioral economics is a widely used and accepted standard in (survey) experiments not only in finance, but also other economic disciplines such as environmental economics (e.g. Diederich and Goeschl, 2017; Andre et al., 2024; Engler et al., 2025).

[7] In addition to the 1,068 participants in the experimental groups with incentives considered in this paper, the investment choice experiments were also conducted for additional experimental groups and in other European countries with additional 2,477 participants. The additional experimental groups are not considered in this paper because they address different research questions. The additional countries are not considered in this study since

ten individual investors, one of the six investment decisions they made was randomly selected and realized by us after the end of the survey in July 2021. Also these participants were informed that the investments would run for exactly one year and were liquidated in July 2022. The selected participants were then paid the current value of their fund minus the fees. We also guaranteed the participants that all the information was true and would be implemented, and that they were completely free in their decisions.

By considering these four experimental groups in Germany and France, we can already examine the extent to which the preference for sustainable funds differs in non-incentivized and incentivized investment decisions, and whether there are differences across the two countries. In additional choice experiments, we examined the extent to which the inclusion of a safe option affects individual decisions in the aforementioned settings. The safe option in our context is a specific example for a no choice option, and its inclusion in choice experiments is often considered a best practice (e.g. Johnston et al., 2017) since it gives participants the option not to choose any of the alternatives presented, thus increasing the realism of the choice experiment. In fact, willingness to pay estimates can be different between settings with or without a no choice option (e.g. Penn et al., 2019), and the absence or presence of incentives can influence the frequency of selecting the no choice option (e.g. Lusk and Schroeder, 2004; Mørkbak et al., 2014). However, none of the aforementioned choice experiments in the field of individual sustainable investing has yet considered such a safe option.

For the two other experimental groups in Germany, $T3_G$ (without incentivized choices) and $T4_G$ (with incentivized choices), we included a safe option.[8] The participants in group $T4_G$ received almost the same information as the participants in groups $T2_G$ and $T2_F$. We added only one further alternative to each choice situation. In each of their six choice situations, the participants thus not only had four bond funds to choose from, but also a safe option in the form of a bank account (see Figure 2). Accordingly, the participants could leave their endowment on a bank account instead of investing in one of the bond funds. In this case, they would receive €500 in July 2022 if the corresponding decision would be randomly chosen after the

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no corresponding non-incentivized experimental group was included. In total, 3,545 participants were therefore part of all experimental groups with incentives, of which 10 were randomly selected as winners.

[8] Due to budget constraints, we could not implement all experimental variations in both countries. Therefore, we implemented the safe option only in Germany. For the same reason, we considered a reduced sample size for these two experimental groups.

survey in July 2022. Similarly, the participants in group T3$_G$ received almost the same information as the participants in groups T1$_G$ and T1$_F$, but they could also leave their endowment on a bank account.

-- Insert Figure 2 here –

2.2 Variables

Dependent variable and experiment-related explanatory variables

The dependent variable in our econometric analysis is *choice*. For each of the six choice situations, this variable takes the value of one for the alternative chosen by the participant, and zero for all non-chosen alternatives. As explanatory variables, we consider the attributes of the different funds and individual characteristics. We treat the attributes *annual returns in the past two years*, *share of bond issuers from the EU*, and *fees* as continuous variables, which allows us to directly include them in our econometric models. With respect to the main attribute of interest, *strength of sustainability*, which includes four categories, we consider the dummy variable *high sustainability* in our econometric analysis that takes the value of one for "very high" or "rather high," and zero for "very low" or "rather low." For the experimental groups T3$_G$ and T4$_G$, we additionally construct the alternative-specific constant *safe option* that takes the value of one for the bank account alternative and zero for the four bond funds in each choice situation. For the econometric analysis of differences in preferences for sustainable investments between non-incentivized and incentivized settings, we construct the dummy variable *non-incentivized* that takes the value of one if a participant was randomly assigned to the experimental groups T1$_G$, T3$_G$, or T1$_F$ without incentivized choices.

Individual characteristics for the heterogeneity analysis

For our heterogeneity analysis, which addresses the question of which factors lead to differences between the willingness to pay for sustainable investments in non-incentivized and incentivized settings, we consider some individual characteristics. To capture social desirability motives, we included the following six items from the Balanced Inventory of Desirable Responding (BIDR) developed by Paulhus (1984, 1991) in the survey: (i) "My first impression of people usually turns out to be right," (ii) "I am very confident of my judgement," (iii) "I always know why I like things," (iv) "I have received too much change from a salesperson without telling him or her," (v) "I am always honest towards other people," and (vi) "there have been occasions when I have taken advantage of someone." Items (i) to (iii) capture self-

deceptive enhancement and items (iv) to (vi) impression management. The respondents were asked to indicate the extent to which they agree with the statements on an ordinal five-point scale, ranging from "strongly disagree" to "strongly agree." After reversing the negative statements (iv) and (vi), we construct dummy variables for each item that take the value of one if a respondent indicated one of the two highest categories. The variables *self-deceptive enhancement* and *impression management* are the sums of the values of the dummy variables for the corresponding three items. Thus, both variables can take values between zero and three.

With respect to the choice experiments and the study as a whole, the respondents were asked to respond to the prompt "please describe in one sentence what you think this study will be used for" (e.g. Doyon and Bergeron, 2016) to capture strategic answering motives in the survey and especially in the choice experiments regarding environmental and sustainable issues. The dummy variable *strategic answering motives* takes the value of one if a respondent mentioned the assessment of preferences for ecological, climate-friendly, or other sustainable investments as possible objective of the study. Furthermore, we asked respondents after each of the six choice situations in the experiments to indicate on an ordinal five-point scale how certain they were with respect to their decision, with answer categories ranging from "very uncertain" to "very certain." We construct the dummy variable *choice certainty* that takes the value of one if a respondent indicated one of the two highest categories (i.e. "very certain" and "rather certain").

We also consider indicators of knowledge about and familiarity with financial products as well as the perceived impact of sustainable investments (e.g. Nilsson, 2008). First, we consider a general measure of financial literacy. This measure is based on three quiz questions on interest rates, inflation, and risk diversification, and thus aims to capture a basic economic and financial knowledge (e.g. Lusardi and Mitchell, 2008). Accordingly, the number of correct answers can range between zero and three. The corresponding dummy variable *financial literacy* takes the value of one if a respondent from Germany answered three questions correctly or if a respondent from France answered more than two questions correctly, which corresponds to the median values in the sample for the respective country. In addition, the dummy variable *knows sustainable investments* takes the value of one if a respondent indicated to have heard of sustainable investments before the study. Finally, we also asked the respondents to give an answer on an ordinal five-point scale ranging from "not at all" to "very strongly" to the following question "In your investment decisions, a bond fund with a high or very high strength of sustainability was available at least once. In your opinion, how strongly do such

investments contribute to sustainable development?" The dummy variable *perceived impact* takes the value of one if a respondent indicated one of the two highest categories (i.e. "rather strongly" and "very strongly").

Individual characteristics as explanatory variables

To analyze the effects of individual characteristics on sustainable investments in non-incentivized and incentivized choice experiments, we refer to the variables in the analysis of the non-incentivized choice experiments of Gutsche and Ziegler (2019). As described above, Gutsche and Ziegler (2019) also consider capital market-experienced adult household financial decision makers from Germany as their target group. Moreover, in one of their choice experiments, they repeatedly asked the individual investors to select one out of four equity funds. A safe option (e.g. in the form of a bank account) was not included. Their setting is thus very similar to our non-incentivized setting without safe option in Germany (but based on synthetic financial products). This allows us to examine the extent to which the same individual characteristics play a role in investment decisions in these choice experiments. Following their approach, we measure a variety of pecuniary and non-pecuniary motives that could affect individual sustainable investments decisions. In addition, we capture socio-demographic and socio-economic characteristics of all respondents. With respect to pecuniary factors, we consider individual risk perceptions in relation to sustainable investments and asked the respondents to indicate on an ordinal five-point scale the extent to which they agree with the statement "sustainable investments are riskier than conventional investments", with answer categories ranging from "strongly disagree" to "strongly agree." The dummy variable *high perceived risk* takes the value of one if a respondent indicated one of the two highest categories (i.e. "strongly agree" or "rather agree").[9]

We further consider non-pecuniary factors such as psychological motives, values, and norms regarding sustainable investments. A motive that is often important for sustainable behavior is warm glow, which can be described as a good feeling through the act of giving (e.g. Andreoni, 1990). Such feelings can lead to psychological benefits and thus higher utility levels from acting sustainably. The corresponding dummy variable *warm glow* takes the value of one if a respondent indicated one of the two highest categories of agreement for the statement "it makes me feel good when I behave sustainably", again on an ordinal five-point scale with

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[9] All survey questions for the variables in our econometric analysis can also be found in Part B of the Online Appendix.

response categories ranging from "strongly disagree" to "strongly agree."[10] To capture potential effects of social norms, we consider the dummy variable *expectation social environment*, which takes the value of one if a respondent indicated one of the two highest categories of agreement for the statement "my social environment (e.g. family, friends, colleagues) expects me to behave in a sustainable manner", again on an ordinal five-point scale with response categories ranging from "strongly disagree" to "strongly agree."

We also consider indicators for sociability and political identification. With respect to sociability, the dummy variable *volunteering* takes the value of one if a respondent indicated to be engaged in volunteering activities. Concerning political identification, we follow Ziegler (2017, 2019) and analyze individual political identification by using the two dummy variables *high social policy identification* and *high ecological policy identification*. While the variable *high social policy identification* takes the value of one if a respondent rather or strongly agreed with the statement "I identify myself with socially oriented policy", the variable *high ecological policy identification* takes the value of one if a respondent rather or strongly agreed with the statement "I identify myself with ecologically oriented policy" on an ordinal five-point scale with response categories ranging from "strongly disagree" to "strongly agree."

In addition, we capture usual socio-demographic and socio-economic characteristics. The dummy variable *female* takes the value of one if a respondent is a woman. The variable *age* denotes the age of the respondent in years. The dummy variable *high education* takes the value of one if a respondent has at least a university entrance qualification according to level six of the International Standard Classification for Education (e.g. Eurostat, 2022). The dummy variable *living together or married* takes the value of one if a respondent had one of these two marital statuses. Finally, for the econometric analysis of the data from the survey conducted in Germany, the dummy variable *Western Germany* takes the value of one if a respondent lived in one of the Western German federal states excluding Berlin.

2.3 Descriptive statistics and randomization check

Table 3 reports the mean values of all individual characteristics considered in our empirical analysis across all six experimental groups and both countries. The table shows that the mean

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[10] To construct the warm glow variable, Gutsche and Ziegler (2019) jointly consider the statements "it makes me feel good to make sustainable investments" and "I feel responsible for a sustainable development and want to contribute by making sustainable investments." As we believe that the first statement is a better indicator for warm glow motives, we focus on this statement in our main analysis. Nevertheless, we also consider a variable based on both statements in our robustness checks and obtain very similar estimation results to our main analysis. These results are not reported for brevity, but are available upon request.

values of males, older persons, and well-educated persons are higher in all six experimental groups than in the adult populations in Germany and France. Such a sample and population structure is in line with the characteristics of individual investors in previous studies (e.g. Guiso et al., 2008; Kaustia and Torstila, 2011; Van Rooij et al., 2011; Riedl and Smeets, 2017; Choi and Robertson, 2020). With respect to the randomized assignment of the participants to the four different experimental groups $T1_G$, $T2_G$, $T3_G$, and $T4_G$ in Germany and the two experimental groups $T1_F$ and $T2_F$ in France, we find overall very stable mean values of the individual characteristics between the experimental groups within each country. Only in a very few cases (e.g. for *impression management*) the means are moderately different when different experimental groups are compared. These results suggest that the randomization for the assignment to the experimental groups was successful.[11]

-- Insert Table 3 here --

3. Econometric analysis

3.1 Econometric approach

In the following, we briefly describe the econometric approach used to analyze the data from our choice experiments. In the four experimental groups $T1_G$, $T2_G$, $T1_F$, and $T2_F$ without safe option, each participant i chose $M = 6$ times among $J = 4$ bond funds. In the other two experimental groups $T3_G$ and $T4_G$ with safe option in Germany, each participant i chose $M = 6$ times among $J = 5$ investment alternatives (i.e. four bonds funds and a bank account). The alternatives in each choice situation varied in terms of the levels of the attributes *high sustainability*, *annual returns in the past two years*, *share of bond issuers from the EU,* and *fees.* For the two groups with safe option, we also include the alternative-specific constant *safe option* in the econometric analysis. To examine the relevance of these attributes and *safe option* on the choice among the four or five available mutually exclusive investment alternatives, we con-

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[11] The table in Part C of the Online Appendix reports the differences in the means of all individual characteristics between the four experimental groups in Germany and the two experimental groups in France and the z-statistics of the corresponding mean comparison z-tests. Based on overall 105 comparisons, we would expect i) about one difference to be different from zero at the 1% significance level, ii) about five differences to be different from zero at the 5% significance level, and iii) about ten differences to be different from zero at the 10% significance level. The table reveals that no mean difference is different from zero at the 1% significance level, two mean differences are different from zero at the 5% significance level, and six mean differences are different from zero at the 10% significance level. Therefore, the number of significant differences is even lower than statistically expected, which underlines that our randomization process was widely successful.

sider multinomial discrete choice models, assuming utility functions for each alternative. Accordingly, the utility of participant i ($i = 1,..., N$) in choice situation s ($s = 1,…, 6$) for investment alternative j ($j = 1,…, 4$ or $j = 1,…, 5$) is:

$$U_{isj} = \beta_i' \, x_{isj} + \varepsilon_{isj} \tag{1}$$

An individual utility U_{isj} thus depends on the vector $x_{isj} = (x_{isj1}, …, x_{isjK})'$ of explanatory variables that are based on the attributes (including the alternative-specific constant for the two groups with safe option), the assignment to experimental groups, individual characteristics, and the corresponding unknown parameter vectors β_i ($\beta_i = \beta_{i1}, …, \beta_{iK})'$. The basic models without safe option include $K = 4$ parameters and the basic models with safe option additionally include the alternative-specific constant. We successively extend these basic models with additional explanatory variables to examine the extent to which the assignment to experimental groups or individual characteristics affect the preferences for sustainable funds in the econometric analysis. To this end, we introduce interaction terms between *high sustainability* and *non-incentivized* as well as individual characteristics. This increases the number of explanatory variables accordingly.

The values of U_{isj} cannot be observed and depend on the error terms ε_{isj}, which summarize all unobserved factors for the choice of an investment alternative. According to random utility maximization theory (e.g. McFadden, 1973), we assume that an individual investor i chooses an investment alternative j in a specific choice situation s if the utility for this alternative is the largest among the utilities for all four (or five) alternatives. To avoid the well-known problems associated with common multinomial logit models, we apply mixed logit models (e.g. McFadden and Train, 2000). These models also assume independently and standard (type 1) extreme value distributed error terms ε_{isj}, but do not require the restrictive independence of irrelevant alternatives assumption. Mixed logit models generally assume that some parameters in the vector β_i ($i = 1, …, N$) of the explanatory variables are continuously distributed across i. In our main analysis, all parameters except for interaction terms and fees are assumed to be normally distributed since individuals might experience positive or negative utility from each of the corresponding attributes. Specifically, β_i follows the multivariate normal distribution $\varphi(\beta, \Sigma)$, where β is the vector of means and Σ is the variance–covariance matrix that accounts for unobserved taste heterogeneity. We assume that the non-diagonal elements of Σ (i.e. covariances) are zero for the main analysis, but additionally consider robustness checks where we relax this assumption.

The basis for the willingness to pay estimation is the utility function (1) as explained above. The mean willingness to pay is the change in a cost or price attribute (in our case *fees*) that keeps the utility constant for a change in the attribute of interest (in our case *high sustainability*). It can be determined by equating the total derivative of the utility function with respect to *high sustainability* and *fees* to zero, assuming that all other variables are held constant. The estimated (marginal) mean willingness to pay is then the ratio of the negative value of the estimated mean parameter for *high sustainability* and the estimated fixed parameter for *fees*:

$$\widehat{\text{Mean WTP}}_{\text{high sustainability}} = - \frac{\widehat{\text{Mean }} \beta_{\text{high sustainability}}}{\hat{\beta}_{\text{fees}}} \quad (2)$$

Mixed logit models cannot be estimated with the common maximum likelihood method due to the complex choice probabilities that are characterized by multiple integrals. Instead, the probabilities that participant i chooses investment alternative j in choice situation s are approximated with simulation methods. These simulated probabilities are included in the maximum likelihood approach, which leads to the simulated maximum likelihood (SML) estimation. We used the Python package xlogit with R = 1,000 Halton draws for the SML estimation of mixed logit models (e.g. Arteaga et al., 2022).

3.2 Do individual investors have a higher willingness to pay for sustainable investments in non-incentivized settings than in incentivized settings?

Table 4 reports the basic SML estimation results for all six experimental groups. The upper part of Table 4 shows that almost all estimated mean parameters in the six groups with non-incentivized or incentivized choices are strongly significantly different from zero and positive for high *sustainability*, *annual returns in the past two years*, and *share of bond issuers from the EU*. Thus, in line with our expectations and findings from previous non-incentivized choice experiments in this field, our results reveal that individual investors prefer funds with a higher sustainability rating on average (e.g. Hartzmark and Sussman, 2019). Also consistent with previous empirical evidence, our results imply that individual investors chase past returns (e.g. Sirri and Tufano, 1998) and prefer a higher share of bond issuers from the EU, implying home bias (e.g. Lewis, 1999). Only for group T1$_F$ (with non-incentivized choices and without safe option in France) we find no evidence that individual investors prefer suppliers from the domestic market. Unsurprisingly, the estimated fixed parameters for *fees* are always significantly negative, which implies that individual investors prefer funds with lower fees. In the

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experimental groups T3_G and T4_G with safe option in Germany, the results reveal that individual investors prefer to choose a fund, and thus a risky option, compared to leaving the endowment in a bank account. The lower part of Table 4 reports the estimated standard deviations of the parameters that are assumed to be normally distributed. All these standard deviations are strongly significantly different from zero, which suggests the presence of unobserved heterogeneity among individual investors concerning these attributes.

-- Insert Table 4 here --

Based on the qualitative result that there is a significant willingness to pay for funds with a higher sustainability rating in all experimental groups, we now examine the question whether individual investors have a higher willingness to pay for sustainable investments in non-incentivized settings than in incentivized settings. To this end, we compare the mean willingness to pay for sustainable investments in non-incentivized and incentivized settings. Based on the values in Table 4, we find according to (2) that the estimated mean willingness to pay for higher sustainability ratings is about 5.06 (=-1.57/-0.31) percentage points higher fees in the experimental group T1_G without safe option and without incentivized choices in Germany. In the direct comparison group T2_G with incentivized choices the estimated mean willingness to pay is about 5.83 (=- 1.75/-0.30) percentage points higher fees. These results suggest that the mean willingness of individual investors to pay for sustainable funds is lower in the non-incentivized setting than in the incentivized setting.

Similar differences can be found between the other directly comparable experimental groups. Considering the non-incentivized and incentivized experimental groups T3_G and T4_G with safe option in Germany, we find that the estimated mean willingness to pay for sustainable funds is higher for individual investors in the incentivized setting than for individual investors in the non-incentivized setting (about 5.51 percentage points versus about 3.97 percentage points). Similarly, individual investors in the non-incentivized group T1_F without safe option in France have a lower estimated mean average willingness to pay of about 3.90 percentage points compared to about 4.68 percentage points for individual investors in the incentivized group T2_F.[12] In line with previous studies, our estimation results thus suggest that individual investors are willing to pay for sustainable investments (e.g. Riedl and Smeets, 2017; Gutsche

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[12] Concerning the other attributes, Table 4 implies that individual investors are willing to pay on average between about 0.48 (0.65) and about 0.64 (0.68) percentage points more fees for an increase of annual returns in the past two years by one percentage point in Germany (France). For the share of issuers of bonds from the European Union, the results suggest that individual investors are willing to pay on average between about 0.95 and about 1.52 (1.70) percentage points more fees in Germany (France) for a one percentage point increase.

and Ziegler, 2019; Barber et al., 2021; Bauer et al., 2021; Heeb et al., 2023). These results hold regardless of whether choices are incentivized or from which country the investors come. However, we also find that individual investors with non-incentivized choices consistently have a lower mean estimated willingness to pay than their counterparts with incentivized choices.

To test whether these differences in mean willingness to pay between non-incentivized and incentivized choices are different from zero, we pool the data from each of the two directly comparable experimental groups. Specifically, for Germany, we pool (i) the data from the two groups $T1_G$ and $T2_G$ without safe option and (ii) the data from the two groups $T3_G$ and $T4_G$ with safe option. For France, we pool all available data, i.e. the data from the two groups $T1_F$ and $T2_F$ without safe option. For our econometric analysis, we extend the mixed logit model specifications and additionally include interaction terms between the dummy variable *high sustainability* and *non-incentivized*, i.e. the dummy variable indicating the corresponding non-incentivized experimental group. The estimated fixed parameter of the interaction terms in combination with the corresponding (robust) z-statistics provide information about the differences in the estimated mean willingness to pay and about the significance of these differences between non-incentivized and incentivized choices.

Table 5 reports the estimation results from the three corresponding mixed logit models. With respect to the two experimental groups $T1_G$ and $T2_G$ without safe option in Germany, the results imply that the mean willingness of individual investors to pay for higher sustainability ratings is about 5.77 (=- 1.73/-0.30) percentage points higher fees in the incentivized setting. This estimation result is in line with the estimated mean willingness to pay for the same group reported in Table 4. In contrast, the negative estimate of the parameter for the interaction term is not significantly different from zero, which implies that the difference in the mean willingness to pay for sustainable funds between the non-incentivized and incentivized experimental groups is rather small and especially not significantly different from zero. Our results are thus contrary to our expectations based on previous studies on hypothetical bias for normative attributes, which would have suggested a higher mean willingness to pay in the non-incentivized setting.

Our findings are different for the estimated difference in the mean willingness to pay for higher sustainability ratings between the non-incentivized and incentivized experimental groups $T3_G$ and $T4_G$ with safe option in Germany. The estimated parameter for the interaction term is now strongly significantly negative. The estimate implies that individual investors in

the non-incentivized setting are willing to pay, on average, about 1.14 percentage points less fees for sustainable investments than in the incentivized setting (however, the estimated willingness to pay is still positive in both settings). Thus, we again find no evidence of a higher mean willingness to pay in the non-incentivized setting than in the incentivized setting. Our results also do not support previous findings that the inclusion of a safe (or no choice) option, which increases the realism of the choice context, affects hypothetical bias towards a higher mean willingness to pay in the non-incentivized setting (e.g. Lusk and Schroeder, 2004). Instead, the estimated mean willingness to pay in both experimental settings with a safe option is lower than in settings without a safe option.

-- Insert Table 5 here--

Finally, Table 5 also shows the estimation results for the two experimental groups $T1_F$ and $T2_F$ without safe option in France. In contrast to the same experimental settings in Germany, where the difference between the two groups is not significantly different from zero, the negative estimate of the parameter for the interaction term is weakly significantly different from zero. This estimate implies that individual investors in the non-incentivized setting are willing to pay, on average, about 0.53 percentage points less fees for sustainable funds than in the incentivized setting (however, the estimated willingness to pay is again still positive in both settings). This result is partly in line with findings in previous studies that the direction and magnitude of hypothetical bias differ across countries (e.g. Ehmke et al., 2008). Nevertheless, this result implies, just as in the case for individual investors from Germany, that we find no evidence of a higher mean willingness to pay for sustainable funds in the non-incentivized setting than in the incentivized settings in France.

Result 1: *There is no evidence that the mean willingness to pay for sustainable investments is higher in non-incentivized settings than in incentivized settings. This finding holds regardless of whether a safe option is included or not and in both countries considered.*

3.3 Which factors lead to differences between the willingness to pay for sustainable investments in non-incentivized and incentivized settings?

While we find no evidence that the mean willingness to pay for sustainable bond funds is higher in non-incentivized than in incentivized settings, our econometric analysis even shows that the mean willingness to pay in the experimental groups $T3_G$ and $T4_G$ with safe option in

Germany and the experimental groups $T1_F$ and $T2_F$ without safe option in France is unexpectedly significantly lower in the non-incentivized settings than in the incentivized settings. For the experimental groups $T1_G$ and $T2_G$ without safe option in Germany, the corresponding difference is not statistically significant, but it also points in the same (negative) direction and the z-statistic of 1.55 is close to the 10% significance threshold. Our results thus nevertheless provide evidence for hypothetical bias, even if the direction of the estimated bias is unexpected. Therefore, we now conduct a heterogeneity analysis to examine the question of how this lower estimated mean willingness to pay for sustainable investments in non-incentivized settings can be explained. To answer this question, we consider several individual characteristics that have been identified as drivers of hypothetical bias in previous studies.

Specifically, we consider the seven variables *self-deceptive enhancement* and *impression management* (reflecting social desirability motives), *strategic answering motives*, *choice certainty*, *financial literacy* and *knows sustainable investments* (reflecting knowledge about and familiarity with financial products), as well as *perceived impact* (reflecting the perceived impact of sustainable investments) as defined above. With respect to social desirability motives, we address that some individual investors might gain utility from stating that they support something "good" (e.g. Andreoni, 1990; Johansson-Stenman and Svedsäter, 2012) to impress others or from maintaining a positive self-image (e.g. Paulhus, 1984, 1991; Menapace and Raffaelli, 2020). These investors might give socially desirable answers and state a higher willingness to pay for sustainable investments, even if they would not actually do so in the real world. Thus, they might choose sustainable funds more often in non-incentivized settings since their choices cannot lead to financial consequences. Individual investors could also assume that their responses or choices impact sustainable investment policies, as they might expect that the results of the study are shared with relevant decision makers. These investors could therefore strategically over- or understate their willingness to pay to signal stronger or weaker preferences for sustainable investments (e.g. Lloyd-Smith and Adamowicz, 2018), which is more likely in the non-incentivized settings since their signal can never have financial consequences.

The bond funds in our choice experiments are also characterized by complex financial and sustainability information, which can make it difficult for the participants to choose between the investment alternatives. If the participants do not fully understand the choice situations, they may choose sustainable investments as a simplifying heuristic to avoid a cognitive load (e.g. Boxall et al., 2009), i.e. when they are not able to cope with the entire experimental

setting and feel uncertain about their choices (e.g. Loomis, 2014). However, they might be more likely to choose sustainable investments as a mental shortcut in non-incentivized settings since their choice cannot entail any financial consequences. Furthermore, some studies show that individuals with more knowledge about and a higher familiarity with the considered products are less likely to overstate their preference for the products since they can better assess their utility (e.g. Schmidt and Bijmolt, 2020). Finally, individual investors could derive utility from investing in assets that generate a positive, measurable, social and environmental impact alongside a financial return, and may therefore be willing to pay more for sustainable investments if they can actually have a real-world impact in the incentivized settings (e.g. Barber et al., 2021). However, the results of our heterogeneity analysis according to Tables 6 and 7 suggest that the above factors or channels do not consistently affect our estimated hypothetical bias. In particular, the estimated mean willingness to pay for sustainable investments is never higher in the non-incentivized experimental groups in Germany or France than in the incentivized experimental groups.[13]

Result 2: *There is no evidence that social desirability motives, strategic answering motives, choice certainty, knowledge about and familiarity with financial products, or the perceived impact of sustainable investments lead to a consistently higher or lower mean willingness to pay for sustainable investments in non-incentivized settings than in incentivized settings.*

3.4 Do we identify the same relevant explanatory factors for individual sustainable investing in non-incentivized and incentivized settings?

Finally, we examine the extent to which the explanatory factors for individual preferences for funds with a higher sustainability rating differ between non-incentivized and incentivized settings.[14] To this end, we extend the mixed logit model specifications and additionally include interaction terms between the dummy variable *high sustainability* and each of the main individual characteristics as defined in Section 2.2., which Gutsche and Ziegler (2019) also partly consider in their non-incentivized choice experiment with synthetic financial products in Germany. The interaction terms can be used to analyze which population groups have a higher or lower mean willingness to pay for sustainable investments with respect to certain individual

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[13] Our heterogeneity analysis also suggests that individual investors with low financial literacy in all experimental groups in Germany and France hardly react to higher fees for funds, while individual investors with high financial literacy are much less likely to choose funds with higher fees. This is strongly in line with the results in Engler et al. (2024).

[14] In doing so, we also directly address the strong empirical evidence of unobserved heterogeneity with respect to the willingness to pay for a higher sustainability rating (see Tables 4 and 5).

characteristics. The experimental analysis of Gutsche and Ziegler (2019) suggests that individual investors who perceive sustainable investments as riskier than conventional investments have a lower estimated mean willingness to pay for sustainable funds. In contrast, investors who feel a warm glow from investing sustainably, are members of environmental organizations, or identify with left-wing parties have a significantly stronger preference for sustainable funds, respectively.

Table 6 reports the corresponding estimation results. In line with Gutsche and Ziegler (2019), we find for all four experimental groups (i.e. $T1_G$ and $T2_G$ without safe option, and $T3_G$ and $T4_G$ with safe option) in Germany that individual investors who feel a warm glow from sustainable consumption have a significantly stronger preference for sustainable funds in both non-incentivized and incentivized settings. Similarly, individual investors from Germany with an ecological policy orientation have a significantly higher mean willingness to pay for sustainable funds than their counterparts.[15] For some of the remaining individual characteristics (i.e. *expectations social environment*, *volunteering*, *high social policy orientation*, *female*, *high education*, *living together or married*), we find some differences in the estimation results between the non-incentivized and incentivized settings. In addition, we find some differences between the experimental groups without and with safe option for *high perceived risk* and *Western Germany*. However, the differences are mostly small. In particular, the correlations between an individual characteristic and *high sustainability* are never significant in the opposite direction when we compare the experimental groups with non-incentivized (i.e. $T1_G$, $T3_G$) and incentivized (i.e. $T2_G$, $T4_G$) choices or without (i.e. $T1_G$, $T2_G$) and with (i.e. $T3_G$, $T4_G$) safe option. In sum, the key estimation results in the non-incentivized and incentivized settings without and with safe option are very similar to each other and also correspond to the results in Gutsche and Ziegler (2019) based on a non-incentivized choice experiment with synthetic instead of real-market investment products.

-- Insert Table 6 here --

Consistent with the results for Germany, individual investors who feel a warm glow from sustainable consumption have a significantly stronger preference for sustainable funds in both

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[15] While Gutsche and Ziegler (2019) use another indicator for policy orientation and find that a left-wing affinity is positively correlated with the mean willingness to pay for sustainable investments, our results imply that this result is rather driven by an ecological policy orientation than a social policy orientation when identifying with left-wing parties in Germany.

experimental groups (i.e. T1$_F$ and T2$_F$) without safe option in France. In the incentivized setting, *high sustainability* is significantly positively correlated with *high ecological policy orientation* or *high education* and significantly negatively correlated with *expectations social environment*. In the non-incentivized setting, the corresponding correlation is significantly negative for the perceived risk of sustainable investments and age and significantly positive for *living together or married*. Therefore, the correlations between individual characteristics and preferences for sustainable funds seem to be somewhat less consistent between the experimental groups with non-incentivized and incentivized choices in France than to Germany. This implies that the results on the correlations between individual characteristics and preferences for sustainable investments cannot be fully transferred to both countries. Nevertheless, the results for the perceived risks of sustainable funds, warm glow, expectations from the social environment concerning sustainable behavior, and ecological policy orientation are at least partly consistent with the results for Germany.

Result 3: Both non-incentivized and incentivized settings lead to qualitatively similar results with respect to the main explanatory factors for the preferences for sustainable funds in Germany. These findings are also widely in line with the results of a previous similar study based on data from a non-incentivized choice experiment. For France, however, the picture is not as uniform.

3.5 Robustness checks

Several robustness checks support our main estimation results. We additionally estimated all previously considered mixed logit models in willingness to pay space using draws based on the Modified Latin Hypercube Sampling algorithm (e.g. Czajkowski and Budziński, 2019). In these models, we additionally assumed correlated random parameters with a lognormally distributed parameter for fees, normally distributed parameters for the remaining attributes, and fixed parameters for the interaction terms. This means that we additionally estimated the non-diagonal elements (i.e. covariances) of Σ mentioned in Section 3.1. While we had convergence problems in the maximization of the simulated loglikehood function in a few of the mixed logit models based on smaller subsamples, the estimation results in the other models are qualitatively and quantitatively similar to the results discussed above. Moreover, we also considered simple multinomial logit models using fixed parameters for all attributes and interactions. Again, the findings in all specifications are qualitatively similar to the results discussed above.

Most importantly, we never find that the estimated mean willingness to pay for sustainable investments is significantly higher in non-incentivized settings than in incentivized settings.[16]

4. Conclusions

Studies with experiments in finance, especially with respect to individual sustainable investment decisions, are becoming increasingly popular and are published in leading finance and economics journals. Recent experiments in this field, where choices between several investment alternatives are included, are based both on incentivized settings, where the participants receive financial incentives for their investment decisions, and on non-incentivized settings. However, individuals in non-incentivized experimental settings may make different choices than in the real world. In particular, individuals may overstate their willingness to pay for normative attributes in non-incentivized choice experiments, as in the case of investment products with respect to sustainability. To mitigate this hypothetical bias, the inclusion of financial incentives is the most important approach. In this paper, we empirically examine whether the individual willingness to pay for sustainable investments differs in non-incentivized settings from that in incentivized settings, which factors lead to differences in the willingness to pay, and whether the relevant explanatory factors for individual sustainable investing are the same in the two experimental settings. To answer the three key research questions, our econometric analysis is based on data from non-incentivized and incentivized investment choice experiments using real-market bond funds in a randomized controlled trial, which are included in a representative survey of over 2,100 individual investors from Germany and France.

In contrast to previous studies in other fields, we do not find that the willingness to pay for the normative attribute (i.e. sustainability in our case) is higher in the non-incentivized settings than in the incentivized settings. The estimated willingness to pay for sustainable investments is even lower in the non-incentivized experimental groups than in the incentivized groups. This result holds regardless of whether a safe option is included in the experimental design and for both countries considered. The results are also robust to various explanations of hypothetical bias, i.e. there is no evidence that social desirability motives, strategic answering motives, choice certainty, knowledge about and familiarity with financial products, or the perceived impact of sustainable investments influence differences in the willingness to pay for

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[16] All corresponding estimation results are not reported for brevity, but available upon request.

sustainable investments in non-incentivized and incentivized settings. With respect to the relevant explanatory factors for individual sustainable investing, we find that the estimated correlations between individual characteristics and the preference for sustainable investments in the non-incentivized and incentivized choice experiments in Germany are qualitatively and quantitatively similar. Furthermore, the results are similar to those in previous non-incentivized choice experiments with synthetic instead of real-market investment products (e.g. Gutsche and Ziegler, 2019). For France, however, the results for these explanatory factors are less consistent between the experimental groups with non-incentivized and incentivized choices.

Our results have important implications for the validity of previous non-incentivized experiments and the design of future experiments in (sustainable) finance and other fields. While it is not always possible to use financial incentives in choice experiments, for example, due to budget constraints, the absence of incentives does not necessarily lead to different conclusions regarding the preference for certain attributes, including normative attributes such as sustainability, or the explanatory factors for these preferences. In particular, our results do not provide evidence for hypothetical bias towards a higher willingness to pay for normative attributes in non-incentivized settings. Our results also imply that using real-world products such as real-market investment products in a choice experiment does not necessarily lead to different conclusions than using similar but synthetic products. This is important when the willingness to pay for new attributes, for example, of investment products that do not yet exist and cannot be elicited with real-world products, is of interest. We therefore hope that our results can help to make more use of this flexible tool of choice experiments in future studies in (sustainable) finance. However, it should be noted that experimental choices, as in our case, clearly cannot reflect "true" preferences, even when financial incentives are used. An interesting avenue for future research is therefore to compare real-market choices of individual investors with choices in a similar experimental setting, which would add another level of realism to the analysis of data from choice experiments (e.g. Haghani et al., 2021).

Another explanation for the similar estimation results in non-incentivized and incentivized settings is that the popular standard method of probabilistic incentive schemes when choosing between several investment alternatives (e.g. Bauer et al., 2022; Gutsche et al., 2023; Heeb et al., 2023; Auzepy et al., 2024; Engler et al., 2024; Filippini et al., 2024; Seifert et al., 2024) may not be as effective as assumed. Although financial incentives are typically used to mitigate hypothetical bias, our results suggest that such incentives might have limited effects on

the preference for sustainable investments. One possible reason for this is that individuals might be more guided by normative considerations than by financial rewards, at least in the context of sustainable investing. Another possible reason is that the size of the endowment and/or the probability of receiving the endowment, which are typically provided in these studies, are not high enough to influence choices since the resulting expected value for the payment is typically low. While future studies could reexamine the effectiveness of current probabilistic incentive schemes and vary the expected values for the payment in choice experiments in finance, budget constraints naturally make it difficult to thoroughly examine this issue. Furthermore, determining the appropriate expected value for a specific experiment could be challenging since it may depend on various contextual factors, such as the specific decision environment or the type of financial product considered.

While we do not find evidence for hypothetical bias towards a higher willingness to pay for sustainable investments in non-incentivized settings, it would be interesting in future studies to analyze whether the results hold for different dimensions of sustainability. For example, investment products in choice experiments that specifically consider social characteristics could be perceived as more socially desirable compared to more general sustainable investment, which would suggest a higher hypothetical bias. Moreover, our estimation results refer to the specific case of Germany and France in 2021. Therefore, it is an open question whether these results are valid for other time periods and countries. Similar experimental analyses in other European and non-European countries are therefore an interesting avenue for future research. For example, individual investors in Japan focus more on pecuniary factors than on non-pecuniary factors when making sustainable investment decisions (e.g. Gutsche et al., 2021) and may therefore be more sensitive to the presence or absence of financial incentives.

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Tables

Table 1: Attributes in the choice experiments

Attribute	Description	Levels or range
Strength of sustainability	The bond funds differ in the extent to which sustainability criteria (i.e. environmental, social and/or governance criteria) are included in addition to financial criteria in their composition or construction. The strength of sustainability varies between "very low" and "very high" on a five-point scale based on an assessment carried out by a company.	Very low, rather low, rather high, very high
Annual returns in the past two years	The bond funds differ in terms of their average return in the years 2019 and 2020 in %.	-0.02% - 12.75%
Share of issuers of bonds from the European Union	The bond funds differ in the countries from which the issuers of the invested bonds (e.g. corporate or public) originate. The percentage share of countries of the European Union (EU) is indicated. The remaining percentage share relates to issuers of bonds not from the EU, as well as cash and other financial products.	0.00% - 83.23%
Fees	The bond funds differ in the amount of fees (in % of the investment amount) that can be incurred during the one-year investment period.	0.44% - 6.67%

Table 2: Experimental groups in Germany and France

	Germany	
	Non-incentivized groups	Incentivized groups
Without safe option	$T1_G$	$T2_G$
With safe option	$T3_G$	$T4_G$
	France	
	Non-incentivized groups	Incentivized groups
Without safe option	$T1_F$	$T2_F$

Table 3: Means of individual characteristics for the full samples and across different experimental groups in Germany and France

	Germany					France		
	Full sample	T1$_G$	T2$_G$	T3$_G$	T4$_G$	Full sample	T1$_F$	T2$_F$
Self-deceptive enhancement	0.75	0.77	0.74	0.72	0.75	0.79	0.77	0.80
Impression management	0.61	0.64	0.57	0.57	0.66	0.74	0.74	0.74
Strategic answering motives	0.30	0.27	0.30	0.31	0.30	0.17	0.18	0.16
Choice certainty	0.62	0.59	0.64	0.65	0.63	0.45	0.43	0.48
Financial literacy	0.56	0.52	0.58	0.57	0.56	0.66	0.63	0.68
Knows sustainable investments	0.58	0.56	0.61	0.57	0.58	0.45	0.43	0.48
Perceived impact	0.47	0.48	0.48	0.43	0.47	0.36	0.32	0.40
High perceived risk	0.27	0.24	0.27	0.30	0.27	0.28	0.27	0.29
Warm glow	0.80	0.81	0.80	0.78	0.78	0.84	0.84	0.84
Expectation social environment	0.38	0.36	0.40	0.38	0.38	0.55	0.55	0.55
Volunteering	0.33	0.35	0.34	0.30	0.32	0.31	0.30	0.32
Social policy identification	0.63	0.60	0.67	0.63	0.63	0.47	0.48	0.45
Ecological policy identification	0.49	0.51	0.48	0.49	0.49	0.56	0.56	0.55
Female	0.36	0.37	0.35	0.37	0.34	0.42	0.40	0.44
Age	48.93	49.38	48.63	47.76	49.87	46.76	47.16	46.34
High education	0.35	0.31	0.37	0.36	0.34	0.32	0.30	0.34
Married	0.63	0.65	0.63	0.61	0.63	0.68	0.66	0.70
Western Germany	0.77	0.78	0.77	0.75	0.80	-	-	-
Number of respondents	1,324	408	408	253	255	829	407	422

Note: T1$_G$ and T2$_G$ refer to non-incentivized and incentivized experimental groups without safe option in Germany, T3$_G$ and T4$_G$ refer to non-incentivized and incentivized experimental groups with safe option in Germany, T1$_F$ and T2$_F$ refer to non-incentivized and incentivized experimental groups without safe option in France. For *choice certainty*, we report the mean across the six choice situations of all participants within an experimental group.

Table 4: Basic estimation results across different experimental groups in Germany and France, dependent variable: *Choice*

	Germany				France	
	Without safe option		With safe option		Without safe option	
	Non-in-centivized group	Incentiv-ized group	Non-in-centivized group	Incentiv-ized group	Non-in-centivized group	Incentiv-ized groups
	T1$_G$	T2$_G$	T3$_G$	T4$_G$	T1$_F$	T2$_F$
Estimated mean						
Fees	-0.31***	-0.30***	-0.37***	-0.33***	-0.21***	-0.22***
	(-21.41)	(-20.68)	(-19.13)	(-18.02)	(-17.30)	(-16.59)
High sustainability	1.57***	1.75***	1.47***	1.82***	0.82***	1.03***
	(19.28)	(20.41)	(14.63)	(17.42)	(13.56)	(14.74)
Annual returns in the past two years	0.20***	0.23***	0.21***	0.21***	0.16***	0.17***
	(15.78)	(16.56)	(13.14)	(12.10)	(15.14)	(14.04)
Share of bond issuers from the EU	0.80***	0.82***	0.74***	0.96***	-0.01	0.69***
	(5.33)	(5.15)	(3.79)	(4.91)	(-0.06)	(4.56)
Safe option	--	--	-1.53***	-0.72**	--	--
			(-4.70)	(-2.53)		
Estimated standard deviation						
High sustainability	1.58***	1.62***	1.58***	1.42***	1.36***	1.39***
	(13.87)	(13.31)	(11.27)	(10.05)	(13.80)	(13.29)
Annual returns in the past two years	0.21***	0.20***	0.22***	0.17***	0.13***	0.18***
	(10.61)	(9.84)	(10.43)	(7.05)	(7.23)	(9.58)
Share of bond issuers from the EU	2.05***	2.32***	1.57***	2.06***	1.32***	3.09***
	(7.55)	(8.55)	(4.70)	(7.09)	(4.91)	(12.28)
Safe option	--	--	3.19***	2.92***	--	--
			(9.32)	(8.84)		
Number of respond-ents (number of choices)	408 (2,448)	408 (2,448)	255 (1,530)	253 (1,518)	422 (2,532)	407 (2,442)

Notes: This table reports SML estimates (robust z-statistics) in mixed logit models in preference space. We distinguish between the non-incentivized and incentivized experimental groups T1$_G$ and T2$_G$ without safe option in Germany, the non-incentivized and incentivized experimental groups T3$_G$ and T4$_G$ with safe option in Germany, and the non-incentivized and incentivized experimental groups T1$_F$ und T2$_F$ with safe option in France. We consider random parameters that are assumed to be normally distributed for the attributes *high sustainability*, *annual returns in the past two years*, and *share of bond issuers from the EU* in all models. For the experimental groups T3$_G$ und T4$_G$, we additionally consider a random parameter for *safe option* that is assumed to be normally distributed. The parameters for the attribute *fees* are assumed to be fixed. All attributes are defined in Section 2.2. The "estimated mean" panel reports the estimated fixed parameters and the estimated means of the random parameters. The "estimated standard deviation" panel reports the estimated standard deviations of the random parameters. * (**, ***) means that the estimated parameter is different from zero at the 10% (5%, 1%) significance level, respectively.

Table 5: Estimation results for differences in preferences for sustainable investments between non-incentivized and incentivized settings across different experimental groups in Germany and France, dependent variable: *Choice*

	Germany		France
	Without safe option	With safe option	With safe option
	$T1_G+T2_G$	$T3_G+T4_G$	$T1_F+T2_F$
Estimated mean			
Fees	-0.30***	-0.35***	-0.30***
	(-29.77)	(-26.32)	(-29.77)
High sustainability x non-incentivized	-0.15	-0.40***	-0.16*
	(-1.55)	(-3.60)	(-1.73)
High sustainability	1.73***	1.85***	1.74***
	(22.54)	(19.84)	(22.61)
Annual returns in the past two years	0.22***	0.21***	0.22***
	(22.95)	(17.75)	(23.04)
Share of bond issuers from the EU	0.81***	0.85***	0.80***
	(7.45)	(6.20)	(7.38)
Safe option	--	-1.08***	--
		(-5.06)	
Estimated standard deviation			
High sustainability	1.60***	-1.48***	1.59***
	(19.26)	(-15.05)	(19.26)
Annual returns in the past two years	0.20***	0.20***	0.20***
	(14.52)	(12.43)	(14.62)
Share of bond issuers from the EU	2.18***	-1.84***	2.18***
	(11.38)	(-8.62)	(11.47)
Safe option	--	3.06***	--
		(12.78)	
Number of respondents (number of choices)	816 (4,896)	508 (3,048)	829 (4,974)

Notes: This table reports SML estimates (robust z-statistics) in mixed logit models in preference space. We distinguish between the summarized non-incentivized and incentivized experimental groups $T1_G$ and $T2_G$ without safe option in Germany, the summarized non-incentivized and incentivized experimental groups $T3_G$ and $T4_G$ with safe option in Germany, and the summarized non-incentivized and incentivized experimental groups $T1_F$ und $T2_F$ with safe option in France. We consider random parameters that are assumed to be normally distributed for the attributes *high sustainability*, *annual returns in the past two years*, and *share of bond issuers from the EU* in all models. For the summarized experimental groups $T3_G$ und $T4_G$, we additionally consider a random parameter for *safe option* that is assumed to be normally distributed. The parameters for the attribute *fees* and for the interaction terms between *high sustainability* and *non-incentivized* are assumed to be fixed. All variables are defined in Section 2.2. The "estimated mean" panel reports the estimated fixed parameters and the estimated means of the random parameters. The "estimated standard deviation" panel reports the estimated standard deviations of the random parameters. * (**, ***) means that the estimated parameter is different from zero at the 10% (5%, 1%) significance level, respectively.

Table 6: Estimation results for differences in preferences for sustainable investments between non-incentivized and incentivized settings across different experimental groups in Germany and France and across different subsamples with respect to *self-deceptive enhancement*, *impression management*, *strategic answering motives*, and *choice certainty*, dependent variable: *Choice*

	Self-deceptive enhancement		Impression management		Strategic answering motives		Choice certainty	
	High	Low	High	Low	Yes	No	High	Low
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Without safe option in Germany (T1$_G$+T2$_G$)								
High sustainability × non-incentivized	-0.13	-0.20	-0.13	-0.23	-0.04	-0.16	-0.49***	0.31**
	(-1.23)	(-1.07)	(-1.12)	(-1.54)	(-0.24)	(-1.49)	(-3.62)	(2.33)
High sustainability	1.95***	1.90***	2.04***	1.80***	2.46***	1.71***	2.57***	1.14***
	(22.50)	(13.22)	(21.15)	(15.52)	(16.46)	(19.99)	(21.84)	(11.20)
Fees	-0.26***	-0.23***	-0.26***	-0.23***	-0.36***	-0.20***	-0.31***	-0.17***
	(-22.66)	(-12.14)	(-21.13)	(-14.61)	(-18.39)	(-18.08)	(-23.00)	(-11.73)
Other attributes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimated standard deviations	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of respondents (number of choices)	614 (3,684)	202 (1,212)	495 (2,970)	321 (1,926)	237 (1,422)	579 (3,474)	n.a. (2,991)	n.a. (1,905)
With safe option in Germany (T3$_G$+T4$_G$)								
High sustainability × non-incentivized	-0.30**	-0.65***	-0.44***	-0.19	-0.62***	-0.28**	-0.23	-0.67***
	(-2.34)	(-2.90)	(-2.87)	(-1.17)	(-3.08)	(-2.06)	(-1.46)	(-3.66)
High sustainability	1.79***	2.10***	2.19***	1.41***	2.14***	1.71***	1.99***	1.73***
	(17.35)	(10.20)	(17.37)	(10.31)	(11.85)	(15.64)	(15.14)	(11.31)
Fees	-0.35***	-0.40***	-0.37***	-0.34***	-0.41***	-0.33***	-0.41***	-0.26***
	(-22.32)	(-14.96)	(-20.58)	(-16.91)	(-15.76)	(-20.86)	(-22.76)	(-12.27)
Other attributes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimated standard deviations	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of respondents (number of choices)	373 (2,238)	135 (810)	312 (1,872)	196 (1,176)	175 (1,050)	333 (1,998)	n.a. (1,944)	n.a. (1,104)

Table 6 (continued): Estimation results for differences in preferences for sustainable investments between non-incentivized and incentivized settings across different experimental groups in Germany and France and across different subsamples with respect to *self-deceptive enhancement*, *impression management*, *strategic answering motives*, and *choice certainty*, dependent variable: *Choice*

Without safe option in France (T1$_F$+T2$_F$)

High sustainability × non-incentivized	-0.11	-0.11	0.01	-0.42***	-0.45**	-0.04	-0.17	-0.07
	(-1.25)	(-0.62)	(0.07)	(-2.61)	(-2.23)	(-0.46)	(-1.36)	(-0.64)
High sustainability	1.19***	1.40***	1.24***	1.19***	1.77***	1.13***	1.51***	1.03***
	(17.47)	(9.46)	(17.58)	(9.27)	(10.61)	(16.98)	(15.19)	(12.25)
Fees	-0.14***	-0.18***	-0.16***	-0.13***	-0.20***	-0.14***	-0.16***	-0.14***
	(-14.67)	(-9.05)	(-15.74)	(-7.34)	(-9.11)	(-14.84)	(-12.15)	(-11.72)
Other attributes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimated standard deviations	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of respondents	652	177	616	213	139	690	n.a.	n.a.
(number of choices)	(3,912)	(1,062)	(3,696)	(1,278)	(834)	(4,140)	(2,260)	(2,714)

Notes: This table reports SML estimates (robust z-statistics) in mixed logit models in preference space. The models in (1) are based on the subsample of respondents with scores for *self-deceptive enhancement* above the sample median in Germany. Accordingly, the models in (2) are based on the subsample of respondents with scores for *self-deceptive enhancement* lower than the sample median in Germany. The subsamples considered in the models in (3) and (4) are constructed analogously, but take the median of impression management as reference. To construct the subsamples for the models in (5) and (6), we distinguish between the respondents who mentioned the assessment of preferences for ecological, climate-friendly, or other sustainable investments as possible objective of the study (i.e. *strategic answering motives* takes the value of one) and those who did not (i.e. *strategic answering motives* takes the value of zero). Finally, in the models in (7) and (8), we distinguish between those choice situations where the respondents indicated to be rather or very certain in their choice, respectively (high choice certainty, i.e. *choice certainty* takes the value of one), and those choice situations where the respondents did not indicate any of these two categories in their choice, respectively (low choice certainty, i.e. *choice certainty* takes the value of zero). The upper panel refers to eight models for the summarized experimental groups T1$_G$ and T2$_G$ without safe option in Germany. In the middle panel, we consider the eight models for the summarized experimental groups T3$_G$ and T4$_G$ with option in Germany (T3$_G$ and T4$_G$). The lower panel refers to eight models for the summarized experimental groups T1$_F$ and T2$_F$ without safe option in France. We consider random parameters that are assumed to be normally distributed for the attributes *high sustainability*, *annual returns in the past two years*, and *share of bond issuers from the EU* in all models. For the summarized experimental groups T3$_G$ and T4$_G$, we additionally consider a random parameter for *safe option* that is assumed to be normally distributed. The parameters for the attribute *fees* and for the interaction terms between *high sustainability* and *non-incentivized* are assumed to be fixed. All variables are defined in Section 2.2. We only show the estimated mean parameters for the interaction terms between *high sustainability* and *non-incentivized*, *high sustainability*, and *fees* due to brevity, but the estimation results that also show the remaining estimated mean and standard deviation parameters are available upon request. * (**, ***) means that the estimated parameter is different from zero at the 10% (5%, 1%) significance level, respectively.

Table 7: Estimation results for differences in preferences for sustainable investments between non-incentivized and incentivized settings across different experimental groups in Germany and France and across different subsamples with respect to *financial literacy*, *knows sustainable investments*, and *perceived impact*, dependent variable: *Choice*

	Financial literacy		Knows sustainable investments		Perceived impact	
	High	Low	Yes	No	High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
No safe option groups in Germany (T1$_G$+T2$_G$)						
High sustainability × non-incentivized	0.45**	0.17	-0.03	-0.21	-0.21	-0.09
	(2.10)	(0.37)	(-0.27)	(-1.56)	(-1.49)	(-0.75)
High sustainability	0.67***	1.00***	2.24***	1.56***	2.56***	1.36***
	(4.33)	(2.89)	(21.64)	(14.60)	(20.96)	(14.89)
Fees	-0.07***	-0.03	-0.31***	-0.19***	-0.21***	-0.28***
	(-2.72)	(-0.71)	(-22.77)	(-12.91)	(-14.91)	(-20.89)
Other attributes	Yes	Yes	Yes	Yes	Yes	Yes
Estimated standard deviations	Yes	Yes	Yes	Yes	Yes	Yes
Number of respondents (number of choices)	448 (2,688)	368 (2,208)	475 (2,850)	341 (2,046)	390 (2,340)	426 (2,556)
Safe option groups in Germany (T3$_G$+T4$_G$)						
High sustainability × non-incentivized	0.09	-0.43	-0.34**	-0.45***	-0.41**	-0.21
	(0.33)	(-0.95)	(-2.24)	(-2.62)	(-2.46)	(-1.42)
High sustainability	0.99***	0.48	1.93***	1.72***	2.37***	1.34***
	(4.90)	(1.57)	(15.16)	(12.44)	(16.13)	(11.50)
Fees	-0.10***	-0.04	-0.38***	-0.32***	-0.30***	-0.39***
	(-3.08)	(-0.62)	(-21.18)	(-15.48)	(-15.57)	(-20.92)
Other attributes	Yes	Yes	Yes	Yes	Yes	Yes
Estimated standard deviations	Yes	Yes	Yes	Yes	Yes	Yes
Number of respondents (number of choices)	287 (1,722)	221 (1,326)	291 (1,746)	217 (1,302)	229 (1,374)	279 (1,674)

Table 7 (continued): Estimation results for differences in preferences for sustainable investments between non-incentivized and incentivized settings across different experimental groups in Germany and France and across different subsamples with respect to *financial literacy*, *knows sustainable investments*, and *perceived impact*, dependent variable: *Choice*

No safe option groups in France (T1$_F$+T2$_F$)

	(1)	(2)	(3)	(4)	(5)	(6)
High sustainability × non-incentivized	0.14	-0.02	-0.23*	0.02	-0.16	0.02
	(0.95)	(-0.09)	(-1.89)	(0.17)	(-1.15)	(0.15)
High sustainability	0.82***	0.87***	1.47***	1.03***	1.65***	0.93***
	(7.09)	(4.53)	(15.54)	(12.47)	(15.15)	(12.22)
Fees	-0.09***	-0.02	-0.20***	-0.11***	-0.11***	-0.17***
	(-5.35)	(-0.75)	(-14.99)	(-9.72)	(-7.46)	(-15.81)
Other attributes	Yes	Yes	Yes	Yes	Yes	Yes
Estimated standard deviations	Yes	Yes	Yes	Yes	Yes	Yes
Number of respondents	545	284	374	455	300	529
(number of choices)	(3,270)	(1,704)	(2,244)	(2,730)	(1,800)	(3,174)

Note: This table reports SML estimates (robust z-statistics) in mixed logit models in preference space. The models in (1) are based on the subsample of respondents with correct answers to all three financial literacy questions (high financial literacy). Accordingly, the models in (2) are based on the subsample of respondents with a lower number of correct answers (low financial literacy). The subsamples considered in the models in (3) and (4) are constructed for respondents who indicated to have heard of sustainable investments before the study (i.e. *knows sustainable investments* takes the value of one) and those who did not (i.e. *knows sustainable investments* takes the value of zero). To construct the subsamples for the models in (5) and (6), we distinguish between respondents who indicated that bond funds rather or strongly contribute to sustainable development (high perceived impact, i.e. *perceived impact* takes the value of one) and those who did not indicate any of these two categories (low perceived impact, i.e. *perceived impact* takes the value of zero). The upper panel refers to six models for the summarized experimental groups T1$_G$ and T2$_G$ without safe option in Germany. In the middle panel, we consider the six models for the summarized experimental groups T3$_G$ and T4$_G$ with option in Germany (T3$_G$ and T4$_G$). The lower panel refers to six models for the summarized experimental groups T1$_F$ and T2$_F$ without safe option in France. We consider random parameters that are assumed to be normally distributed for the attributes *high sustainability*, *annual returns in the past two years*, and *share of bond issuers from the EU* in all models. For the summarized experimental groups T3$_G$ und T4$_G$, we additionally consider a random parameter for *safe option* that is assumed to be normally distributed. The parameters for the attribute *fees* and for the interaction terms between *high sustainability* and *non-incentivized* are assumed to be fixed. All variables are defined in Section 2.2. We only show the estimated mean parameters for the interaction terms between *high sustainability* and *non-incentivized*, *high sustainability*, and *fees* due to brevity, but the estimation results that also show the remaining estimated mean and standard deviation parameters are available upon request. * (**, ***) means that the estimated parameter is different from zero at the 10% (5%, 1%) significance level, respectively.

Table 8: Estimation results for the correlations between individual characteristics and preferences for sustainable investments across different experimental groups in Germany and France, dependent variable: *Choice*

	Germany				France	
	No safe option		Safe option		No safe option	
	Non-incentivized choices	Incentivized choices	Non-incentivized choices	Incentivized choices	Non-incentivized choices	Incentivized choices
	T1$_G$	T2$_G$	T3$_G$	T4$_G$	T1$_F$	T2$_F$
Estimated mean						
Fees	-0.31***	-0.30***	-0.37***	-0.33***	-0.21***	-0.22***
	(-21.33)	(-20.63)	(-18.98)	(-18.05)	(-17.00)	(-16.57)
High sustainability x high perceived risk	-0.65***	-0.47***	-0.12	-0.27	-0.24*	0.04
	(-4.28)	(-3.13)	(-0.71)	(-1.54)	(-1.89)	(0.31)
High sustainability x warm glow	0.98***	0.73***	0.77***	1.25***	0.47***	0.38**
	(5.16)	(4.09)	(3.58)	(5.58)	(2.64)	(2.03)
High sustainability x expectation social environment	-0.33**	-0.10	-0.30*	-0.25	-0.06	-0.33**
	(-2.16)	(-0.66)	(-1.73)	(-1.37)	(-0.52)	(-2.43)
High sustainability x volunteering	-0.27*	-0.10	0.08	0.36**	-0.11	0.00
	(-1.85)	(-0.65)	(0.44)	(2.06)	(-0.89)	(0.00)
High sustainability x high social policy orientation	-0.01	0.27	-0.07	0.56***	-0.00	-0.16
	(-0.08)	(1.63)	(-0.40)	(2.93)	(-0.04)	(-1.17)
High sustainability x high ecological policy orientation	0.81***	0.82***	1.04***	0.43**	0.16	0.33**
	(4.95)	(4.75)	(5.54)	(2.23)	(1.22)	(2.26)
High sustainability x female	0.11	0.15	0.29*	-0.18	0.12	-0.12
	(0.76)	(0.99)	(1.74)	(-1.02)	(1.03)	(-0.99)
High sustainability x age	0.00	0.01	-0.00	0.01	-0.01***	-0.00
	(1.19)	(1.37)	(-1.00)	(1.25)	(-3.30)	(-0.96)
High sustainability x high education	0.26*	0.10	0.06	0.15	0.11	0.55***
	(1.71)	(0.66)	(0.35)	(0.82)	(0.84)	(3.97)
High sustainability x living together or married	-0.07	0.34**	0.06	-0.44**	0.24**	-0.14
	(-0.44)	(2.26)	(0.36)	(-2.50)	(2.02)	(-1.08)
High sustainability x Western Germany	0.08	0.17	0.31*	0.45**	--	--
	(0.51)	(1.01)	(1.69)	(2.32)		
High sustainability	0.36	0.08	0.37	-0.05	0.89***	0.92***
	(1.15)	(0.26)	(1.02)	(-0.13)	(3.39)	(3.40)
Annual returns in the past two years	0.20***	0.23***	0.21***	0.21***	0.17***	0.17***
	(15.75)	(16.59)	(12.65)	(11.88)	(15.31)	(14.03)
Share of bond issuers from the EU	0.80***	0.81***	0.73***	0.93***	0.05	0.68***
	(5.28)	(5.12)	(3.77)	(4.78)	(0.38)	(4.52)
Safe option	--	--	-1.55***	-0.57**	--	--
			(-4.71)	(-2.10)		

Table 8 (continued): Estimation results for effects of individual characteristics on sustainable investments for different experimental groups in Germany and France, dependent variable: *Choice*

Estimated standard deviation

High sustainability	1.40***	1.46***	1.43***	1.16***	1.18***	1.34***
	(12.22)	(11.94)	(10.14)	(7.84)	(12.20)	(12.73)
Annual returns in the past two years	0.21***	0.20***	0.21***	0.17***	0.15***	0.18***
	(10.65)	(9.76)	(10.09)	(6.95)	(8.30)	(9.68)
Share of bond issuers from the EU	2.04***	2.28***	1.54***	-2.09***	-2.05***	3.09***
	(7.49)	(8.35)	(4.57)	(-7.28)	(-8.13)	(12.18)
Safe option	--	--	3.28***	2.76***	--	--
			(9.34)	(8.58)		
Number of respondents	408	408	255	253	422	407
(number of choices)	(2,448)	(2,448)	(1,530)	(1,518)	(2,532)	(2,442)

Notes: This table reports SML estimates (robust z-statistics) in mixed logit models in preference space. We distinguish between the non-incentivized and incentivized experimental groups $T1_G$ and $T2_G$ without safe option in Germany, the non-incentivized and incentivized experimental groups $T3_G$ and $T4_G$ with safe option in Germany, and the non-incentivized and incentivized experimental groups $T1_F$ und $T2_F$ with safe option in France. We consider random parameters that are assumed to be normally distributed for the attributes *high sustainability*, *annual returns in the past two years*, and *share of bond issuers from the EU* in all models. For the experimental groups $T3_G$ und $T4_G$ we additionally consider a random parameter for *safe option* that is assumed to be normally distributed. The parameters for the attribute *fees* and for the interaction terms between *high sustainability* and individual characteristics (high perceived risk, warm glow, expectation social environment, volunteering, high social policy orientation, high ecological policy orientation, female, age, high education, living together or married, and Western Germany) are assumed to be fixed. All variables are defined in Section 2.2. The "estimated mean" panel reports the estimated fixed parameters and the estimated means of the random parameters. The "estimated standard deviation" panel reports the estimated standard deviations of the random parameters. * (**, ***) means that the estimated parameter is different from zero at the 10% (5%, 1%) significance level, respectively.

Figures

Figure 1: Exemplary choice situation without safe option (translated from German/French)

In each of the six choice situations, please indicate which of the four bond funds offered you would like to purchase for an investment amount of €500. To do so, please select the fund you would like to purchase.

To view the explanation of a term again, please click on (?) next to the respective term or on the corresponding term itself.

	Bond fund 1	Bond fund 2	Bond fund 3	Bond fund 4
Fees (?)	3.81%	4.02%	0.44%	3.60%
Strength of sustainability (?)	Very low	Rather high	Rather low	Very high
Annual returns in the past two years (?)	12.75%	6.10%	8.75%	5.65%
Share of issuers of bonds from the European Union (?)	26.36%	59.32%	17.10%	72.93%
Your choice	☐	☐	☐	☐

Figure 2: Exemplary choice situation with safe option (translated from German/French)

In each of the six choice situations, please indicate which of the four bond funds offered you would like to purchase for an investment amount of €500. To do so, please select the fund you would like to purchase.

To view the explanation of a term again, please click on (?) next to the respective term or on the corresponding term itself.

	Bond fund 1	Bond fund 2	Bond fund 3	Bond fund 4	Bank account
Fees (?)	3.81%	4.02%	0.44%	3.60%	
Strength of sustainability (?)	Very low	Rather high	Rather low	Very high	
Annual returns in the past two years (?)	12.75%	6.10%	8.75%	5.65%	
Share of issuers of bonds from the European Union (?)	26.36%	59.32%	17.10%	72.93%	
Your choice	☐	☐	☐	☐	☐

Online Appendix

Part A: Construction of the fund universe for the experiment

The investment universe for the investment experiments was based on real-market bond funds. We only considered bonds for the inclusion into the investment universe when they could be bought by individual investors from Germany either at a stock exchange or directly from the provider of the bond fund. For some retail investment products that are traded on the capital market, there is a minimum amount that has to be invested to be able to buy the corresponding investment product. Funds were only eligible for the inclusion into the investment universe if the minimum amount for investments in the bond fund did not exceed €250, such that the funds were also a realistic investment option for people with less financial means. In addition, the 16 bond funds were selected such that the values of the different attributes were almost uncorrelated across alternatives. Concerning the strength of sustainability, we selected four bond funds with one, four bond funds with two, four bond funds with four, and four bond funds with five globes according to the Morningstar Sustainability Rating. Referring to Hartzmark and Sussman (2019), who do not find significant investor reactions to a rating of three globes, we do not include this category. In addition, we only considered actively man-aged bond funds that invested the majority of their assets in a portfolio of corporate and public bonds, but could also include other positions such as cash and other financial products (e.g. derivatives). All considered bond funds reinvested their income in the fund, were traded in €, and had very similar risk and return profiles (i.e. they received the value of two or three according to the German key investor information document (on a scale that ranges between one for funds with the lowest risk and return profiles and seven for the highest risk and return profiles). With this approach, we identified a total of 16 real-market bond funds as the investment universe of the experiment. The following table reports the corresponding funds and their attribute levels.

Number	ISIN	Name	Strength of sustainability	Annual returns in the past two years	Share of issuers of bonds from the European Union	Fees
1	LU1542252181	Allianz Green Bond - AT EUR ACC	Very high	5.45%	55.12%	6.15%
2	LU0665630736	Allianz GIF - Allianz China Strategic Bond - AT EUR ACC H	Rather high	2.45%	0.00%	3.71%
3	LU0503630740	Pictet - Global Sustainable Credit - HI EUR ACC H	Very high	6.60%	49.10%	6.67%
4	LU1781815300	Edmond de Rothschild Fund Crossover Credit - CR EUR ACC	Rather high	5.60%	30.11%	2.03%
5	LU1104108243	BNPP Flexible Global Credit - Classic EUR ACC	Rather high	0.25%	36.95%	3.80%
6	LU1472740767	Mirova Global Green Bond Fund - R/A EUR ACC	Rather high	6.10%	59.32%	4.02%
7	LU1586216068	NN (L) Green Bond - P EUR ACC	Very high	5.65%	72.93%	3.60%
8	LU1280196426	AXA World Funds - Global Green Bonds - I EUR ACC	Very high	6.20%	65.31%	0.55%
9	LU0133089424	T.Rowe Price Funds-Euro Corporate Bond Fund - A EUR ACCFonds	Rather low	4.90%	47.20%	5.92%
10	LU0155951089	Credit Suisse (Lux) Corporate Short Duration EUR Bond Fund - B ACC	Very low	1.20%	44.73%	5.80%
11	IE00B567SW70	GAM Star Credit Opportunities (EUR) - Ordinary ACC Fonds	Rather low	6.65%	53.05%	6.53%
12	LU0660296624	Credit Suisse(Lux)Emerging Market Corporate Bond Fund - IB USD ACC	Very low	12.75%	26.36%	3.81%
13	LU1727354448	JPMorgan Funds-Global Corporate Bond - I2 EUR ACC H	Rather low	8.75%	17.10%	0.44%
14	LU0029761706	UBAM Dynamic Euro Bond - AC EUR ACC	Rather low	-0.20%	43.32%	3.54%
15	LU1663942362	DWS Invest Short Duration Credit - TFC EUR ACC	Very low	1.60%	71.40%	0.51%
16	AT0000A1PKM0	ERSTE Bond Corporate Plus - EUR ACC	Very low	5.96%	83.23%	4.16%

Part B: Experimental instructions and survey questions for the variables in the econo-metric analysis (translated from German/French)

Experimental instructions

The following experimental instructions were shown to respondents in the non-incentivized experimental group without safe option:

Please carefully read the following text, after 20 seconds at the earliest you can go to 'next'.
We would now like to return to the topic of financial investments. On the following pages you will be shown six times each four different actively managed bond funds that are available in the financial market. Such funds are investments that invest a majority of their assets in a portfolio of corporate and public bonds and may also include other positions such as cash and other financial products (e.g. derivatives). All funds considered reinvest income in the fund, are traded in euros (€), invest the majority of their portfolio in corporate bonds, and have very similar risk and return profiles. In each of these six decision situations, please indicate which of the four bond funds you find so attractive that you would be most likely to purchase it given an investment amount of €500.

Please decide in each selection situation as if you would actually select one of the four bond funds in each case in reality. In particular, please remember to consider your personal financial situation when making each decision.

When making your decisions, assume that each of the investments will be realized after the survey ends in July 2021 and will run for exactly one year. Imagine that after that, in August 2022, the bond funds will be sold and you will be paid the current values of your funds.

Examples:

If the value of your bond fund were to increase to €550 by August 2022, you would be paid €550 less applicable fees.

On the other hand, if the value of your bond fund were to decrease to €450 by August 2022, you would be paid €450 less applicable fees.

The following experimental instructions were shown to respondents in the incentivized experimental group without safe option:

Please carefully read the following text, after 20 seconds at the earliest you can go to 'next'.

We would now like to return to the topic of financial investments. On the following pages you will be shown six times each four different actively managed bond funds that are available in the financial market. Such funds are investments that invest a majority of their assets in a portfolio of corporate and public bonds and may also include other positions such as cash and other financial products (e.g. derivatives). All funds considered reinvest income in the fund, are traded in €, invest the majority of their portfolio in corporate bonds, and have very similar risk and return profiles. In each of these six decision situations, please indicate which of the four bond funds you would like to purchase given an investment amount of €500.

Following the survey, ten people will be randomly selected from all participants. For each of these ten people, one of the six investment decisions made by them will be randomly selected and realized by us after the end of the survey in July 2021.

The investment will run for exactly one year. After that, in August 2022, the bond funds will be sold and the selected individuals will be paid the current value of their fund.

Examples:

If you are one of the ten selected individuals, one of your investment choices will be randomly selected and realized in July 2021.

If the value of your bond fund increases to €550 by August 2022, you will be paid €550 less applicable fees.

On the other hand, if the value of your bond fund decreases to €450 by August 2022, you will be paid €450 less applicable fees.

The ten randomly selected winners will be notified that they have been selected after the selection process has been completed. We guarantee that all this information is true and will be implemented. Please also note that you are completely free to make this decision. Since the selection of the ten winners is random, you should make your decision in the following for each choice situation as if you would be drawn for sure.

The following introduction screen for the investment choice experiment was shown to respondents in the non-incentivized experimental group with safe option:

Please carefully read the following text, after 20 seconds at the earliest you can go to 'next'.

We would now like to return to the topic of financial investments. On the following pages you will be shown six times each four different actively managed bond funds that are available in the financial market. Such funds are investments that invest a majority of their assets in a portfolio of corporate and public bonds and may also include other positions such as cash and other financial products (e.g. derivatives). All funds considered reinvest income in the fund, are traded in euros (€), invest the majority of their portfolio in corporate bonds, and have very similar risk and return profiles. n each of these six decision situations, please indicate which of the four bond funds you find so attractive that you would be most likely to purchase it if you had an investment amount of €500, or whether you would leave the money in a bank account.

In each selection situation, please decide as if you would actually select one of the four bond funds in each case in reality. In particular, please remember to consider your personal financial situation when making each decision.

When making your decisions, assume that each of the investments will be realized after the survey ends in July 2021 and will run for exactly one year. Imagine that after that, in August 2022, the bond funds will be returned and you will be paid the then-current values of your funds.

Examples:

If the value of your bond fund were to increase to €550 by August 2022, you would be paid €550 less applicable fees.

On the other hand, if the value of your bond fund were to decrease to €450 by August 2022, you would be paid €450 less applicable fees.

If you left the money in a bank account, you would be paid €500 in August 2022 in any case.

The following experimental instructions were shown to respondents in the incentivized experimental group with safe option:

Please carefully read the following text, after 20 seconds at the earliest you can go to 'next'.

We would now like to return to the topic of financial investments. On the following pages you will be shown six times each four different actively managed bond funds that are available in the financial market. Such funds are investments that invest a majority of their assets in a portfolio of corporate and public bonds and may also include other positions such as cash and other financial products (e.g. derivatives). All funds considered reinvest income in the fund, are traded in euros (€), invest the majority of their portfolio in corporate bonds, and have very similar risk and return profiles. In each of these six decision situations, please indicate which of the four bond funds you would like to purchase given an investment amount of €500 or whether you would like to leave the money in a bank account.

Following the survey, ten people will be randomly selected from all participants. For each of these ten people, one of the six investment decisions they made will be randomly selected and realized by us after the survey ends in July 2021.

The investment will run for exactly one year. After that, in August 2022, the bond funds will be returned and the selected individuals will be paid the current value of their fund.

Examples:

If you are one of the ten selected individuals, one of your investment choices will be randomly selected and realized in July 2021.

If the value of your bond fund increases to €550 by August 2022, you will be paid €550 less applicable fees.

Conversely, if the value of your bond fund decreases to €450 by August 2022, you will be paid €450 less applicable fees.

If you leave the money in a bank account, you will be paid €500 in August 2022 in any case.

The ten randomly selected winners will be notified that they have been selected after the selection process has been completed. We guarantee that all this information is true and will be implemented. Please also note that you are completely free to make this decision. Since the selection of the ten winners is random, you should make your decision in the following for each choice situation as if you would be drawn for sure.

Survey questions - Individual characteristics for the heterogeneity analysis

The following request is used to construct the explanatory variable 'choice certainty:'

	Very uncertain	Rather uncertain	Unde-cided	Rather certain	Very certain
Please indicate how certain you were about your decision:	☐	☐	☐	☐	☐

The following prompt is used to construct the explanatory variable 'strategic answering motives:'

Please describe in one sentence what you think this study will be used for.

_____

The following question and requests are used to construct the explanatory variable 'financial literacy:'

Imagine that someone puts €100 into a savings account with a guaranteed interest rate of 2% per year. They don't make any further payments into this account and they don't withdraw any money. How much would be in the account at the end of five years?

More than €102	Exactly €102	Less than €102	Do not know	Refuse to answer
☐	☐	☐	☐	☐

Imagine that the interest rate on your savings account is 1% per year and inflation is 2% per year. Please give your estimate of how much you could buy with the money in the savings account after one year.

More than today	Exactly the same	Less than today	Do not know	Refuse to answer
☐	☐	☐	☐	☐

Please give your assessment of whether the following statement is true or false: "Buying a single stock usually has a safer return than a stock mutual fund."

True	False	Do not know	Refuse to answer
☐	☐	☐	☐

The following question is used to construct the explanatory variable 'knows sustainable investments:'

Have you ever heard of sustainable investments before this survey?

Yes	☐
No	☐

The following question is used to construct the explanatory variable 'perceived impact:'

In your investment decisions, a bond fund with a high or very high strength of sustainability was available at least once. In your opinion, how strongly do such investments contribute to sustainable development?

Not at all	Rather weakly	Undecided	Rather strongly	Very strongly
☐	☐	☐	☐	☐

The following statements are used to construct the explanatory variables 'impression management' and 'self-deceptive enhancement:'

	Strongly disagree	Rather disagree	Unde-cided	Rather agree	Strongly agree
My first impression of people usually turns out to be right	☐	☐	☐	☐	☐
I am very confident of my judgement	☐	☐	☐	☐	☐
I always know why I like things	☐	☐	☐	☐	☐
I have received too much change from a salesperson without telling him or her	☐	☐	☐	☐	☐
I am always honest towards other people	☐	☐	☐	☐	☐
There have been occasions when I have taken advantage of someone	☐	☐	☐	☐	☐

Survey questions – Individual characteristics as explanatory variables

The following statement is used to construct the explanatory variable 'high perceived risk:

	Strongly disagree	Rather disagree	Unde-cided	Rather agree	Strongly agree	I don't know
Sustainable investments are riskier than conventional investments	☐	☐	☐	☐	☐	☐

The following statement is used to construct the explanatory variable 'warm glow:'

	Strongly disagree	Rather disagree	Unde-cided	Rather agree	Strongly agree
It makes me feel good when I behave sustainably	☐	☐	☐	☐	☐

The following statement is used to construct the explanatory variable 'expectation social environment:'

	Strongly disagree	Rather disagree	Unde-cided	Rather agree	Strongly agree
My social environment (e.g. family, friends, colleagues) expects me to behave in a sustainable manner	☐	☐	☐	☐	☐

The following question is used to construct the explanatory variable 'volunteering:'

Do you engage in volunteering activities?

Yes	☐
No	☐

The following statements are used to construct the explanatory variables 'social policy iden-tification,' and 'ecological policy identification:'

	Strongly disagree	Rather disagree	Unde-cided	Rather agree	Strongly agree
I identify myself with socially oriented policy	☐	☐	☐	☐	☐
I identify myself with ecologically oriented policy	☐	☐	☐	☐	☐

The following request is used to construct the explanatory variable 'female:'

Please indicate your gender:

Male	☐
Female	☐
Diverse	☐

The following request is used to construct the explanatory variable 'age:'

Please indicate your age:

Age in years: _____

The following request is used to construct the explanatory variable 'high education:'

German version

Please indicate your highest school or university degree:

I left school without a graduate	□
I am currently going to school	□
I am currently studying	□
Elementary or secondary school degree (GDR: 8th grade)	□
Secondary school degree ("Mittlere Reife") (GDR: 10th grade)	□
Degree from a polytechnic high school (8th / 10th grade)	□
Advanced technical college certificate	□
High school degree ("Abitur") or higher education entrance qualification	□
Degree from a university of applied sciences or from a vocational academy (GDR: engineering and technical high school degree)	□
University or college degree	□
Doctorate or habilitation	□
Other qualifications with a high school degree ("Abitur") or a higher education entrance qualification	□
Other qualifications without a high school degree ("Abitur") or a higher education entrance qualification	□

French version

Please indicate your highest school or university degree:

I left school without a graduate	□
I am currently going to school	□
I am currently studying	□
Certificate of professional competence (CAP)	□
Professional certificate (BP)	□
High school degree (bac) or higher education entrance qualification	□
University Diploma of Technology (DUT)	□
Degree from a university of applied sciences or from a vocational academy (BTS & DMA)	□
University or college degree / Bachelor´s degree (LMD)	□
Licence professionnelle	□
Magistrates, degrees in political science and degrees from the ENS, the EPHE or private faculties	□
Engineering degree	□
Degree or certificate from a business school (bac+5)	□
Master's degree (LMD)	□
Doctorate or habilitation	□
Other qualifications with a high school degree ("Abitur") or a general / specialized higher education entrance qualification	□
Other qualifications without a high school degree ("Abitur") or a general / specialized higher education entrance qualification	□

The following request is used to construct the explanatory variable 'living together or married:'

Please indicate your marital status:

Single	☐
Living together but not married	☐
Married and living with the spouse	☐
Divorced or living separately	☐
Widowed	☐

The following request is used to construct the explanatory variable 'Western Germany:'

Please indicate in which city or municipality you currently live:

Name of the city or municipality: _____
Zip code of the city or municipality: _____

Part C: Table regarding randomization check

	Difference in means (z-statistics)						
	$T2_G$ versus $T1_G$	$T3_G$ versus $T1_G$	$T4_G$ versus $T1_G$	$T3_G$ versus $T2_G$	$T4_G$ versus $T2_G$	$T4_G$ versus $T3_G$	$T2_F$ versus $T1_F$
Self-deceptive enhancement	0.03	0.01	-0.02	-0.02	-0.05	-0.03	-0.04
	(0.97)	(0.26)	(-0.46)	(-0.59)	(-1.32)	(-0.65)	(-1.34)
Impression management	0.07*	0.08**	0.00	0.02	-0.07*	-0.08*	0.00
	(1.94)	(2.12)	(-0.02)	(0.43)	(-1.73)	(-1.94)	(0.07)
Financial literacy	-0.06*	-0.02	-0.01	0.04	0.05	0.01	-0.06*
	(-1.83)	(-0.50)	(-0.31)	(1.10)	(1.29)	(0.17)	(-1.67)
Knows sustainable investments	-0.05	-0.03	-0.04	0.02	0.01	-0.01	-0.05
	(-1.49)	(-0.78)	(-1.00)	(0.52)	(0.31)	(-0.19)	(-1.45)
High perceived risk	-0.03	0.00	0.02	0.03	0.06*	0.03	-0.02
	(-1.12)	(-0.05)	(0.65)	(0.93)	(1.65)	(0.63)	(-0.56)
Warm glow	0.00	-0.02	-0.02	-0.03	-0.02	0.01	0.00
	(0.18)	(-0.70)	(-0.53)	(-0.86)	(-0.69)	(0.15)	(0.04)
Expectation social environment	-0.04	-0.02	-0.02	0.02	0.02	0.00	0.00
	(-1.08)	(-0.55)	(-0.43)	(0.39)	(0.52)	(0.11)	(0.12)
Volunteering	0.00	-0.02	-0.04	-0.03	-0.04	-0.02	-0.02
	(0.07)	(-0.61)	(-1.10)	(-0.67)	(-1.16)	(-0.44)	(-0.65)
Social policy identification	-0.07**	-0.04	-0.04	0.03	0.04	0.00	0.03
	(-2.11)	(-1.00)	(-0.93)	(0.84)	(0.92)	(0.07)	(0.90)
Ecological policy identification	0.02	0.00	0.01	-0.02	-0.01	0.01	0.01
	(0.70)	(0.08)	(0.28)	(-0.53)	(-0.33)	(0.18)	(0.19)
Female	0.02	-0.01	0.02	-0.03	0.00	0.03	-0.04
	(0.58)	(-0.28)	(0.58)	(-0.79)	(0.06)	(0.77)	(-1.15)
Age	0.74	1.25	-0.88	0.50	-1.62	-2.12	0.83
	(0.61)	(0.89)	(-0.62)	(0.36)	(-1.16)	(-1.35)	(0.77)
High education	-0.05	-0.02	0.00	0.03	0.05	0.02	-0.05
	(-1.55)	(-0.56)	(-0.01)	(0.80)	(1.35)	(0.49)	(-1.40)
Married	0.02	0.00	-0.02	-0.03	-0.05	-0.02	-0.04
	(0.66)	(-0.10)	(-0.63)	(-0.68)	(-1.21)	(-0.48)	(-1.20)
Western Germany	0.01	0.03	-0.02	0.02	-0.03	-0.05	-
	(0.42)	(0.87)	(-0.60)	(0.51)	(-0.98)	(-1.33)	
Number of respondents	816	663	661	663	661	508	827

Note: This table reports the differences in the means of all individual characteristics between the different experimental groups and the corresponding z-statistics of the mean comparison z-test. We distinguish between the non-incentivized and incentivized experimental groups $T1_G$ and $T2_G$ without safe option in Germany, the non-incentivized and incentivized experimental groups $T3_G$ and $T4_G$ with safe option in Germany, and the non-incentivized and incentivized experimental groups $T1_F$ und $T2_F$ with safe option in France. * (**, ***) means that the mean difference between the experimental groups is different from zero at the 10% (5%, 1%) significance level, respectively.

References for the Online Appendix

Hartzmark, S. M. and A. B. Sussman (2019), Do investors value sustainability? A natural experiment examining ranking and fund flows, *The Journal of Finance* 74 (6), 2789-2837.