The Impact of Sustainable Finance Literacy on Investment Decisions

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Abstract

This paper examines the effects of an educational program on Sustainable Finance Literacy (SFL) and its influence on sustainable investment decisions. Through a randomized controlled trial and an incentivized choice experiment, we found that the SFL program significantly enhances literacy, with participants more likely to invest in highly sustainable funds by 6 percentage points and less likely to choose less sustainable options (by 2.5 to 3 percentage points). These treatment effects were stronger among investors with pre-existing green attitudes. Additionally, higher SFL correlated with more accurate sustainability perceptions and reduced tendencies to chase past high returns.

JEL Classification: G11; G18; G41; G53; C83

Keywords: Sustainable Finance Literacy, RCT, text analysis, household finance

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1 Introduction

Sustainable finance entails significant complexities for retail investors, particularly due to investors' widespread deficiency in Sustainable Finance Literacy (SFL). Sustainable Finance Literacy, defined by Filippini et al. (2024), encompasses the knowledge and skills needed to identify and evaluate sustainable finance products to make informed investment decisions. Despite its recognized importance in influencing sustainable investment behaviors, the impact of SFL and the underlying mechanisms remain unclear (Filippini et al., 2024).

Our study investigates the impact of an educational intervention on the level of SFL and the choice of financial funds with different levels of sustainability, using an incentivized and preregistered choice experiment.[1] After receiving an educational treatment about sustainable finance literacy, participants of the online experiment invested a budget among four mutual funds with different levels of sustainability. This setting allows us to show a causal effect of SFL on investment behavior in an experimental setting.

The importance of SFL has been increasingly acknowledged in recent research, consistently highlighting its low prevalence among households. This deficit critically affects the ownership and selection of sustainable financial products (Filippini et al., 2024; Seifert et al., 2024a; Strauss et al., 2023). The complexity of these products imposes a barrier to investors with sustainability-friendly attitudes, which prevents them from aligning investments and personal values (Anderson and Robinson, 2022).[2] Consequently, there is a pressing need for targeted educational interventions to bridge this literacy gap.

This need for robust educational interventions to improve the level of SFL of private investors is particularly pertinent within the current regulatory landscape for two reasons. First, the current European regulations classify several types of sustainable financial products that are difficult to distinguish. In the United States, the SEC is preparing regulations similar to the EU's Sustainable Finance Disclosure Regulation.[3] Second, under the European Union's Markets in Financial Instruments Directive II (MiFID-II), financial institutions are

[1] Preregistration on OSF under the following link:
`https://osf.io/ksw7p/?view_only=ca1d9985b9a14c16beaedefdd8c7ffb5`;
based on a grant application submitted to the Swiss Federal Office of Energy in June 2022 and approved by the ethics commission of ETH Zurich under the number 2023-N-282.

[2] In a general finance setting, Hastings and Tejeda-Ashton (2008) found that simplifying and making financial information more transparent is an effective way to address low levels of financial literacy and (Agnew et al., 2018) suggested that investors with higher financial literacy were less likely to follow poor investment advice. Similarly, Bateman et al. (2016) showed in a hypothetical choice experiment that individuals with high financial literacy and high numerical abilities are more likely to align their investments with the expected utility framework.

[3] More information under: https://www.sec.gov/rules-regulations/2022/10/s7-17-22 .

required to assess the sustainability preferences of retail investors. Yet, they are not mandated to provide educational resources. Therefore, to ensure that private investors reveal their genuine sustainability preferences, make informed decisions, and are able to align their values with investments, increasing the level of SFL through educational interventions is essential. Furthermore, understanding how these interventions influence investor decision-making processes is equally critical to better target interventions.

We expand the scope of previous studies by updating and validating the concept of sustainable finance literacy of Filippini et al. (2024) to include it in an experimental setting, improving its precision and ensuring external validity beyond the experimental context. Comprehensive validations are essential to ensure that treatment and the SFL index effectively cover literacy (i.e., the ability to identify and evaluate sustainable finance products). The educational program must be relevant to the choice experiment and comprehensible to participants. This means the intervention should improve participants' understanding of mutual funds within the experimental setting and demonstrate usefulness in real life. We used multiple validations to ensure that the information provided was relevant and well-understood by the participants. We followed Heeb et al. (2023) by validating the information treatments, SFL questions, and the choice cards with experts (from academia, policymakers, industry, and NGOs) and through several pre-tests.

The specific type of information provided through educational programs to bridge the SFL gap is crucial, as not all content effectively addresses the literacy deficit. Some interventions may mostly prime investors with general information, similar to the effects of advertising, without genuinely enhancing their sustainable finance literacy. This experiment used two control groups to distinguish between the effects of increasing literacy and priming, where poor SFL represents a barrier that prevents potentially interested investors from participating in the market. Nudging or priming, on the other hand, does not reduce a particular knowledge barrier but has been shown to be effective in inducing environmentally friendly consumption or healthy diet choices (Kurz, 2018; Ruiz-Tagle and Schueftan, 2021; Streletskaya et al., 2014). Hence, it is crucial to use a setup that allows differentiating the educational treatment from priming (Haaland et al., 2023), similar to recent experiments on the effect of financial literacy (Oberrauch and Kaiser, 2024).

Our study design allows for a nuanced analysis of investment decisions by distinguishing between intensive and extensive margins – specifically, between the decision to invest at all (extensive margin) and, conditional on investing, how much to invest (intensive margin). While the extensive margin highlights whether low SFL acts as a barrier that deters potentially interested individuals from entering the market, the intensive margin shows whether

SFL affects investors' trade-offs between available options. This distinction is particularly relevant for policymakers and industry stakeholders, as it sheds light on whether SFL education fosters new participation in sustainable investing or shifts the portfolio composition of those already engaged.

Our research offers significant insights into the mechanisms by which SFL affects investment decisions. Following the main incentivized experiment, we conducted a non-incentivized setup with randomized past returns to examine the effect of SFL on return-chasing behavior. In addition, participants were assigned subjective sustainability ratings for each investment option, offering additional evidence of how SFL treatment may have shaped their perceptions of sustainability.

In addition to these findings, we introduce two methodological innovations to advance the understanding of SFL's impact. First, we used an open question combined with text analysis at the beginning of the survey to elicit investor preferences. This technique is gaining traction in economic research because it avoids priming and minimizes bias in subsequent information treatments or choice experiments (Haaland et al., 2024).[4] Second, we refined the setup of the choice experiment by incorporating an information treatment, which involved allocating a budget between different funds (e.g., Barreda-Tarrazona et al., 2011; Gutsche et al., 2023). Third, introducing a single-hurdle model allowed us to differentiate between intensive and extensive margins to mitigate potential biases from zero-share allocations and enhance the robustness of our results.

This study's findings demonstrate that SFL treatment significantly enhances sustainable finance literacy, while priming alone does not yield any improvement. When choosing among funds with varying levels of sustainability, the SFL treatment generally increases the allocation to more sustainable funds while decreasing the allocation to less sustainable ones. Treatment also significantly increases the probability of new investments in the most sustainable fund by approximately 6%, while reducing investments in the least sustainable fund by approximately 2.5% on the intensive margin. Although the treatment positively affected all participants, it was up to 50% higher among investors with green attitudes. Moreover, the study suggests that higher SFL leads to more realistic perceptions of fund sustainability and a reduction in the pursuit of high returns.

[4]In theory, it would also be possible to address the priming effect by calculating the effect of the educational treatment on investments via the SFL score, using the local average treatment effect (LATE), or causal mediation analysis. However, using these approaches to address priming relies on strong assumptions that we believe are generally not met: first, the SFL score must perfectly measure all the knowledge effects from the educational treatment. Second, a higher SFL score through the treatment does not influence priming (i.e., participants who learn more through the treatment did not experience more priming than respondents who learned little from the educational intervention.

We contribute to the literature along several dimensions. First, we further developed and validated the SFL concept by Filippini et al. (2024) and applied it to a causal experimental setting. While Filippini et al. (2024) only provided suggestive evidence on the effect of SFL on sustainable investments, this study shows the causal effect of increasing SFL on investment behavior.

Second, we link the SFL concept to the literature on determinants of sustainable investments. Previous studies identified value alignment as a key motivation for investors to allocate funds to sustainable assets (Aiken et al., 2020; Bauer et al., 2021; Giglio et al., 2023; Riedl and Smeets, 2017).[5] However, some investors may choose sustainable assets for purely financial reasons (Pedersen et al., 2021; Starks, 2023). In this context, Anderson and Robinson (2022) identified the complexity of green investments as a significant barrier, advocating for enhanced financial literacy to support green investors. Our study extends this literature by identifying which groups benefit most from increased SFL, revealing that the treatment effect is particularly strong among green investors.

Closely related to our work are the studies by Seifert et al. (2024b) and Auzepy et al. (2024), which examine how different forms of information and investor education can influence sustainable investment decisions. Seifert et al. (2024b) used an information experiment to briefly explain the concept of ESG, framed either as financially or sustainably beneficial. After introducing the ESG concept, survey respondents participated in a choice experiment with funds with different sustainability levels. Their setup reflects the EU's MiFID-II regulation, which requires banks to ask clients about their ESG preferences before presenting them with investment options but does not require them to explain how to identify and assess the sustainability of these products. Seifert et al. (2024b) shows that the framing of the information used to inquire about sustainability preferences (i.e., how to introduce sustainability before asking clients if they are interested) updates investors' beliefs and influences their demand for sustainable finance products. We add to this study by showing how the practical knowledge to identify and assess the sustainability of financial products can help retail investors make informed investment decisions and align their values with investments.

Auzepy et al. (2024) conducted an incentivized investment experiment where respondents chose between labeled sustainable and non-sustainable funds. The authors created a new SFL index, in part based on Filippini et al. (2024). Then, they showed with an RCT that an educational treatment based on a brochure explaining sustainable finance leads to a

[5]Socially responsible shareholders can improve corporate social responsibility scores (Hwang et al., 2022) and reduce pollution (Kim et al., 2019). They also factor in climate change exposure in risk premiums (e.g., Sautner et al., 2023). Close-call corporate social responsibility proposals can boost financial performance (Flammer, 2015).

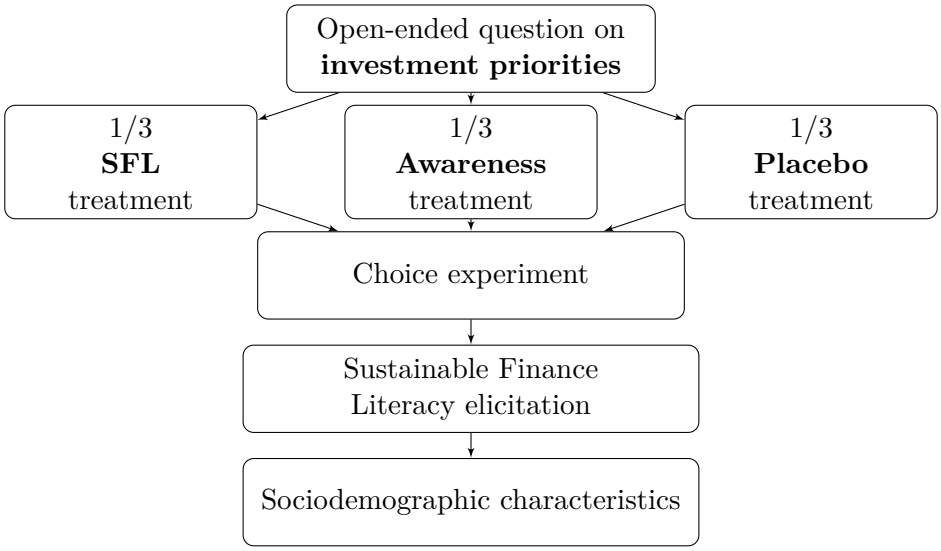
higher level of SFL and more investments in sustainable funds than providing no educational treatment. While the study by Auzepy et al. (2024) shows similarities to this paper, we see several important dimensions that distinguish these two studies. First, we improve and validate the conceptual framework for SFL from Filippini et al. (2024) through multiple steps involving expert feedback and pretests. Second, we designed the experiment to separate the effect of knowledge from priming. Third, we choose an econometric approach that shows the impact of the educational program on the intensive and extensive margins and considers the zero inflation bias usually observed in this type of study. Fourth, we show heterogeneity with sustainable attitudes, which we measure with an innovative text-based approach. Finally, we provide suggestive evidence on the treatment's channels through sustainability perceptions and return chasing.

The remainder of this paper is organized as follows. Section 2 introduces the experimental design, followed by a data overview. In Section 4, we discuss the econometric methodology, and Section 5 details the empirical findings. The results are presented in Section 6, followed by a concluding section.

2 Experimental Design

Our experimental design was based on a five-step online experiment: attitude elicitation, information treatment, choice experiment, literacy elicitation, and a socioeconomic survey. Figure 1 shows our survey design. First, respondents answered an open-ended question about their investment priorities. We used this question type to avoid priming participants with sustainability or other topics from pre-defined answer choices. The respondents then received one of three educational treatments, each containing five slides with less than 400 words. After the treatments, respondents participated in the incentivized choice experiment, followed by questions on sustainable finance literacy and socioeconomics.

Figure 1: Study Design



Note: This figure shows the experimental design. After answering an open-ended question about investment priorities, respondents were randomly allocated to one of three information treatments. After the treatments, we conducted an incentivized choice experiment followed by a non-incentivized choice experiment. Then, respondents answered questions about financial literacy, sustainable finance literacy, and their sociodemographic attributes.

As suggested by Haaland et al. (2023), we used an active and a passive control group in addition to educational treatment. In the underlying idea, the educational treatment could influence respondents via two channels: First, by increasing literacy (the effect of interest, i.e., the stock of knowledge). Second, through priming respondents on finance and sustainability, similar to an advertisement. Disentangling the two effects would be very challenging with only a passive control group in which respondents read an unrelated text. For this reason, Haaland et al. (2023) proposed using an active control group that receives a targeted information treatment, which captures the priming effect.

Table 1 describes the three treatment groups. The SFL treatment aims to increase literacy with information on the author's interpretation of the EU regulations. We introduced an "awareness" treatment for the active control group that primed respondents about finance and sustainability without increasing their sustainable finance literacy. We introduced a text that described the touristic aspects of the New York Stock Exchange (NYSE) and mentioned that the NYSE promotes ESG products. This allowed us to prime respondents on finance and sustainability (by mentioning the term ESG). The text did not contain facts related to SFL (i.e., knowledge to identify and evaluate sustainable finance products). In contrast, the passive control group received a placebo treatment, a text about survey companies unrelated to finance and sustainability.

We validate the effectiveness of this design in two steps: for the SFL treatment, we expect treated individuals to obtain a higher score on the literacy questions compared to the two control groups. To validate the active control group, we introduced a question to proxy the awareness of sustainable finance. We expect that the treatment and active control groups score similarly on this question. Notably, both groups should score higher on the awareness question than the passive control group, which serves as a baseline.

Table 1: Summary of treatments

Group	SFL	Awareness	Placebo
Type	Treatment	Active control	Passive control
Objective	Provide the knowledge and skill to identify and assess financial products according to their reported sustainability-related characteristics.	Prime respondents on finance and ESG.	Provide a reading task without any connection to finance and sustainability.
Content	Information about the working definition of sustainable finance and the author's interpretation of the EU-SFDR.	Touristic aspects of the New York Stock Exchange (NYSE) and mentioned that the NYSE promotes ESG products.	Information about survey companies that were unrelated to finance and sustainability.
Validation	Sustainable Finance Literacy index compared to the two control groups.	Sustainable finance awareness question compared to the treatment group and passive control group.	The passive control group serves as a baseline.

Note: This table describes the three treatments.

Our analysis will compare the SFL treatment with the active control group. We use the passive control group as a covariate in our econometric models (similar to Akesson et al. (2022), who also use an active and passive control group).

2.1 Sustainable Finance Literacy (SFL)

We build on the framework from Filippini et al. (2024), which defines SFL as *"the knowledge and skill to identify and assess financial products according to their reported sustainability-related characteristics."* Hence, SFL is the skill that helps to *identify* and *assess* sustainable finance products according to the current working definitions of sustainable finance in the European Union and Switzerland.

We selected and adapted several SFL questions from Filippini et al. (2024) to fit our experimental setting within the EU regulatory framework where the experiment takes place

(see Appendix J for the exact wording of the educational treatments). With the help of multiple experts, we focused on three questions from Filippini et al. (2024) that are most relevant to investors as they address common misperceptions about sustainable finance products. Further, we added two additional questions to cover the specific requirements for the EU context. Hence, we updated the questionnaire to reflect the basic skills we tested in the choice experiment and were able to enhance them through the education treatment: identifying sustainable mutual funds and qualitatively assessing their sustainability against each other. At the same time, the updated SFL index must show external validity by being relevant in a real-world setting. We believe that our approach can meet both requirements. Three basic questions are combined with two additional questions that address the regulatory framework where retail investors are active. This differentiation allows to adapt the SFL measures to settings outside the EU, as details in the understanding of sustainable products around the world differ.[6]

To ensure that the updated SFL index is conceptually grounded (i.e., reflecting the skills behind SFL) and externally applicable, we iteratively performed two steps: first, integrating our understanding of the most important sustainable finance concepts with the choice cards, the information treatment, and the SFL index. Second, we performed multiple validations with pre-tests and experts.

The educational treatment of this study is the authors' interpretation of current industry practices after consulting experts from regulatory authorities, the financial industry, academia, and NGOs. The treatment considers the legal framework in the European Union (the Sustainable Finance Disclosure Regulation, SFDR) and the Swiss Federal Council's position on greenwashing. Banks are required by the SFDR to disclose sustainability information for their financial products under EU jurisdiction. The amount of information disclosed does not equal a certain level of sustainability and does not equal a sustainability rating. However, the information typically disclosed can provide a proxy for what the product implies for sustainability and, more importantly, what it does not imply.

Our educational treatment explains various types of disclosures and their relevance to qualitative sustainability assessments. Importantly, we also emphasize their limitations. It is crucial to consider the information that is not disclosed when making a qualitative

[6]In a first phase of the study, we considered to keep all questions related to the measurement of the SFL index proposed in our previous study Filippini et al. (2024). However, after some discussions with experts working in financial markets, we realized the importance of including some specific SFL questions related to the regulatory definitions of sustainable products introduced in the EU. Therefore, to limit the number of questions, we decided to identify three basic and general questions from our previous questions and develop two new specific questions for the EU regulation.

assessment, in the sense that "no news is bad news." More details on our interpretation of current working definitions are in the appendix in Section A.[7]

Our SFL index contains a general version of three questions and an EU-specific version with two additional questions, specifically reflecting the EU-SFDR. The educational treatment and the corresponding SFL index cover these concepts with a separate slide and question. Table 2 shows each of the five SFL concepts alongside their underlying skill; it also contains the concept of sustainable finance awareness, which we use for the active control group.

Table 2: Overview SFL questions

		Question	Description	Skill type
		SF Aware	**ESG Awareness:** Know the abbreviation ESG.	Aware
General + Specific	*General*	**SFL 1**	**Lack of standards:** Know that no uniform ratings or standards for sustainable finance products exist.	Identify
		SFL 2	**ESG risk integration:** Know that Sustainability risk integration is usually insufficient to be considered sustainable.	Identify
		SFL 3	**Impact investing:** Know that a sustainable fund does not automatically imply an impact on the invested firms' sustainability performance.	Assess
		SFL 4	**EU SFDR (light green):** Know that light green funds use sustainability as a criterion, but no concrete sustainability objective is necessary.	Assess
		SFL 5	**EU SFDR (dark green):** Know that dark green funds must include a concrete sustainability objective and follow "do not significantly harm" criteria (DNSH).	Assess

Note: This table describes the SFL and SF Aware questions.

2.1.1 Validation

To ensure the robustness of our study, we implemented several validation procedures for both the SFL questions and the information treatment. Our objective was to develop a framework that presented the information clearly, ensured its relevance and accuracy to our audience, and increased literacy. We also refined the final set of SFL questions through these steps, selecting them from an initially broader pool. Below, we outline the key aspects of our validation process.

[7]Note that our literacy measures do not cover the EU Taxonomy, a list of economic activities considered sustainable, which is still under development and not yet applied by most asset managers (Badenhoop et al., 2023).

Achieving Clarity The design of our treatment and the questions prioritized clarity and simplicity. To achieve this, we kept the information concise, distributing it across five slides, each accompanied by a brief comprehension question to encourage active engagement with the content. These comprehension questions were deliberately unrelated to the SFL content to avoid influencing the participants' answers. Importantly, if respondents answered incorrectly, they were required to reattempt the question, reinforcing their focus on the material.

Ensuring Relevance To ensure the accuracy and relevance of the presented sustainable finance information, we based our content on official EU and Swiss publications and publicly available interpretations. In addition, we consulted experts from academia, financial authorities, NGOs, and the financial industry. Their feedback was essential in resolving ambiguities and ensuring that the information targeted the most relevant aspects of sustainable finance for retail investors. Given the complexity of the subject, this process took several months to complete.

Improving Coherence Coherence between the treatment text and the SFL questions was a top priority. Expert feedback and pretests were key in ensuring the information was understandable. In December 2023, we conducted an initial pretest with 40 experienced German investors from Prolific, confirming that participants could generally answer the questions. A second pretest, with 100 experienced German investors in January 2024, further validated the clarity of the treatment. Almost all respondents indicated they understood the information, and none selected the option, indicating that the questions were unclear. A similar pretest with 20 inexperienced investors yielded consistent results, reinforcing the coherence of the material.

Selecting Questions We selected a final set of five SFL questions from an initial pool of 12, covering the five key areas of the treatment. In January 2024, as part of a related project funded by the Swiss Federal Office of Energy, we surveyed 504 Swiss retail investors using the preliminary set of 12 SFL questions. Based on the feedback and alignment with our criteria, we narrowed the final selection to five questions, each representing a distinct area of SFL.

Check Consistency Following the pretest results, we finalized five questions based on two criteria. First, we calculated McDonald's Omega score (McDonald, 1999) for all possible combinations of five questions covering each SFL area. While there is no strict cut-off for

McDonald's Omega score, a minimum of 0.7 is commonly accepted, though higher values are preferred (Lance et al., 2006). We selected combinations that achieved an Omega score above 0.7 and further refined the selection in consultation with experts to ensure the final questions were both comprehensible and representative of the key SFL concepts. This process resulted in the five questions used for our analysis.

With the final survey data, we recalculated the McDonald's Omega score. The larger set of five ("general + specific") questions yielded a score of 0.71, while a smaller subset of three questions ("general") scored 0.76. For comparison, the Omega score for the "big three" financial literacy questions by Lusardi and Mitchell (2008) in our survey data was also 0.76, demonstrating consistency in the reliability of the questions across different measures.

Enhance Understanding Each treatment slide had a short true/false comprehension question designed to improve attention. Respondents had two attempts to answer each question. If the question was answered incorrectly on the first attempt, the survey continued. For the SFL treatment, 88% of the comprehension questions were answered correctly on the first attempt, 6% on the second attempt, and 6% were answered incorrectly twice. Similarly, for the Placebo treatment, 86% of the comprehension questions were answered correctly on the first attempt, 6% on the second attempt, and 7% were answered incorrectly twice. For the Awareness treatment, 95% of the comprehension questions were answered correctly on the first attempt, 3% on the second attempt, and 2% were answered incorrectly twice.

2.2 Choice Experiment

After exposure to the three treatments (but before answering the SFL questions), respondents performed an incentivized investment choice: The participants allocated a hypothetical budget of 1000 Swiss Francs (about 1100 USD) among four mutual funds, which we selected from the financial market. Respondents could spend the sum on any combination of funds, with a minimum investment of 50 Swiss Francs. All funds had the same level of risk but different sustainability characteristics. In addition, past returns decreased for funds with more sustainability attributes. We particularly chose decreasing past returns with sustainability for this experiment.

We believe allocating a budget to a portfolio of funds instead of a binary choice offers two advantages: first, it may be more realistic as investors usually hold portfolios of multiple products. Second, it may reduce the windfall effect, which describes the observation that money won in a lottery is more readily spent (Arkes et al., 1994). In our experiment, this

would imply that respondents may allocate more of their budget to the sustainable fund than in real life - similar to donating a part of their winnings. We believe this effect is reduced by using a portfolio instead of a binary choice. If respondents had to allocate the entire budget to one fund, the windfall effect could dominate the SFL treatment effect. In that binary choice, many untreated respondents would choose the most sustainable fund because of the windfall effect, even if their preference for that fund was weak. Hence, the educational treatment would have little effect. In our setting, all respondents can invest a part of their portfolio in sustainable funds, allowing them to be affected by the windfall effect without giving up any room to adjust the portfolio due to the treatment.

All information displayed in the choice cards came from real mutual funds that consumers could encounter on the market. We incentivized the experiment with a lottery, where we realized the investment for four winners in their chosen funds. After one year, the winners will receive the value of their portfolio (i.e., 1000 CHF plus or minus the portfolio development). Hence, we invested 4000 CHF in four mutual funds, with the portfolio shares chosen by the lottery winners.

Figure 2 shows the choice set. The order of the columns was randomized. The first row shows the investment type ("equity" for all options). Next, we show the annualized net return for the past three years, which ranged from 4.7% to 7.4% (we subtracted the total expense ratio from the annualized return for the past three years). The level of risk was also identical for all funds, with four out of seven from the summary risk indicator (SRI), a commonly used risk score ranging between 1 and 7. The SRI is usually determined and provided by the asset management; it is displayed on the fund's official fact sheet and shows an approximate level of risk.

We specifically choose funds whose past net returns were decreasing in sustainability. In that case, investors must make a trade-off between past performance and sustainability; hence, we imply a certain willingness to pay for sustainability, as shown in the literature (e.g., Gutsche and Ziegler, 2019; Heeb et al., 2023).[8] The relationship between sustainability and return on a financial product is unclear in the financial market. Although there is limited evidence on the slightly lower performance of "sustainable" products (El Ghoul et al., 2023), sustainability measures are complex and heterogeneous (Popescu et al., 2021); hence, we follow Berchicci and King (2022) who argue that the relationship between sustainability and return is unclear, but use a negative relationship for this experiment.

[8]Similarly, Ceccarelli et al. (2024) show how investors trade off portfolio diversification for low-carbon mutual funds.

The last four rows presented qualitative sustainability-related information, which differed for each fund. They included four dimensions: investment goal, qualitative sustainability characteristics, exclusion of firms with poor governance and controversial sectors, and consideration of sustainability risks. In the following, we describe the four funds:

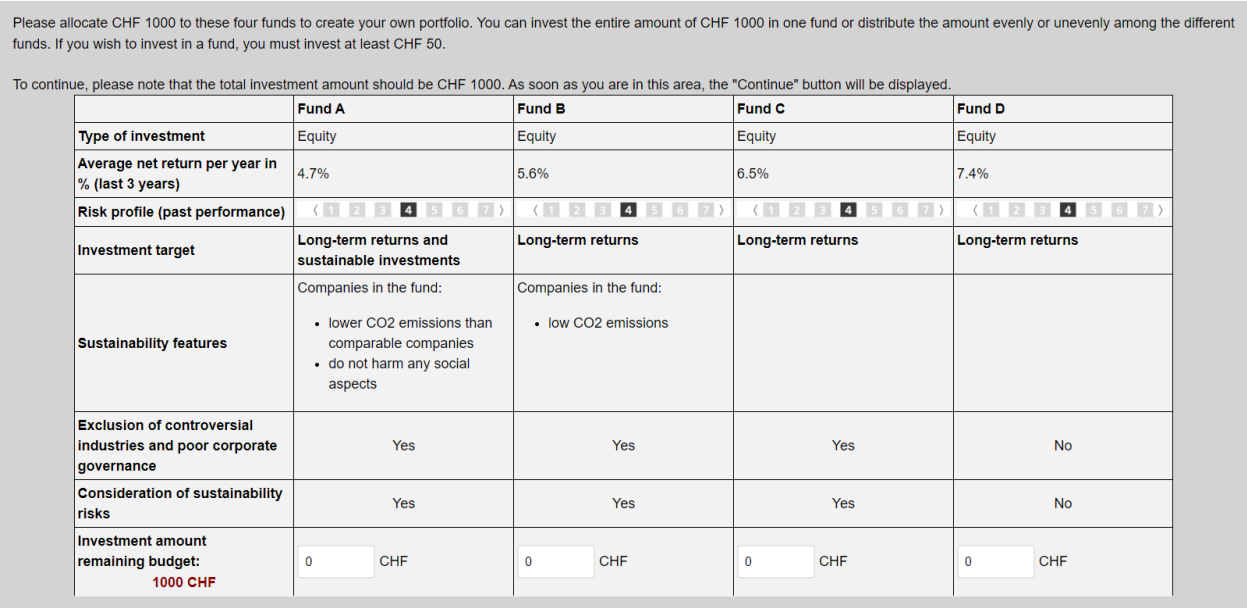
Article 9 The most sustainable fund (Fund A) was the only one with the investment goal of "long-term returns and sustainable investments." In terms of qualitative characteristics, this fund invested in firms with lower CO2 emissions than comparable firms, and that did not harm any social aspects. This corresponds to the EU-SFDR Article 9 fund ("dark-green") requirements: a concrete, measurable sustainability objective and not significantly harm (DNSH). Further, the fund applied the exclusion criteria for bad governance and controversial firms and considered sustainability risks. With a 4.7% net return in the past three years, this fund had the lowest financial performance among the four options.

Article 8 (+) The second most sustainable fund (Fund B) shows a higher net past return, with 5.6%, and excluded controversial firms and firms with bad governance; this fund also considers sustainability risks. However, the fund's objective only consists of "long-term returns." Further, the qualitative characteristics only mention firms with low CO2 emissions (but do not give a metric on how low). Under the EU-SFDR, this fund also falls under Article 8 ("light-green") and could be considered in practice as "Article 8 plus" because the qualitative characteristics suggest an active sustainability strategy.

Article 8 The third fund (Fund C) falls under the EU-SFDR Article 8 ("light-green") but only excludes firms in controversial sectors with bad governance and has "long-term returns" as an investment objective; this is the minimum disclosure under the EU-SFDR Article 8. Further, this fund also considers sustainability risks, which are not considered relevant to sustainability characteristics. This fund has, however, a higher past net return, with 6.5%.

Article 6 The last fund (Fund D) was the least sustainable. It is an index fund with a high past net return (7.4%) and a "long-term returns" investment objective but no sustainability characteristics. This fund also does not consider sustainability-related risks. Under the EU-SFDR, this fund's sustainability disclosures fall under Article 6.

Figure 2: Choice Experiment



Please allocate CHF 1000 to these four funds to create your own portfolio. You can invest the entire amount of CHF 1000 in one fund or distribute the amount evenly or unevenly among the different funds. If you wish to invest in a fund, you must invest at least CHF 50.

To continue, please note that the total investment amount should be CHF 1000. As soon as you are in this area, the "Continue" button will be displayed.

	Fund A	Fund B	Fund C	Fund D
Type of investment	Equity	Equity	Equity	Equity
Average net return per year in % (last 3 years)	4.7%	5.6%	6.5%	7.4%
Risk profile (past performance)	1 2 3 **4** 5 6 7	1 2 3 **4** 5 6 7	1 2 3 **4** 5 6 7	1 2 3 **4** 5 6 7
Investment target	**Long-term returns and sustainable investments**	**Long-term returns**	**Long-term returns**	**Long-term returns**
Sustainability features	Companies in the fund: • lower CO2 emissions than comparable companies • do not harm any social aspects	Companies in the fund: • low CO2 emissions		
Exclusion of controversial industries and poor corporate governance	Yes	Yes	Yes	No
Consideration of sustainability risks	Yes	Yes	Yes	No
Investment amount remaining budget: 1000 CHF	0 CHF	0 CHF	0 CHF	0 CHF

Note: This figure shows a choice set from the incentivized part of the experiment (English translation from German). The order of the columns was randomized.

Following the incentivized choice with real historical returns, we informed respondents about a second choice experiment, which would be purely hypothetical, meaning there was no incentivization. All fund information was the same as in the incentivized version, but the past returns were randomized (the possible values ranged from 4% to 8%, in steps of 0.5%). Respondents were asked to imagine they were in the same experiment as before (even though not incentivized) and to rethink their choice with different past returns. Each respondent was presented with two choice cards. After a first choice with random past returns, the returns were randomized again, and respondents would do a second portfolio allocation. As in the incentivized part, we randomized the order of the columns in each trial for each respondent. In Appendix G, we show a screenshot of these choice cards (Figure G.5).

This setup allows us to show the degree of return-chasing. Of course, this part of the experiment was no longer incentivized. Hence, we treat the results as complementary information to the main experiment.

2.2.1 Validation

We performed several steps to ensure respondents made an informed decision as close as possible to what they would encounter in the market. We preselected possible funds for the experiments using a Bloomberg Terminal: This allowed us to select four funds with the EU-

SFDR categories and annualized 3Y returns that decreased with higher sustainability (the 3Y annualized returns were from Feb. 7th, 2024). Next, we integrated the four funds into our survey experiment and included steps to ensure the displayed information was correct, checked understandability and increased participant attention.

Control Correctness To ensure that the information on the choice cards was correct, we based all characteristics on elements from the funds' official prospects. In Appendix B, we show the exact references with excerpts from each prospectus. We also discussed the choice cards with experts from academia, industry, and NGOs to ensure the information was relevant to real-world financial choices.

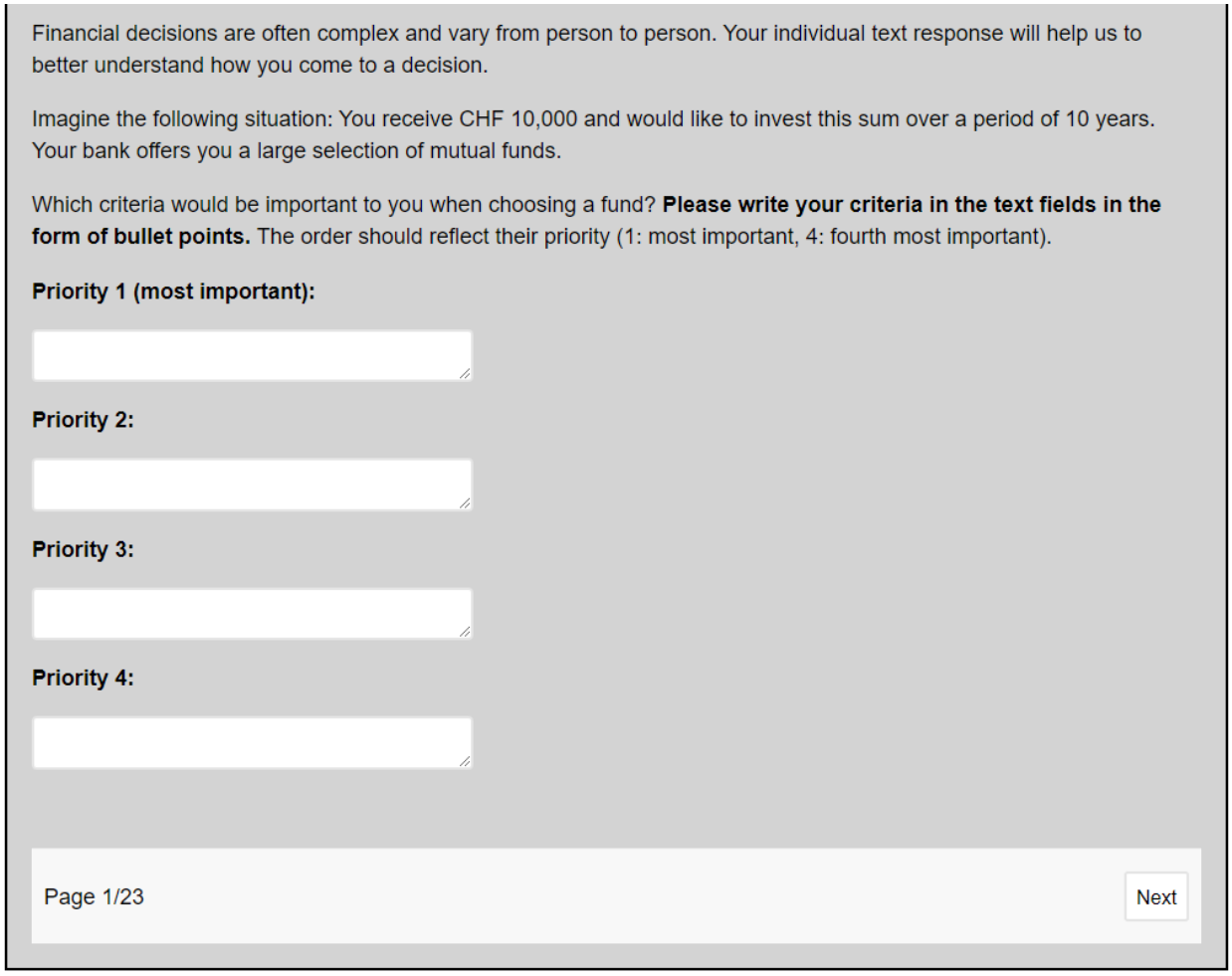
Check Understandability We used several steps to check if respondents understood the choice cards. Before starting the investment game, we informed respondents with a text about the lottery. Next, we presented the choice cards and asked two comprehension questions, with two trials in case the first answer was wrong. If the answer was wrong the second time, we displayed the results (similar to Heeb et al. (2023)). Screenshots from the survey for the explanation and the attention check are in the appendix in section C. Further, we conducted three pretests in January and February 2024 with 100, 20, and 20 respondents. At the end of the survey, participants could give general comments; we did not receive any comments on the understandability of the choice cards.

Increase Attention The order of the choices (the columns in the table) was randomized. Hence, if respondents only chose depending on the representation pattern (e.g., the first fund from the left), this effect would cancel out with the randomization. It also incentivized respondents to read the information carefully.

2.3 Investment attitudes

At the start of the survey, respondents answered an open-ended question about their investment priorities. We asked respondents to imagine that they received CHF 10,000 and would like to invest this sum for ten years. They should imagine that their bank offered them a choice of mutual funds. Respondents should list their top four criteria when choosing a mutual fund in this scenario. For each of the four priorities, we provided a separate text box. This setting allowed us to elicit investment attitudes without priming respondents. Figure 3 shows a survey screenshot.

Figure 3: Open-ended question



Note: This figure shows the open-ended question to elicit investment attitudes (English translation from original German). The question was placed at the beginning of the survey.

The answers were generally well articulated and contained between 1.85 and 1.93 words per priority and between 1139 and 1604 unique words per priority. An example answer for the four priorities would be: *1) "Return," 2) "Risk," 3) "Sustainability,"* and *4) "Simplicity."* These words would be classified into the following topics: return, risk, sustainability, and hassle.

Figure 4 shows a word cloud with the most frequently used words to describe all four priorities. Many respondents emphasized words related to return and risk; respondents also frequently mentioned the word *sustainability*. This observation corresponds to the allocated topics, where overall, 73% of the answers contained one priority that was classified to the *risk* topic, 72% to *return*, and 51% to *sustainability*. A detailed description of the topic allocation is in the Appendix, in Section E.

Figure 4: Word-cloud answers to top four investment priorities

Note: This figure shows a word cloud with the most frequent words used by respondents to describe all four priorities from the open-ended question. Larger words appeared more often; the words in the graphic had a minimum frequency of four and were translated from German using Google Translate.

3 Data

This section presents the data used in the empirical analysis. Organized between March 12th and 31st, 2024, this survey provides data from 2021 participants in the German-speaking part of Switzerland. A professional marketing company recruited the participants from a large panel of households. This panel was incentivized to participate in the survey with a payment. Moreover, the company provided several socioeconomic background variables on the respondents.

The survey company screened participants, so only investors with previous investment experience participated. Respondents could participate in the survey if they had invested in the Swiss voluntary pension plan, which requires individuals to make decisions on the financial market. As of 2019, about 62% of adult Swiss residents participate in this voluntary pension plan, similar to the US private pension plan, which allows investing in financial markets for a later pension plan.[9]

The survey company invited 24,505 household members of the panel to participate in our study; the invited participants were randomly sampled from the overall panel population

[9]See Switzerland's so-called "3rd pension pillar" https://www.bfs.admin.ch/bfs/de/home.html.

and stratified by age and gender (stratified random sampling). In total, 5,667 respondents started the survey, implying a response rate of 23.1%. Of these respondents, 364 did not pass the screening because they did not have a pension plan (or did not have one in the past). 119 respondents could not participate because the quota based on age and gender had already been fulfilled for these particular respondents. 5,181 respondents started to answer the survey, 3,160 of these respondents quit the survey after a couple of questions, and three respondents did not pass the attention check, resulting in 2,021 complete responses. The median response time was 17 minutes.

The survey was generally well-received by the participants. At the end of the study, respondents could comment. In total, we received 101 comments for the final survey. Three respondents indicated that the questions were challenging, and three indicated that some questions were hard to comprehend. However, we received no major comments on the questions' general ambiguity level. Furthermore, we conducted six pretests between December 2023 and February 2024. The pretests were used to develop the survey's technical aspects and clarify the questions.

Table 3 shows the sample characteristics. The variables are differentiated for the three treatment groups and appear balanced. The mean age was just below 50 years, with slightly less than half of the sample consisting of women. More than half of the respondents had a university degree, and around 50% were married, with a household size between 2.15 and 2.44 people per household. The Placebo group contained fewer pensioners than the other groups (7% compared to 15 and 16%). However, we control for this variable in our models. Finally, all groups scored similarly high on the Big 3 financial literacy questions from Lusardi and Mitchell (2008). The high level of financial literacy can be attributed to the investment experience of the participants because all respondents participated in a voluntary pension plan.[10]

[10]There are only statistics on the Swiss working population actively contributing to a "third pillar" pension plan for gender, age, and university education. Among this population, the average age is 43 years, 43% are women, and 50% hold a university degree. Our sample is different because it comprises the entire population that owns such a pension plan, also including pensioners who are no longer in the working force.

Table 3: Sample Characteristics

Question	SFL	Awareness	Placebo
# participants	682	687	652
Age	49.88	48.67	49.95
Female [%]	45	46	47
University Degree [%]	59	56	58
Pensioner [%]	15	16	07
Married [%]	52	47	48
HH Size	2.44	2.37	2.15
Financial Literacy (/3)	2.77	2.76	2.76
Income (CHF)*	9301.00	9182.80	9102.25

Note: This table presents the socioeconomic variables from the sample separately for each treatment group. *660 respondents chose not to disclose their income. Hence, we will not use this variable for the subsequent analysis.

4 Empirical models

In this section, we outline the econometric models utilized to analyze the impact of the SFL treatment on four outcome variables: the SFL score, an incentivized investment choice, a non-incentivized investment choice, and a subjective sustainability rating of the four funds.

- The first outcome variable is a participant's SFL level, measured using an index ranging from 0 to 5.
- The second outcome variable is the number of fund units a participant selects in the incentivized choice experiment. Participants could allocate 1000 CHF to four different funds, with one unit of a fund corresponding to 50 CHF, i.e., participants could distribute 20 increments of 50 CHF. Because participants were free in their allocation, we observed several zero investments for many participants for some of the funds, which we must consider in the econometric models.
- The third outcome variable is the number of fund units a participant selects in a non-incentivized choice experiment, where we randomly changed the past returns.
- The last outcome variable is the rating level provided by the participants to the different funds, which ranges between 1 and 10.

4.1 Outcome 1: SFL score

We use the ordinary least squares (OLS) methodology to evaluate the impact of the SFL educational treatment on the SFL score. For this purpose, we estimate the following model:

$$\text{Model 1 :}$$
$$SFL_i = \alpha + \beta_1 TreatmentSFL_i + \beta_2 TreatmentPlacebo_i + \gamma * X_i + \varepsilon_i$$

where the dependent variable consists of the level of SFL of respondent i, and the independent variables represent the SFL treatment and a variable indicating if the individual is part of the Placebo group. This model is also estimated by adding socioeconomic variables, such as gender and age, in X_i.

Like Haaland et al. (2023), we use the active control group, which received a priming treatment ("Awareness"), as the reference group to estimate the treatment effect of SFL. This means that the interpretation of the coefficient for the SFL treatment variable differs from a scenario where the reference group is typically the placebo group, which receives no treatment. In model 1, the coefficient of the SFL treatment variable indicates the impact of the treatment in comparison to the group that has been primed with general information on SFL. Proceeding in this way, we can directly identify the un-primed effect of the educational treatment on the level of SFL.

4.2 Outcome 2: Incentivized investment choice

For modeling the second variable, we assume that the investment decision consists of two steps: a binary decision about whether a respondent is interested in investing in a fund. Then, conditional on participating, the second decision concerns the number of units of a fund to buy. Hence, for the second step, we can use a count model that is truncated at one.

Following Mullahy (1986) and Cameron and Trivedi (2013), we use a Poisson hurdle model, which implies that the first step is modeled with a binary choice model, while the second step uses a zero-truncated Poisson regression. The two parts of the hurdle model can be estimated separately or together (Cameron and Trivedi, 2013) and with the same set of explanatory variables. We follow Zeileis et al. (2008) and estimate the model with the pscl-package from R, which jointly estimates both models.

For the first step, the extensive margin, we use for each of the four funds the following four logit models:

Model 2 :

$$ExtensFund_{k,i} = \alpha + \gamma_1 * TreatmentSFL_i + \gamma_2 * TreatmentPlacebo_i + \theta * X_i + \nu_i$$

where the $ExtensFund_{k,i}$ is an indicator variable of the form $\mathbf{1}_{\{Fund>0,k,i\}}$. It takes the value 0 or 1 depending on whether the participant i decides to invest in fund k. The independent variables are the SFL treatment, a binary variable indicating whether the individual is part of the Placebo group, and X_i, a matrix of socioeconomic characteristics; ν_i is the error term.

For the second step of the hurdle model, the intensive margin, we use the following specification of a zero-truncated Poisson regression:

Model 3 :

$$IntensFund_{k,i} = \alpha + \delta_1 * TreatmentSFL_i + \delta_2 * TreatmentPlacebo_i + \lambda * X_i + \epsilon_i$$

where the $IntensFund_{k,i}$ is a count variable that varies from 1 to 20 and represents the number of units of fund k chosen by the participant i. We chose to model the dependent variable with a zero-truncated poisson distribution, hence $IntensFund_{k,i} \sim \text{ZTP}(\lambda_{k,i})$. As before, the independent variables are the SFL treatment and a variable that indicates whether the individual is part of the Placebo group.

Next, we analyze the heterogeneous treatment effect concerning sustainable investing attitudes. One goal of this paper is to identify if the educational treatment shows a different impact depending on the participants' attitudes toward sustainability. For this reason, respondents answered an open-ended question about the top four elements they would consider when investing at the beginning of the survey. Because this open-ended question had no preselected answer choices, it did not prime respondents in any direction. This is important to ensure that the responses are genuine and that the educational treatment is not influenced.

We used text analysis to construct the primary variable for this heterogeneity analysis, i.e., an investor's attitude to sustainability. The approach is based on grouping the answers given for each priority into topics (e.g., risk, return, sustainability, etc.). Section E in the Appendix provides a detailed description of the method along with summary statistics.

Using these topics, we created a dummy variable that takes the value of 1 if a respondent mentioned sustainability in any of the four priorities and zero otherwise. Overall, 51% of the respondents mentioned sustainability among their top four priorities when selecting a mutual

fund. We consider these investors to have "green" investment attitudes. Subsequently, we estimate the two-part hurdle model (models 2 and 3) by adding an interaction variable between the treatment and green investment attitude variables.

4.3 Outcome 3: Non-Incentivized investment choice

Once the participants distributed 1000 CHF across the four funds in an incentivized setting, we prompted them to make two more investment decisions using new choice cards with randomized past returns in a non-incentivized setting. The information collected using these two additional choices enabled us to estimate a modified specification of Model 2 and Model 3, which incorporates returns as an explanatory variable. Below is the model specification for this case:

Model 4 :

$$ExtensFund_{k,i} = \alpha + \gamma_1 * TreatmentSFL_i + \gamma_2 * TreatmentPlacebo_i + \theta_k * return_k + \nu_i$$

where the dependent variable assumes the value 0 or 1 depending on whether the participant i decides to invest in fund k. The independent variables are the SFL treatment, indicating whether the individual is part of the Placebo group, and $\beta_k * return_k$ is the past returns for fund k.

For the second step of the hurdle model, we use the following specification:

Model 5 :

$$IntensFund_{k,i} = \alpha + \delta_1 * TreatmentSFL_i + \delta_2 * TreatmentPlacebo_i + \lambda_k * return_k + \epsilon_i$$

Even though past returns do not predict future returns, it is widely documented that investors make decisions based on past returns, so-called "return-chasing" (Bailey et al., 2011; Greenwood and Nagel, 2009; Tran and Wang, 2023).

This model can test whether return chasing is present in the participants' behavior in our experiment and, therefore, consistent with the literature. We expect to find a positive association with a fund's own return and a negative association with the alternative funds' returns. Of course, we are aware that the results obtained from the estimation of Model 5 could be biased because the choices have not been incentivized.

Evidence suggests that in hypothetical experiments, the non-incentivization induces an upward bias of willingness to pay (WTP) (Fifer et al., 2014; Haghani et al., 2021). How-

ever, this bias mainly affects the magnitude of WTP; the underlying structural preferences behind the choices are likely to remain stable compared to incentive-compatible settings (Hainmueller et al., 2015). For this reason, several studies showed that stated-preference results are similar to the ones from revealed-preference settings (Dechezleprêtre et al., 2022; Fehr et al., 2021; Funk, 2016; Hainmueller et al., 2015).

4.4 Outcome 4: Subjective sustainability rating

At the end of the experiment, respondents rated each of the four funds based on their sustainability perceptions (see Appendix Figure G.6 for a screenshot of the choice set along with the rating instructions). This allows for two insights: first, whether respondents understood the different levels of sustainability implied by the choice cards. Second, whether this perception of sustainability changes for the treated group because of their deeper understanding of sustainable finance. We estimate the following model separately for each fund using an OLS regression:

$$\text{Model 6 :}$$
$$Rating_{k,i} = \alpha + \rho_1 * TreatmentSFL_i + \rho_2 * TreatmentPlacebo_i + \varepsilon_i$$

where $Rating_{k,i}$ is the sustainability rating for fund k by respondent i. The rating was on a scale from 1 to 10, where 1 was the least sustainable and 10 was the most sustainable.

5 Empirical Results

In this section, we will present the experiment's empirical results. First, we will provide an overview of the responses to the SFL questions and the allocation of the 1000 CHF among the funds using descriptive statistics. Then, we will present the results of the experiment using econometric models.

5.1 Descriptive analysis

Table 4 shows the results of the ESG awareness and SFL questions separately for each of the three groups: Placebo, Awareness, and SFL. As anticipated, the percentage of correct answers to the ESG awareness question is higher for the SFL and awareness groups than for the placebo group because the texts used in the treatments for the first two groups included information about ESG.

Regarding the answers to the sustainable finance literacy questions, we observe that the percentage of correct answers for the untreated groups (awareness and placebo) varies between 56% and 26%. These values suggest that the SFL levels of these groups are relatively low. When looking at the answers provided by the treated group (SFL group), we can observe that the percentage of correct answers varies between 73% and 55%. These values are much higher than the percentages of the untreated groups, suggesting that the educational treatment increased literacy levels. In contrast, the other two treatments (awareness and placebo) had no effect.

At the bottom of Table 4, we include the SFL total scores obtained for the reduced set of questions ("general") and the extended set ("general + specific"). This score is obtained by summing up the correct answers provided by the respondents to the three or five SFL questions, respectively. A high score, for instance, five, implies that the respondent answered all questions correctly. The scores reported on these lines indicate that the level of SFL is higher among the respondents of the treated group than among the individuals of the other two control groups. Hence, the descriptive analysis suggests the presence of an effect of the treatment on the level of SFL.

Table 4: Summary Stats: SFL level

			Percentages			
			Question	SFL	Awareness	Placebo
		ESG Awareness	% correct	48.8	44.7	32.4
			% incorrect	31.7	30.4	30.7
			% don't know	19.5	24.9	37.0
General + Specific	*General*	**SFL 1**	% correct	73.0	55.6	53.5
		Lack of standards	% incorrect	10.9	11.9	11.0
			% don't know	16.1	32.5	35.4
		SFL 2	% correct	64.5	52.0	53.5
		ESG risk integration	% incorrect	21.8	16.6	13.7
			% don't know	13.6	31.4	32.8
		SFL 3	% correct	64.1	48.5	51.8
		Impact investing	% incorrect	21.4	24.5	22.4
			% don't know	14.5	27.1	25.8
		SFL 4	% correct	63.5	28.4	26.1
		EU SFDR light green	% incorrect	20.7	15.9	18.3
			% don't know	15.8	55.7	55.7
		SFL 5	% correct	55.7	38.9	39.1
		EU SFDR dark green	% incorrect	26.5	14.3	12.4
			% don't know	17.7	46.9	48.5
		SFL (General)	correct /3	2.01	1.56	1.58
			(se)	(0.03)	(0.03)	(0.03)
		SFL (General + Specific)	correct /5	3.20	2.23	2.24
			(se)	(0.05)	(0.05)	(0.06)

Note: This table shows the results of the SFL questions and the question on ESG-Awareness for the three treatment groups.

Next, we show the descriptive results from the incentivized choice experiment. Table 5 summarizes how respondents of the treated (SFL) and control groups (Awareness and Placebo) allocated the 1000 CHF among the four funds. On average, the investors belonging to the treated group allocated around 380 CHF to the greenest fund (Art. 9). Meanwhile, the mean allocation for the other two groups was lower: 340 CHF for the Awareness group and 353 CHF for the Placebo group. As for the fund corresponding to Art. 8 (+), the average allocation for investors under the SFL treatment was 226.4 CHF. This value is similar to the average for the Placebo group (228.6 CHF) but lower than that for the investors who received the Awareness treatment (240.7 CHF). For the fund that reflects Art. 8, the value of the average allocation was around 241 CHF under the SFL treatment, 260 CHF under the Awareness treatment, and 270 CHF under the Placebo treatment. Lastly, for Art. 6, the mean allocation was similar for the SFL and Placebo groups, 153 CHF and 148 CHF,

respectively; the Awareness group shows a higher allocation to this fund, i.e., 160 CHF. Generally, these descriptive results suggest that respondents receiving the SFL treatment invested slightly more into the most sustainable fund and less into the other funds.

As mentioned, we consider the extensive and intensive margins: The extensive margin refers to deciding whether to invest in a fund, which is a binary yes-or-no choice. The intensive margin shows how much an investor allocated to a fund, conditional on investing. Hence, the intensive margin shows the average budget allocation, excluding investors who did not consider that fund. Note that investors could choose to allocate no budget to a fund, resulting in many zero allocations.

Regarding the zero-shares, representing the proportion of respondents who allocated no share of their budget to a particular fund, there are important differences across the products. The fund with the highest share of zero is the fund that reflects Art.6, whereas the fund with the lowest share of zero is the greenest one, i.e., the funds reflecting Art. 9. When comparing the treatment groups, the SFL group shows a lower zero-share for the Art. 9 fund than the other groups.

The mean investments are considerably higher if we only consider the investments conditional on the non-zero shares (i.e., the intensive margin). For Art. 9, all three treatment groups invested around 500 CHF, indicating that the initial investment difference is mainly driven by the zero-shares. The Art. 8 (+) fund also shows higher investments, between 343 CHF for the treatment group and 375 CHF for the awareness treatment, reflecting the same pattern as the unconditional average shares. The same applies to Art. 8, where the average investment is between 404 CHF for the treatment and 432 CHF for the Placebo. The conditional investments in the least sustainable fund, Art. 6, range between 417 CHF for the SFL treatment and 447 CHF for the Placebo group. A descriptive comparison between the intensive margins of the groups suggests that respondents with the SFL treatment invest less into the Art 8 (+) and Art. 6 funds.

Table 5: Summary Stats: choice experiment

		SFL	Awareness	Placebo
Art. 9				
Total	Mean (CHF)	380	340	352.8
	SE	12.6	12.4	12.7
Extensive margin	Zero Share	0.25	0.31	0.29
Intensive margin	Mean (CHF)	507	494	496
Art. 8 (+)				
Total	Mean (CHF)	226.4	240.7	228.6
	SE	8.4	9.3	9.2
Extensive margin	Zero Share	0.34	0.36	0.36
Intensive margin	Mean (CHF)	343	375	358
Art. 8				
Total	Mean (CHF)	240.8	259.2	270.4
	SE	10.9	10.7	11.4
Extensive margin	Zero Share	0.4	0.37	0.37
Intensive margin	Mean (CHF)	404	409	432
Art. 6				
Total	Mean (CHF)	152.9	160.1	148.2
	SE	10.3	10.9	10.8
Extensive margin	Zero Share	0.63	0.64	0.67
Intensive margin	Mean (CHF)	417	444	447

Note: This table shows the investment choices in the incentivized choice experiment. For each treatment group, the table shows the average investment, the standard error, and the share of zero investments (i.e., respondents who did not invest in the respective fund).

5.2 Econometric analysis

We will begin by discussing the results on the impact of educational treatment on the level of SFL (Model 1). Then, we present the main results of this study, i.e., the impact of educational treatment on the decision to allocate a share of the budget to a fund (Model 2) and the decision on how much to allocate (Model 3). As described in the previous section, these two decisions are modeled together using a hurdle Poisson approach. Afterward, we illustrate a heterogeneity analysis of the impact of SFL treatment. We are particularly interested in the role of investors' sustainability attitudes on the treatment effect on the budget-allocation in the four funds. In the final part of this sub-section, we present the results of the presence of the return-chasing phenomena, i.e., a situation where private investors base their investment decisions on past returns, and the impact of the treatment on the perceived sustainability-level of the four funds.

5.2.1 Treatment effect of SFL level

The results of the treatment's impact on the SFL level are presented in Table 6, with the outcome variable being the SFL score obtained by each individual by answering the sustainable financial literacy questions. We differentiated between the extended score with five questions ("general + specific") and the basic version with three ("general") questions. The difference between the two scores is that the extended set of questions contains two questions on the EU regulations. The model has been estimated by OLS.[11]

Column (1) presents the estimation results for the "general + specific," excluding socioeconomic covariates, whereas in column (2), we include basic controls (such as gender, age, education, household size, financial literacy, as well as marital and working status). The findings in both columns indicate that, as expected, respondents in the SFL treatment group show a higher SFL score than the control group. i.e., the Awareness group. The effect size is around 0.97 in both model specifications. This implies that the treatment increased the average score by around one unit.

Looking at the results reported in column (2), we can observe that private investors with high financial literacy and education levels show a higher level of SFL. The coefficient of the gender variable is negative, indicating that women score lower on the SFL questions. The results also indicate that the two untreated groups with SFL educational treatment (Awareness and Placebo groups) don't show a difference in the level of the SFL score. These results are similar to Filippini et al. (2024), with education and financial literacy having a significant and positive coefficient and women having a significant and negative coefficient. Columns (3) and (4) show the same approach for the three general questions, with similar results.

[11] The results are similar when using an ordered Probit model.

Table 6: Impact of SFL

	General + Specific		*General*	
	(1)	(2)	(3)	(4)
Treatment SFL	0.975***	0.966***	0.456***	0.448***
	(0.075)	(0.074)	(0.053)	(0.052)
Treatment Placebo	0.008	0.015	0.029	0.034
	(0.076)	(0.074)	(0.054)	(0.052)
Fin. Lit.		0.350***		0.243***
		(0.057)		(0.040)
Age		−0.004		−0.003
		(0.003)		(0.002)
Female		−0.165***		−0.147***
		(0.062)		(0.043)
Uni. ed.		0.326***		0.292***
		(0.063)		(0.044)
Pensioner		0.084		0.026
		(0.104)		(0.073)
Married		−0.024		−0.037
		(0.067)		(0.047)
HH-size		0.027*		0.020*
		(0.015)		(0.011)
Intercept	2.233***	1.267***	1.560***	0.901***
	(0.053)	(0.209)	(0.038)	(0.147)
Num.Obs.	2021	2021	2021	2021
R2	0.099	0.141	0.043	0.101

Note: *p<0.1; **p<0.05; ***p<0.01
This table shows the coefficients of an OLS regression with the SFL scores as dependent variables.

5.2.2 Treatment effect of portfolio allocation

Table 7 and Table 8 present the results of the Hurdle Poisson model. This two-step approach allows us to analyze the impact of the SFL treatment on the choice to invest in a fund (a logistic regression for the estimation of Model 2, in Table 7) and the impact of the treatment on the number of units of a fund, conditional on investing (a truncated Poisson for the estimation of Model 3, in Table 8).

This econometric approach allows us to split the overall investment decision into the choice of individuals to invest in a fund (extensive margin) and the choice of the intensity of the investment in each fund (intensive margin). All coefficients represent the average marginal effects. The unevenly numbered columns illustrate the results without covariates, while the evenly numbered columns include the same basic controls as in the previous analysis.

The results for the extensive margin are presented in Table 7. Columns (1) and (2) indicate that the SFL educational treatment positively impacted the choice of investing in the most sustainable fund (Art. 9), with a coefficient of 0.06. This means that the treatment increased the probability of investing by about 6%. Columns (3) to (8) indicate that the treatment did not impact the decision to invest in the other funds. Note that a statistically significant coefficient of the SFL treatment variable indicates the effect with respect to the Awareness group, i.e., with individuals that have been primed. The coefficients of the Placebo group are not statistically significant, implying that the behavior of primed and non-primed individuals was the same.

Specifications with covariates show that financial literacy has the opposite effect than the SFL treatment: a one-point increase in the big-three score was associated with a 4.3% decreasing probability of investing in the Art. 9 fund, with a 3.8% lower probability for the Art. 8 (+) product, and a 5.4% lower probability of investing in the Art. 6 fund. The negative effect of financial literacy on the extensive margin of three out of four funds indicates that respondents with higher financial literacy did not spread their budget over all funds and rather concentrated on fewer funds. Given that all options consisted of mutual funds, which are already diversified, the strategy of financially literate respondents to focus on fewer funds seems a valid strategy. Women invested more in environmentally focused funds, with an 11% higher probability for the most sustainable fund, a 5.7% probability for the second most sustainable fund, and a 5.5% and 19.4% lower probability for the Art. 8 and Art. 6 funds, respectively.

Table 8 shows the results for the intensive margin. Columns (1) and (2) indicate that the SFL treatment did not have a statistically significant impact on the number of units invested in the most sustainable fund (Art. 9). This result, combined with the result presented in Table 7, suggests that the treatment impacts the extensive margin but not the intensive margin of investments in the Art. 9 fund.

In contrast, we can observe in columns (3) to (8) that the educational treatment generally had a negative and significant impact on the number of units invested in the less green funds (Art. 8 (+) and Art. 6). The magnitude of this negative treatment effect was between -0.6 and -0.49 units, which indicates a decrease between 3% and 2.5% of the total budget allocated to these funds.[12] These results indicate that many treated respondents invested less in the less sustainable funds and may have used this part of their budget to invest in the most sustainable fund - which they were previously not engaged in.

[12]The total budget was CHF 1000, divided into 20 units of CHF 50. Hence, one invested unit corresponds to 5% of the total budget.

Furthermore, the results show that individuals in the Placebo group tended to purchase fewer Art. 8(+) and more Art. 8 funds compared to the control group (the active control group, which was primed). In other words, primed individuals increased their budget allocation to medium environmentally friendly funds (Art. 8(+)) compared to unprimed individuals. This indicates that informing investors about the availability of ESG investment products in an advertisement setting can generally lead them to invest in products with medium sustainability but not high sustainability. Further, these higher investments in Art 8 (+) for primed respondents stem from fewer investments in the low-sustainability fund with Art 8. Hence, investors who are only primed do not have the knowledge to identify and assess the distinction between the most sustainable product (Art. 9) and products that are medium sustainable (Art. 8(+)).

Financial literacy shows no statistical effect on the two most sustainable funds but is positively associated with the two least sustainable funds, with a 3.5% increase for Art. 8 and a 6% increase for Art. 6 (corresponding to coefficients of 0.7 and 1.2, respectively). The positive effect of financial literacy on low-sustainability funds can possibly be explained by the higher past return of these products in our experiment. Women tended to invest significantly more in Art. 9, with a 10.5% higher share (coefficient of 2.1), and slightly more in Art. 8 (+), with a 1.7% higher share (coefficient of 0.36). For the two least sustainable funds, women invested less, with a 2.8% lower share for Art. 8 (coefficient of -0.56) and 11.5% decrease for Art. 6 (coefficient of -2.3). Similarly, higher age was associated with more investments in the two most sustainable funds and less in the Art. 8 fund. University education only positively affected investments in Art. 9 (with a coefficient of 1.2, corresponding to a 6% increase), while married participants invested slightly more into Art. 9 and Art. 8 and less into Art. 6. Overall, the magnitude of the treatment effect is comparable to the lower-bound effect of financial literacy and gender.

Table 7: Hurdle Poisson, binary part (logistic regression), AME

	Art. 9		*Art. 8 (+)*		*Art. 8*		*Art. 6*	
				Binary				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment SFL	0.060**	0.059**	0.018	0.019	−0.038	−0.033	0.006	0.012
	(0.023)	(0.023)	(0.026)	(0.026)	(0.027)	(0.026)	(0.026)	(0.025)
Treatment Placebo	0.022	0.018	−0.004	−0.002	−0.008	0.002	−0.030	−0.022
	(0.024)	(0.024)	(0.026)	(0.026)	(0.027)	(0.026)	(0.026)	(0.025)
Financial Literacy		−0.043**		−0.038*		0.020		−0.054***
		(0.020)		(0.021)		(0.020)		(0.019)
Age		0.002*		0.000		−0.005***		−0.003***
		(0.001)		(0.001)		(0.001)		(0.001)
Female		0.112***		0.057***		−0.055**		−0.194***
		(0.020)		(0.022)		(0.022)		(0.021)
University educ		0.014		−0.026		−0.032		−0.100***
		(0.021)		(0.022)		(0.022)		(0.021)
Pensioner		0.033		0.009		−0.047		−0.077**
		(0.034)		(0.036)		(0.037)		(0.035)
Married		0.018		0.011		0.026		−0.046**
		(0.023)		(0.024)		(0.023)		(0.023)
HH-size		−0.005		0.006		0.005		0.003
		(0.007)		(0.006)		(0.005)		(0.005)
Num.Obs.	2021	2021	2021	2021	2021	2021	2021	2021

Note: *p<0.1; **p<0.05; ***p<0.01

This table shows the average marginal effects of a logistic regression. The dependent variable is an indicator that takes the value of one if the respondent invested a positive sum in the respective fund and zero otherwise.

Table 8: Hurdle Poisson, count part (truncated Poisson regression), AME

	Art. 9		*Art. 8 (+)*		*Art. 8*		*Art. 6*	
	Count							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment SFL	0.266	0.173	−0.631***	−0.630***	−0.100	−0.052	−0.533**	−0.492*
	(0.203)	(0.200)	(0.175)	(0.175)	(0.200)	(0.199)	(0.261)	(0.254)
Treatment Placebo	0.039	−0.088	−0.325*	−0.437**	0.455**	0.578***	0.072	0.120
	(0.208)	(0.204)	(0.179)	(0.178)	(0.201)	(0.201)	(0.273)	(0.265)
Financial Literacy		−0.011		−0.146		0.763***		1.209***
		(0.150)		(0.135)		(0.163)		(0.209)
Age		0.074***		0.043***		−0.041***		0.007
		(0.007)		(0.007)		(0.008)		(0.010)
Female		2.100***		0.365**		−0.568***		−2.361***
		(0.168)		(0.152)		(0.166)		(0.230)
University educ		1.216***		0.075		0.237		0.190
		(0.169)		(0.154)		(0.167)		(0.222)
Pensioner		−0.070		0.521**		0.467		−0.268
		(0.263)		(0.256)		(0.320)		(0.407)
Married		0.333*		−0.129		0.452**		−0.911***
		(0.177)		(0.184)		(0.204)		(0.273)
HH-size		−0.098***		0.066		−0.062		0.108
		(0.030)		(0.081)		(0.084)		(0.111)
Num.Obs.	2021	2021	2021	2021	2021	2021	2021	2021

Note: *p<0.1; **p<0.05; ***p<0.01

This table shows the average marginal effects of a Poisson regression truncated at zero (the count part of the hurdle model). The coefficients explain the amount of units invested in a fund, conditional on investing (i.e., having a non-zero investment).

5.2.3 The role of sustainability attitudes on portfolio allocation

Next, we will extend the model to analyze the role of sustainability-friendly attitudes on the general portfolio allocation and to account for heterogeneous treatment effects. Sustainability attitudes are a major determinant for sustainable investing (Bauer et al., 2021; Riedl and Smeets, 2017). This attitude emerges when individuals view sustainability as a crucial element in their investment decisions.

To capture investors' sustainability attitudes, we utilize an indicator variable that takes a value of one if sustainability was mentioned as one of the top four investment priorities in the open-ended question included at the beginning of the survey. As mentioned, the priorities considered in a financial investment decision were collected through an open-ended question to avoid interference with the treatment through priming. About 51% of our sample mentioned sustainability as a priority in choosing a fund. We believe that the indicator derived from an open-ended question provides a more precise reflection of sustainability

attitudes than a closed-ended question, where respondents choose among several priorities, including sustainability.

Importantly, respondents with sustainability-friendly attitudes did not score higher on the SFL test due to the educational treatment, as shown in the appendix in Table H.4. This means that any heterogeneous treatment effect with sustainability attitudes cannot be attributed to the hypothesis that these respondents learned more. Instead, they use the acquired knowledge differently.

In the following two tables, we will show if sustainability attitudes affect sustainable investment choices and whether the SFL educational intervention influences individuals with sustainability-friendly attitudes. Table 9 and Table 10 present the results of this extended analysis, based on the estimation of Models 2 and Models 3 with the additional indicator of sustainability-friendly attitudes and an interaction term for treatments and sustainability friendly attitudes. The reference group for these estimations is the control group, which received the "Awareness" treatment (i.e., the "active control" group, following Haaland et al. (2023)). The coefficients of interest in this analysis are related to the variable "Sust. Priority," the sustainability-friendly attitudes indicator.

As shown in Table 9 for the extensive margin, sustainability attitudes have a large impact on the decision to invest, with a 22% increase for Art. 9, no effect for Art. 8 (+), and 16% and 25% decrease for Art. 8 and 6, respectively. The magnitude of the sustainability attitudes indicator is by far the largest in the model, which confirms the importance of value alignment for sustainable investments. Considering the heterogeneous treatment effect related to the sustainability attitude, the interaction term with the treatment does not show any statistically significant coefficients on the extensive margin. As before, the general SFL treatment's effect is a 4.9% increased probability of investing in the Art. 9 fund for all respondents.

Table 10 shows the second part of the Hurdle model with the results for the intensive margin (i.e., the number of units invested). For Art. 9, the sustainability dummy has a coefficient of 3.4 (i.e., 17% increase), making it the strongest predictor to purchase that fund. The interaction effect is positive with a coefficient of about 0.7, indicating a 3.5% higher share. Note that, as in Table 8, which illustrates the results of the basic model, the coefficient of the treatment variable without the interaction is not statistically significant.

For the other funds, we can generally observe that the sustainability dummy has a negative and statistically significant coefficient, except for Art. 8 (+), with values that vary between -0.9 and -2.5 (i.e., 4.5% and 12.5% decrease, respectively). The coefficients of the

interaction variable with the treatment (SFL x Sust. Prio) are relevant for the mid-range sustainability funds, with a negative impact of -0.69 on Art. 8 (+), which becomes only statistically significant when including covariates, corresponding to 3.5% of the budget. For Art. 8, the heterogeneous treatment effect decreases the amount invested by about 0.75 units, corresponding to 3.8% of the budget. We do not observe a statistically significant coefficient of the interaction effect for the Art. 6 fund.

Overall, the results reported in Table 9 and Table 10 indicate that the coefficient of the sustainability indicator is significant and has a large effect in both decision stages (extensive and intensive margins) for nearly all funds (except for Art. 8 (+)). The heterogeneous treatment effect is statistically significant only on the intensive margin for all funds except for fund Art. 6, indicating that the SFL treatment can help sustainability-friendly investors align their values with investments. The values of the coefficients of the heterogeneous effect variable (SFL x Sust. Prio) in the intensive model are generally up to 50% larger than the coefficients of the treatment effect variable (T.SFL) obtained in the basic model specification (Table 8). These results suggest that the educational treatment of SFL has a greater impact on the decision about the intensive margin of respondents with sustainability-friendly attitudes than individuals who place a lower priority on sustainability. The other covariates' effect remained unchanged compared to the previous model specification.

Table 9: Hurdle Poisson with Attitudes, Binary Part (Logistic Regression), AME

	Art. 9		*Art. 8 (+)*		*Art. 8*		*Art. 6*	
					Binary			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
T. SFL	0.049*	0.049*	0.019	0.021	−0.051	−0.045	0.024	0.028
	(0.029)	(0.029)	(0.036)	(0.036)	(0.039)	(0.038)	(0.033)	(0.032)
T. Placebo	0.028	0.026	0.019	0.020	−0.048	−0.040	−0.022	−0.020
	(0.030)	(0.030)	(0.037)	(0.037)	(0.040)	(0.039)	(0.033)	(0.032)
SFL x Sust. prio	0.020	0.017	−0.003	−0.005	0.028	0.025	−0.032	−0.028
	(0.048)	(0.048)	(0.052)	(0.052)	(0.051)	(0.050)	(0.049)	(0.048)
Placebo x Sust. prio	−0.031	−0.035	−0.047	−0.046	0.078	0.079	−0.001	0.010
	(0.049)	(0.049)	(0.054)	(0.054)	(0.049)	(0.048)	(0.051)	(0.050)
Sust. Priority	0.225***	0.225***	0.039	0.042	−0.166***	−0.157***	−0.253***	−0.224***
	(0.033)	(0.033)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)
Fin. Lit.		−0.057***		−0.041*		0.029		−0.036*
		(0.019)		(0.021)		(0.020)		(0.018)
Age		0.001		0.000		−0.005***		−0.003***
		(0.001)		(0.001)		(0.001)		(0.001)
Female		0.082***		0.053**		−0.037*		−0.163***
		(0.020)		(0.022)		(0.022)		(0.020)
Uni. ed.		−0.019		−0.029		−0.014		−0.066***
		(0.020)		(0.022)		(0.022)		(0.021)
Pensioner		0.033		0.009		−0.047		−0.078**
		(0.033)		(0.036)		(0.037)		(0.034)
Married		0.030		0.012		0.022		−0.055**
		(0.024)		(0.024)		(0.023)		(0.023)
HH-size		−0.009		0.006		0.005		0.004
		(0.009)		(0.006)		(0.005)		(0.006)
Num.Obs.	2021	2021	2021	2021	2021	2021	2021	2021

Note: *p<0.1; **p<0.05; ***p<0.01

This table shows the average marginal effects of a logistic regression. The dependent variable is an indicator that takes the value of one if the respondent invested a positive sum in the respective fund and zero otherwise. In addition to the specification in Table 7, this model includes the heterogeneous treatment effect for sustainable investment attitudes.

Table 10: Hurdle Poisson with Attitudes, Count Part (Truncated Poisson Regression), AME

	Art. 9		*Art. 8 (+)*		*Art. 8*		*Art. 6*	
					Count			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
T. SFL	−0.256	−0.341	−0.350	−0.266	0.250	0.299	−0.559*	−0.544*
	(0.344)	(0.340)	(0.254)	(0.256)	(0.262)	(0.261)	(0.289)	(0.281)
T. Placebo	0.006	−0.065	−0.092	−0.199	0.384	0.476*	−0.033	−0.075
	(0.354)	(0.350)	(0.259)	(0.258)	(0.267)	(0.266)	(0.304)	(0.294)
SFL x Sust. prio	0.732*	0.759*	−0.536	−0.687**	−0.754**	−0.753**	0.181	0.281
	(0.439)	(0.437)	(0.342)	(0.338)	(0.381)	(0.378)	(0.587)	(0.575)
Placebo x Sust. prio	−0.020	−0.090	−0.444	−0.452	0.254	0.329	0.534	0.819
	(0.430)	(0.424)	(0.349)	(0.348)	(0.404)	(0.403)	(0.606)	(0.604)
Sust. Priority	3.397***	3.053***	0.024	0.024	−0.868***	−0.975***	−2.468***	−2.570***
	(0.293)	(0.292)	(0.250)	(0.252)	(0.281)	(0.280)	(0.400)	(0.389)
Fin. Lit.		−0.335**		−0.105		0.867***		1.244***
		(0.150)		(0.136)		(0.162)		(0.199)
Age		0.067***		0.044***		−0.039***		0.009
		(0.007)		(0.007)		(0.008)		(0.010)
Female		1.613***		0.409***		−0.463***		−2.154***
		(0.165)		(0.153)		(0.166)		(0.221)
Uni. ed.		0.619***		0.131		0.363**		0.230
		(0.169)		(0.156)		(0.167)		(0.212)
Pensioner		−0.090		0.539**		0.475		−0.266
		(0.256)		(0.257)		(0.318)		(0.388)
Married		0.322*		−0.141		0.389*		−1.028***
		(0.173)		(0.184)		(0.203)		(0.260)
HH-size		−0.085***		0.075		−0.028		0.174
		(0.028)		(0.081)		(0.083)		(0.106)
Num.Obs.	2021	2021	2021	2021	2021	2021	2021	2021

Note: *p<0.1; **p<0.05; ***p<0.01

This table shows the average marginal effects of a Poisson regression truncated at one (the count part of the hurdle model). The coefficients explain the amount of units invested in a fund, conditional on investing (i.e., having a non-zero investment). In addition to the specification in Table 8, this model includes the heterogeneous treatment effect for sustainable investment attitudes.

5.2.4 Treatment effect on return chasing (non-incentivized)

As a complementary analysis, we estimated Models 4 and 5 with randomized past returns in an unincentivized choice experiment. This helps us better understand how historical data on a fund's performance impacts decision-making and allows us to investigate whether investors tend to chase past returns. If this is the case, we would expect to see a positive relationship between the choice of a fund with a fund's own returns and a negative relationship with the returns of other funds. As before, we used a Hurdle Poisson approach. Because the returns were randomized, they are independent of each other and have a zero correlation by construction. Therefore, we can exclude the other funds' returns in the model specification.[13]

[13] As a validation check, we included all fund returns in each model (i.e., the own and the other funds' returns). The results are in the appendix, in Table F.3. The treatment effect prevails in the extensive margin but is not statistically significant in the intensive margin. The return coefficients indicate return chasing, with the own return being positive and the cross-returns negatively associated with extensive and intensive margins. For

The results are reported in Table 11. Compared to the previous sections, the SFL treatment effect is higher in the extensive margin, with a coefficient of 0.1 for Art. 9. For the intensive margin, the SFL treatment is significant for Art. 9 and 8 (+), with a coefficient of 1.4 and 1.5, respectively. The own returns are similar to the specification that included the other funds' returns, which indicates return chasing. For the extensive margins, a 1% higher return is associated with a 4% to 8% higher probability of investment in the funds. For the intensive margin, a 1% higher return is associated with a 5% to 6% higher investment in the funds.

The interaction effect between own return and the SFL treatment is negative and significant for the extensive margin for Art. 9, with -0.014, indicating a 20% reduction of return chasing. Similarly, the interaction effect is negative and significant for the intensive margins of Art. 9 and 8 (+). With coefficients of -0.2 and -0.3, respectively, these results indicate that the return chasing decreased by 18% and 26%, respectively.

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the extensive margin, the magnitude is between 0.04 and 0.08 for the own return and between -.01 and -0.6 for the other funds' returns, which is similar to the treatment effect and the effect of other covariates. For the intensive margin, the own return coefficients are between 1.2 and 0.9, and for the other funds' returns, the coefficients are between -0.1 and -0.6. This implies a 6% to 4.5% portfolio increase for one percentage point additional own return and a 3% to 0.5% decrease in portfolio allocation for one additional percentage point in the alternative funds' return.

Table 11: Hurdle Poisson, hypothetical returns, interacted treatment, AME

	Art. 9	Art. 8 (+)	Art. 8	Art. 6
	Binary			
	(1)	(2)	(3)	(4)
Treatment SFL	0.102***	−0.033	−0.012	−0.016
	(0.038)	(0.059)	(0.061)	(0.052)
Treatment Placebo	0.032	−0.086	0.007	−0.063
	(0.043)	(0.062)	(0.060)	(0.053)
Own Return	0.067***	0.081***	0.073***	0.041***
	(0.004)	(0.005)	(0.005)	(0.004)
Own Return x SFL	−0.014*	0.009	−0.002	0.003
	(0.008)	(0.010)	(0.010)	(0.009)
Own Return x Placebo	−0.005	0.016	−0.002	0.007
	(0.008)	(0.011)	(0.010)	(0.010)
	Count			
	(1)	(2)	(3)	(4)
Treatment SFL	1.411*	1.573**	0.333	−0.372
	(0.768)	(0.734)	(1.051)	(1.266)
Treatment Placebo	−0.045	0.888	0.661	0.835
	(0.925)	(0.779)	(0.990)	(1.584)
Own Return	1.272***	1.229***	1.084***	0.964***
	(0.068)	(0.063)	(0.086)	(0.114)
Own Return x SFL	−0.225*	−0.321***	−0.107	0.048
	(0.123)	(0.112)	(0.169)	(0.210)
Own Return x Placebo	−0.019	−0.124	−0.043	−0.060
	(0.145)	(0.121)	(0.159)	(0.237)
Num.Obs.	4042	4042	4042	4042

Note: *p<0.1; **p<0.05; ***p<0.01
This table shows the average marginal effects of both parts of the hurdle model (logistic regression and truncated Poisson regression). Unlike the results from the previous section, this table shows results from a non-incentivized hypothetical choice, where the past returns were randomized. Respondents performed two separate choices; Standard errors are clustered on a respondent level. Because the returns were random, this model specification only includes the own returns, interacted with the two treatments.

5.2.5 Treatment effect on subjective sustainability evaluation

As a last analysis, we show how the SFL treatment impacts investors' subjective sustainability ratings of the funds. In Table 12, we present the results from estimating Model 6, which shows the impact of the SFL treatment on the sustainability rating of the four funds provided by each participant. The dependent variable is the sustainability score of each

fund given by each individual, which ranges from 0 to 10. The independent variables include treatment and socioeconomic variables previously used in our models. These models were estimated using OLS.[14]

We expect treated respondents to show more realistic expectations about the sustainability level of the funds. The information in the SFL treatment should equip them with more skills and knowledge to better evaluate the sustainability level of funds related to Art. 8 and Art. 8(+), which are more challenging to assess. The results presented in Table 9 confirm this hypothesis. The treatment negatively impacted the rating of Art. 8(+) and Art. 8 funds but did not affect the rating for the Art. 9 fund.

Table 12: Sustainability Rating (1-10), OLS

	Art. 9		*Art. 8 (+)*		*Art. 8*		*Art. 6*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment SFL	−0.044	−0.047	−0.284***	−0.274***	−0.354***	−0.344***	−0.057	−0.046
	(0.092)	(0.092)	(0.083)	(0.083)	(0.095)	(0.095)	(0.091)	(0.090)
Treatment Placebo	−0.080	−0.077	−0.103	−0.097	0.082	0.087	−0.057	−0.065
	(0.093)	(0.093)	(0.083)	(0.084)	(0.096)	(0.096)	(0.092)	(0.091)
Financial Literacy		0.196***		0.034		−0.031		−0.439***
		(0.072)		(0.064)		(0.074)		(0.070)
Age		−0.004		−0.005*		−0.004		0.005
		(0.003)		(0.003)		(0.004)		(0.003)
Female		0.045		−0.083		−0.234***		−0.282***
		(0.077)		(0.069)		(0.080)		(0.075)
University educ		0.033		−0.094		−0.038		−0.290***
		(0.078)		(0.070)		(0.081)		(0.076)
Pensioner		0.035		0.128		0.178		0.343***
		(0.130)		(0.117)		(0.135)		(0.127)
Married		0.133		−0.007		−0.124		−0.111
		(0.084)		(0.076)		(0.087)		(0.082)
HH-size		0.001		−0.003		0.006		−0.006
		(0.019)		(0.017)		(0.020)		(0.018)
Intercept	8.600***	8.143***	6.911***	7.158***	4.582***	4.999***	2.090***	3.375***
	(0.065)	(0.261)	(0.058)	(0.235)	(0.067)	(0.270)	(0.065)	(0.254)
Num.Obs.	2021	2021	2021	2021	2021	2021	2021	2021
R2	0.000	0.006	0.006	0.009	0.011	0.018	0.000	0.046

Note: *p<0.1; **p<0.05; ***p<0.01

This table shows the coefficients from an OLS regression. The dependent variable is the participants' rating between 1 and 10 for each fund, indicating the fund's subjective sustainability level (1: least sustainable, 10: most sustainable).

[14]The results are similar when using an ordered Probit model.

6 Discussion

We conducted an incentivized and pre-registered randomized control experiment to analyze the effect of an educational treatment to improve the level of SFL of private investors and study their investment decisions. Our experimental design allowed us to distinguish between the effect of increasing literacy and priming using two control groups. The empirical findings indicate that the SFL treatment increases SFL, while the awareness treatment (which primed investors on sustainable finance) does not. When investing in funds with different levels of sustainability, the SFL treatment generally increased the probability that private investors chose a share of funds with high sustainability and decreased the shares of funds with lower sustainability.

This study's design differentiated between extensive and intensive margins (i.e., between the decision to invest at all and conditional on investing, how much). For the most sustainable fund, the SFL treatment positively affected the decision to invest in this type of fund by about 6% (extensive margin); for the second most sustainable fund (Art. 8 (+)) and the least sustainable fund (Art. 6), the SFL treatment affects the intensive margin with a reduced investment between 2.5% and 3%. Given an investment decision in these funds, a higher level of SFL reduced the budget share invested in this type of fund. These results indicate that higher SFL leads to more new investors in Art. 9 funds and that these new investments are financed by a lower share of Art. 8 (+) and Art. 6 products. The magnitude of this effect is comparable to that of gender and financial literacy.

Similar to information experiments explaining sustainable finance (Auzepy et al., 2024), or emphasizing its benefits (Seifert et al., 2024b), our educational intervention increases sustainable investments; however, our treatment effect size has a lower magnitude, possibly because we account for priming and the extensive/intensive margins in our experimental design.

Next, we considered the role of sustainability-friendly attitudes, measured with an open-ended question at the start of the survey. For most funds (except Art. 8 (+)), sustainable attitudes are an important determinant of investments, aligning with previous research (Bauer et al., 2021; Riedl and Smeets, 2017). In our experiment, the attitude effect was positive for Art. 9 and negative for Art. 8 and 6, for both the extensive and intensive margins. Consequently, investors who were already sustainability-friendly invested more in green funds to start with. We expanded the role of attitudes by connecting them to our SFL treatment: the heterogeneous effect analysis of the treatment shows that the treatment effect was up to 50% higher for the respondents with sustainable attitudes, suggesting that the SFL

treatment helped sustainability-friendly respondents to align their investment decisions with their values. However, this heterogeneous treatment effect was only present on the intensive margin (i.e., conditional on investing) and not for the least sustainable fund. Hence, the primary treatment effects observed without considering sustainability attitudes prevailed for all participants, independently of their values: an increased number of new investors for Art. 9 at the expense of lower investments for Art. 6. Additionally, investors with sustainable attitudes shifted shares from Art. 8 (+) and Art. 8 to Art. 9 on the intensive margin. Therefore, the SFL treatment increases the tendency for sustainability-friendly investors to invest in green funds, suggesting that the educational intervention helps to align green values with investments.

As an outlook, our study provides suggestive evidence for the channels through which SFL influences choice, return chasing, and subjective sustainability perceptions. Following the main incentivized experiment, we used a non-incentivized setup with random returns to analyze if the educational treatment reduces the frequently observed past return chasing (Bailey et al., 2011; Greenwood and Nagel, 2009; Tran and Wang, 2023). Our results suggest that a higher SFL decreased the past-return chasing for Art. 9 and Art. 8 (+) products by about 20%. Further, respondents gave their subjective sustainability rating to each investment fund. The SFL treatment decreased the sustainability perception of Art. 8 (+) and Art. 8 funds, while Art. 9 and 6 remained unchanged. These lower sustainability perceptions for mid-range funds could indicate that treated investors became more realistic about these products' sustainability claims.

7 Conclusion

The definition of sustainable finance remains ambiguous and lacks a universally recognized standard, with varying interpretations across different regulatory frameworks, institutions, and academic settings. These inconsistencies create substantial difficulties for retail investors who must navigate a shifting landscape of criteria and benchmarks when choosing sustainable mutual funds. Previous research has highlighted a lack of understanding of SFL, resulting in uncertainties about its potential impact and the effectiveness of various strategies. We conducted an incentivized randomized controlled trial (RCT) with educational treatment to improve SFL. Our findings indicate that an educational approach provides an effective solution and ensures private investors can make informed and sound financial decisions.

We found that educational treatment increased the level of SFL and the share of investments in highly sustainable funds (unlike the advertisement treatment). The SFL treatment

encouraged new investments in the most sustainable fund (Art. 9) by about 6%, while reducing the investment share in the least sustainable product (Art. 6) by 2.5%. Sustainable attitudes influenced these investments, with positive attitudes increasing investments in the most sustainable fund (Art. 9) and reducing investments with medium sustainability (Art. 8 (+) and 8). The study also provided suggestive evidence that higher SFL decreased return chasing and lowered the perceived sustainability of mid-range funds, making investors more realistic about these funds' sustainability claims.

Looking ahead, our SFL treatment has the potential for broader applications in the financial industry. Under current EU regulations (MiFID-II), banks must ask about investors' interest in sustainability, yet there is no obligation for financial advisors to provide detailed explanations of sustainable finance concepts. Our educational intervention could effectively address this gap: The treatment is concise (fewer than 400 words) and has undergone expert review. This study's findings demonstrate that even previously disengaged investors can be encouraged to allocate more of their budget toward sustainable funds while reducing investments in less sustainable products. Providing similar SFL-focused education for financial advisors to share with clients could prove valuable in overcoming retail investors' barriers to participating in sustainable finance.

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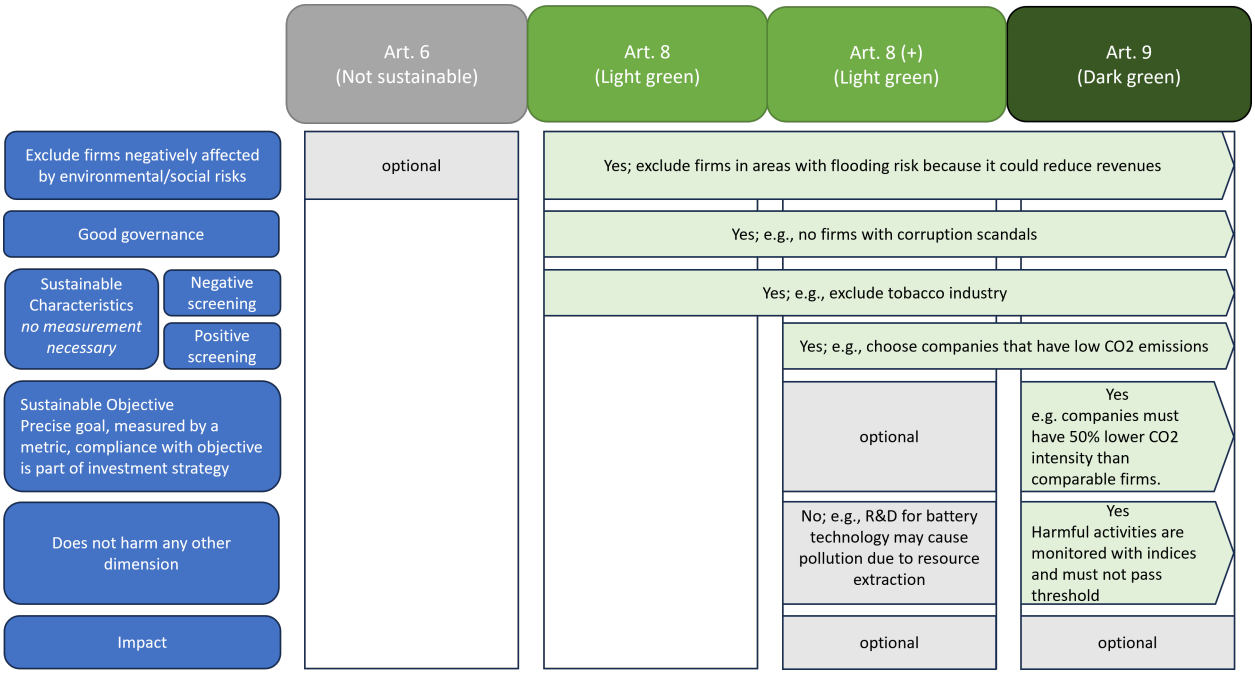
A European Union Sustainable Finance Disclosure

Figure A.1 shows the authors' interpretation of the different types of disclosures from the EU-SFDR. Although the EU-SFDR categories do not indicate a level of sustainability, the information can help with a qualitative assessment. Importantly, the different types of disclosure also give insight when certain characteristics are not disclosed.

Figure A.1: EU SFDR interpretation



Note: This table presents the authors' interpretation of the EU-SFDR.

Depending on the amount of information that banks choose to disclose, a product's sustainability-related disclosure falls under one of the following three categories:

- Article 6: only information on whether ESG-risk is integrated (or not) is disclosed.
- Article 8: promoting environmental and social characteristics, often called "light green."
- Article 9: sustainable objective, often called "dark green."

In practice, Art. 8 is sometimes further differentiated from "Art. 8 plus," which discloses more information than necessary for "Art. 8" but not enough for "Art. 9." Often, Art. 8 plus funds follow an active investment strategy in which firms are selected according to sustainability criteria. However, sustainability may not be monitored with a quantitative

index, ESG risk and DNSH criteria could be violated. For example, a fund focusing on R&D for battery technology could cause pollution due to resource extraction.

We identified several sustainability dimensions relevant to the SFDR and where disclosure (or its absence) can provide qualitative insights. The first category describes the integration of ESG risk, which usually means excluding firms that could be negatively affected by environmental or social risks. For example, companies in areas with flooding risks could be excluded because they could reduce revenues. Financially motivated ESG-risk integration must be disclosed under all EU-SFDR articles; for Art. 6, disclosure is necessary but does not mean that these products must practice ESG integration; fund managers can disclose that they do not apply ESG integration. However, this does not imply a product is considered "green." The Swiss Federal Council's position states that exclusion on a mere financial basis is not sufficient for a product to be marketed as "sustainable."

Similarly, negative screening (i.e., exclusion) of firms with bad governance (e.g., corruption scandals) is sufficient for an Art. 8 product ("light green") but not for the Swiss Federal Council. The same applies to environmental or social-based negative screening (e.g., excluding tobacco companies). On the other hand, positive screening implies actively choosing companies based on their sustainability characteristics. For example, a fund might explicitly select firms with low CO2 emissions or focus on a specific theme, like R&D in new energy technologies. Such funds are often referred to as "Article 8 plus."

To be considered Art. 9, or "dark green," two additional criteria apply: First, the fund must have a sustainable objective, which implies a precise goal measured by a metric and part of the investment strategy. For example, companies could have a 50% lower CO2 intensity than comparable firms. Second, these funds must satisfy the "do not significantly harm" criteria: harmful activities of the firms are monitored and must not exceed a quantitative threshold.

Interestingly, the EU-SFDR does not consider impact investing, i.e., if a fund influences the firm's sustainability practices. The reason is that the EU-SFDR mainly covers investments in the secondary financial market (i.e., stocks and bonds from already existing companies). Hence, the impact could be generated through active ownership (i.e., still focusing on the secondary market but voting in favor of sustainability-related strategies) or supporting new business ventures (i.e., the primary financial market). Hence, the EU-SFDR articles do not give insight into the impact of a financial product. In contrast, the Swiss

Federal Council's position on greenwashing explicitly mentions impact investing as a key characteristic of sustainable finance products.[15]

Our SFL treatment does not consider the EU Taxonomy (a list of economic activities considered sustainable investments). The reason is that the EU Taxonomy is still in development and only covers some investment areas. Art. 9 funds must disclose the shares of their assets that explicitly fall under the EU Taxonomy. However, fund managers can also perform their own screenings to determine if their investments follow the criteria of the EU Taxonomy regulation (even if the specific activities have not yet been included in the EU Taxonomy). For this reason, most Art. 9 funds have low or zero shares of assets listed in the EU Taxonomy and instead apply their own screenings to determine sustainable investments (Badenhoop et al., 2023). The underlying reason is that many activities have not yet been defined by the EU taxonomy. Hence, asset managers can apply their own screenings to determine whether the activities of a company align with the principles of the EU taxonomy. However, the fund's asset management performs this evaluation, not the EU.

[15]The Swiss Federal Council further differentiates between active ownership on the secondary market and impact investing with direct investments on the primary market. However, we considered both approaches to be "impact" investing.

B Choice Cards detailed fund information

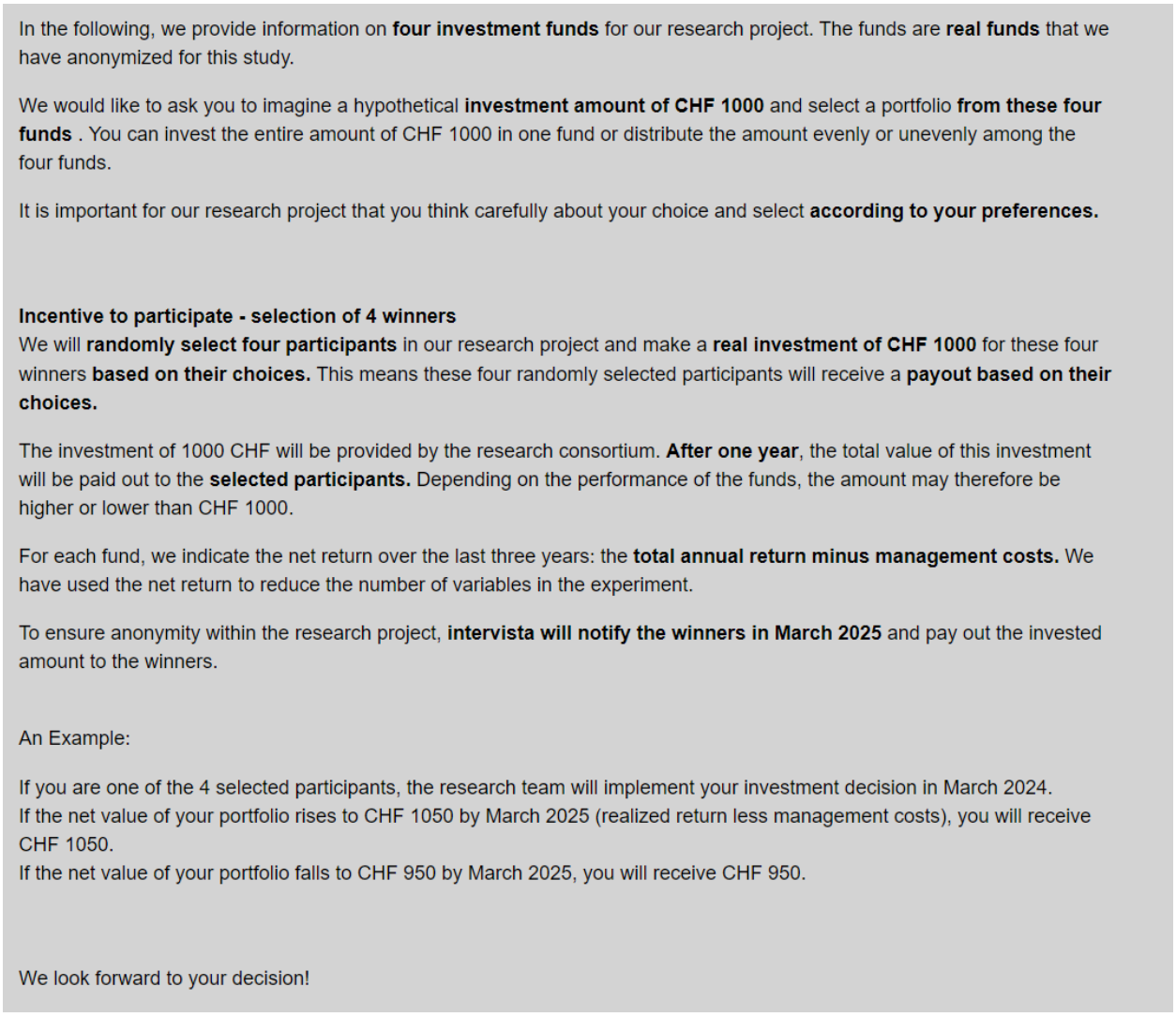
Figure B.2: Choice Experiment

	Fund A	Fund B	Fund C	Fund D
Name	CARMIGNAC PF G-EURP-A USDHAC	JPM INV-JPM GLOBAL SEL EQT-D	BGF-US FLEX EQTY-A2 USD	SPDR S&P 500 Low Volatility UCITS ETF (Acc)
EU-SFDR	Art 9	Art 8	Art. 8	Art. 6
Investment type	Equity (OE Mutual Fund)	Equity (OE Mutual Fund)	Equity (OE Mutual Fund)	Equity (ETF)
Average net return	6.46 (3Y ann return, 7.2.24)- 1.81 (TER)	8.19 (3Y ann return, 7.2.24)-2.55 (TER)	8.34 (3Y ann return, 7.2.24)-1.81 (TER)	6.91 (3Y ann return, 7.2.24)-0.19 (TER)
Summary Risk Indicator (SRI)	SRI: 4	SRI: 4	SRI: 4	SRI: 4
Investment objective	The fund aims to outperform its reference indicator over 5 years and to generate capital growth, while implementing a socially responsible investment approach formalised by a sustainable investment objective.	"To achieve a return in excess of the global equity markets by investing primarily in companies, globally."	"The Fund aims to maximise the return on your investment through a combination of capital growth and income on the Fund's assets in a manner consistent with the principles of environmental, social and governance ("ESG") investing."	The Fund seeks to track the performance of the S&P 500® Low Volatility Index [...]
Sustainability features	"The Sub-fund aims to achieve carbon emissions 50% lower than its reference indicator (STOXX 600 Europe), measured monthly by carbon intensity (tCO2/ mUSD revenue converted to Euros; aggregated at portfolio level (Scope 1 and 2 of GHG Protocol)." «Furthermore, this Sub-Fund is committed to applying the SFDR level II 2019/2088 Regulatory Technical Standards (RTS) annex 1 related to Principal Adverse Impacts [...].»	"Through its inclusion criteria, the Sub-Fund promotes environmental characteristics which may include effective management of toxic emissions and waste, as well as good environmental record." "To be included in the 51% of assets promoting environmental and/or social characteristics, a company must score in the top 80% relative to its peers on either its environmental score or social score and follow good governance practices."	N/A	N/A
Exclusion of controversial industries and poor governance	«Negative screening and exclusions of unsustainable activities and practices are identified using an international norms and rules-based approach on the following [...].»	"fully excluding companies that are involved in particular activities such as manufacturing controversial weapons and applying maximum revenue, production or distribution percentage thresholds to others such as those that are involved in thermal coal and tobacco."	"This Fund applies the BlackRock EMEA Baseline Screens with the Fundamental Insights Methodology. This approach seeks to avoid exposures that have negative environmental outcomes by excluding direct investment in issuers that have material involvement in [...]"	N/A
Consideration of ESG risks	"ESG integration through ESG scoring using Carmignac's proprietary ESG platform [...]"	"Active ownership allows us to manage ESG risks [...]" "Portfolios are reviewed in the context of objectives, performance, risk positioning and ESG integration."	"The Investment Adviser conducts enhanced analysis on all companies that it considers to have heightened ESG risks, higher carbon emissions and controversial business activities."	"Funds that are SFDR Article 6 financial products With respect to the Funds included in the table below the investments underlying each of these Funds do not take into account the EU criteria for environmentally sustainable economic activities."

Note: This Table shows each fund prospectus and factsheet excerpts to design the choice cards. Note that Fund B is classified under EU-SFDR Art. 8 but could be considered as Art. 8 (+), which is however not an official EU-SFDR class.

C Choice Cards explanation and comprehension check

Figure C.3: Choice Cards Explanation



In the following, we provide information on **four investment funds** for our research project. The funds are **real funds** that we have anonymized for this study.

We would like to ask you to imagine a hypothetical **investment amount of CHF 1000** and select a portfolio **from these four funds** . You can invest the entire amount of CHF 1000 in one fund or distribute the amount evenly or unevenly among the four funds.

It is important for our research project that you think carefully about your choice and select **according to your preferences.**

Incentive to participate - selection of 4 winners
We will **randomly select four participants** in our research project and make a **real investment of CHF 1000** for these four winners **based on their choices.** This means these four randomly selected participants will receive a **payout based on their choices.**

The investment of 1000 CHF will be provided by the research consortium. **After one year**, the total value of this investment will be paid out to the **selected participants.** Depending on the performance of the funds, the amount may therefore be higher or lower than CHF 1000.

For each fund, we indicate the net return over the last three years: the **total annual return minus management costs.** We have used the net return to reduce the number of variables in the experiment.

To ensure anonymity within the research project, **intervista will notify the winners in March 2025** and pay out the invested amount to the winners.

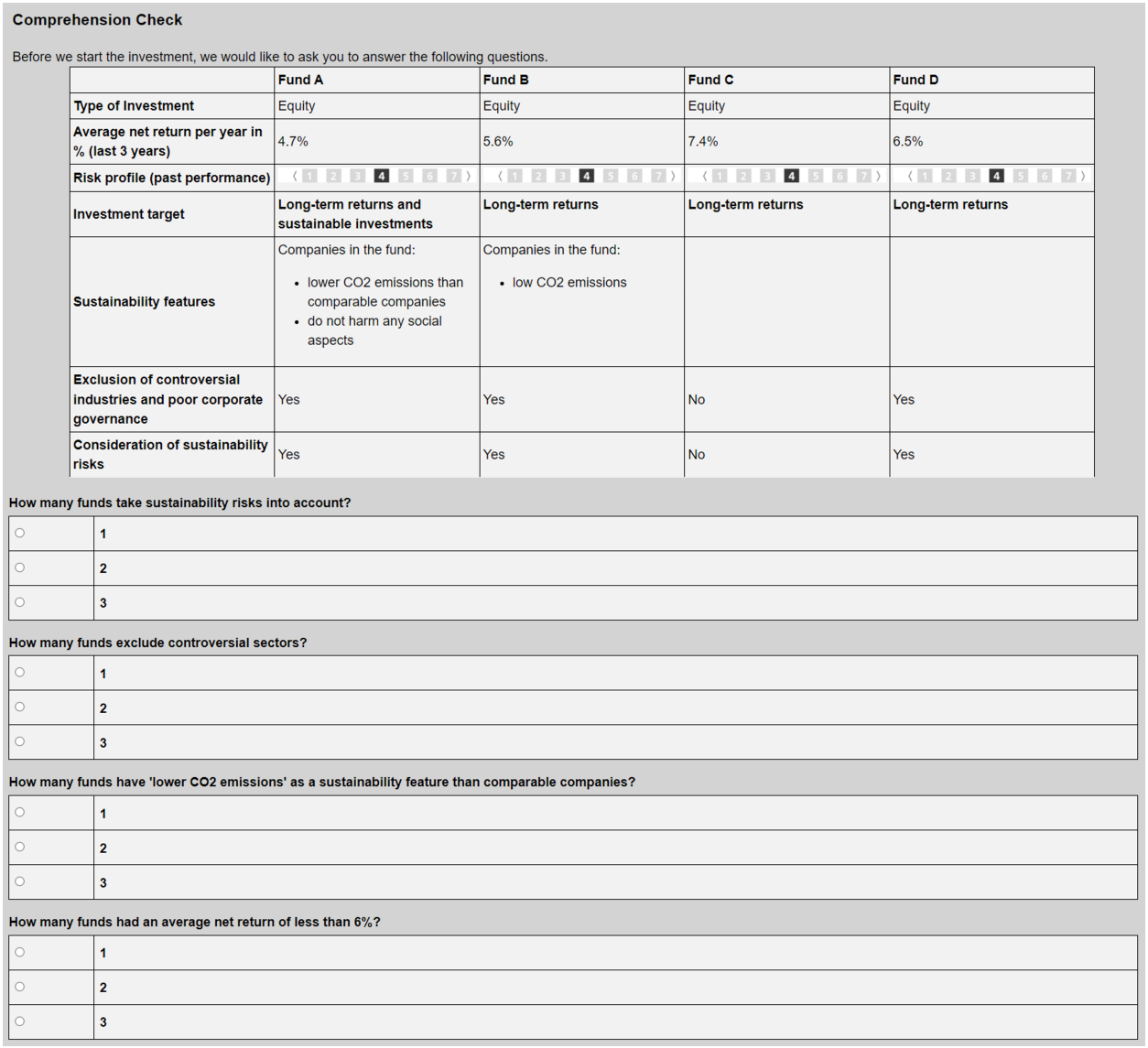
An Example:

If you are one of the 4 selected participants, the research team will implement your investment decision in March 2024.
If the net value of your portfolio rises to CHF 1050 by March 2025 (realized return less management costs), you will receive CHF 1050.
If the net value of your portfolio falls to CHF 950 by March 2025, you will receive CHF 950.

We look forward to your decision!

Note: This figure shows the explanation for the choice experiment (English translation from German).

Figure C.4: Choice Cards Comprehension Check



Comprehension Check

Before we start the investment, we would like to ask you to answer the following questions.

	Fund A	Fund B	Fund C	Fund D
Type of Investment	Equity	Equity	Equity	Equity
Average net return per year in % (last 3 years)	4.7%	5.6%	7.4%	6.5%
Risk profile (past performance)	1 2 3 **4** 5 6 7	1 2 3 **4** 5 6 7	1 2 3 **4** 5 6 7	1 2 3 **4** 5 6 7
Investment target	**Long-term returns and sustainable investments**	**Long-term returns**	**Long-term returns**	**Long-term returns**
Sustainability features	Companies in the fund: • lower CO2 emissions than comparable companies • do not harm any social aspects	Companies in the fund: • low CO2 emissions		
Exclusion of controversial industries and poor corporate governance	Yes	Yes	No	Yes
Consideration of sustainability risks	Yes	Yes	No	Yes

How many funds take sustainability risks into account?

○	**1**
○	**2**
○	**3**

How many funds exclude controversial sectors?

○	**1**
○	**2**
○	**3**

How many funds have 'lower CO2 emissions' as a sustainability feature than comparable companies?

○	**1**
○	**2**
○	**3**

How many funds had an average net return of less than 6%?

○	**1**
○	**2**
○	**3**

Note: This figure shows the comprehension check for the choice experiment (English translation from German).

D EU SFDR in the Swiss context

The Swiss Sustainable Investment Market Study 2023 revealed that only 18% of Swiss fund volumes are not subject to EU regulations. This implies that the remaining 82% are likely subject to the EU Sustainable Finance Disclosure Regulation (SFDR), even if many have not yet disclosed whether they are Article 8 or Article 9 funds.[16] Swiss financial market players are exempt from SFDR if their products are domiciled in Switzerland and they do not sell

[16] https://marketstudy2023.sustainablefinance.ch/wp-content/uploads/2023/06/SSF˙2023˙MarketStudy.pdf

them to EU customers. Most investment funds, however, are domiciled in Luxembourg or Liechtenstein for tax reasons, thus falling under EU regulations. Further, many EU investors in Swiss funds fall under SFDR themselves (e.g., pension funds), which requires Swiss asset managers to comply with these rules. For this reason, our study mainly focuses on the EU-SFRD regulations, but also aims to consider the Swiss context.

In December 2022, the Swiss Federal Council released its position on greenwashing in the financial industry and the measures that should be in place to prevent it.[17] Specifically, the Swiss Federal Council stated that sustainable investment products must either align with a sustainability goal (e.g., the Paris Agreement) or contribute to a sustainability objective (e.g., through impact investing). In an EU-SFDR context, funds with these characteristics could fall into either Art. 8 ("light-green") or Art. 9 ("dark-green"). The reason why "sustainable" funds from the Swiss definition could fall into either Art. 9 or 8 is that the Swiss position does not consider the "do not significantly harm" criteria (e.g., a fund focusing on battery technology could have an "impact" but fall under Art. 8 because it could rely on polluting raw materials).

We consider the Swiss Federal Council's position by further differentiating between Art. 8 / Art. 9 from the SFDR. While the SFDR is specific in defining alignment, it does not cover impact. As a result, we have included this aspect in our educational text by explicitly explaining the concept of impact. Additionally, we have incorporated the Federal Council's position that merely integrating sustainability factors into financial risk management is insufficient to classify a product as sustainable.

Many Swiss banks aim to comply with the Federal Council's position on Greenwashing and the EU SFDR. However, this information can still be complex and insufficient for precise product comparisons. Despite this, the framework allows investors to broadly distinguish between high, medium, and zero levels of sustainability, as well as impact and focus (environment or social).

However, the information is still too general to enable a detailed comparison of investment funds on the market based on numerical metrics. The Swiss Climate Scores are the first attempt to provide such metrics for sustainable finance's climate dimension (which are not analyzed in this study).

[17] For further information: https://www.newsd.admin.ch/newsd/message/attachments/83722.pdf and https://www.admin.ch/gov/en/start/documentation/media-releases.msg-id-98351.html

E Text Analysis

We classified each priority separately into one of 16 topics, using a semi-manual dictionary approach. This approach was developed in Wekhof and Houde (2023) and used in Filippini et al. (2024) and Wekhof (2024). The method consists of creating a dictionary for each topic, containing keywords that can assign an answer to a topic. Wekhof (2024) used a similar open-ended question to the one in this study, which allowed us to use the same topics and the corresponding dictionary.[18] We enhanced the dictionary from Wekhof (2024) with new words, using the method from Wekhof and Houde (2023) to identify relevant words. In a nutshell, this method uses pre-trained word embeddings to cluster words by their semantic similarity (e.g., *pen* and *paper* are closer than *pen* and *monkey*). We manually allocated words (and groups of words) to topics based on the clusters of similar words. In this case, we removed all words already present in the dictionary after the clustering step and allocated the remaining words whenever possible. We increased the number of words in the dictionary by 351, from 1285 to 1636 words.[19]

Table E.1 shows the main words for the three most important topics: sustainability, return, and risk. All topics have one dominant word that most respondents used, followed by a sharp decline by several midrange words and then by less common keywords.

[18] Wekhof (2024) had the following question: Please imagine the following situation: You received CHF 10,000 and would like to invest this sum over a period of 10 years. Your bank offers you a broad selection of mutual funds. What criteria would be important to you when choosing a fund? Please write a short text with about three sentences.

[19] The dictionary approach could not allocate topics to all answers. We manually classified these answers for each priority (190, 263, 405, and 544 answers). Some answers contained multiple topics. In that case, we manually reviewed these answers, decided on the dominant topic, and prioritized the sustainability topic whenever it appeared. Multiple topics occurred across priorities 153, 119, 120, and 115 times respectively.

Table E.1: Topic frequencies for open-ended question

sustainability		*return*		*risk*	
word	freq.	word	freq.	word	freq.
sustainability	530	return	682	security	850
sustainable (sg.)	173	gain	206	risk	369
sustainable (pl.)	52	performance	100	safe (sg.)	129
ethical	39	interest rate	96	loss	49
social	33	yield	77	safe (pl.)	48
environment	33	profitable	28	stability	41
ecological (sg.)	31	profit	28	low-risk	21
eco-friendly	24	profitable	26	long-term	19
ecological (pl.)	15	value increase	9	risks	18
ecology	14	distributing	6	balanced	16

Note: This table presents the most frequent words for the topics sustainability, return, and risk. The words were originally in German and translated for this table. For this reason, some words appear multiple times because in German, the word is differentiated by its singular and plural form.

Table E.2 shows the percentage of each topic by priority and over all four priorities (i.e. if a respondent mentioned the topic in any of the four priorities). Overall, the two most mentioned topics were risk and return, with more than 70%, followed by sustainability with 51% and the fund's content with 45%. Mid-range topics that had an overall occurrence between 10 and 20% were fees, control over the investment, trust in the bank, historical financial development, and transparency. Less frequent topics included hassle, bank advisor, ETF, third-party advice, and greenwashing. Overall, 4.6% gave a blanc answer in one of the four text fields, and 2.9% wrote "I do not know" in one of the fields. This ranking of topics is also reflected in the four individual priorities, with risk and return being the most frequently mentioned topics, followed by sustainability and the content of the fund.

Table E.2: Topic frequencies for open-ended question (in %)

Topic	Priority 1	Priority 2	Priority 3	Priority 4	All
Risk	44.48	19.25	11.33	8.02	72.69
Return	19.64	28.06	18.41	13.31	71.70
Sustainability	12.82	17.86	19.05	15.14	51.51
Content fund	8.96	13.90	17.91	18.80	43.25
Fees	3.22	5.59	7.47	6.19	21.87
Control	0.54	2.52	7.72	9.55	19.25
Trust bank	3.86	3.51	4.65	7.17	17.47
Transparent	1.14	2.28	3.61	4.70	11.23
Development	2.57	3.22	2.52	3.46	11.18
Hassle	0.30	0.79	2.33	3.46	6.73
Bank advisor	0.79	1.09	1.68	2.47	5.99
ETF	1.34	0.99	0.89	0.59	3.41
Advice third	0.15	0.15	0.30	0.05	0.64
Greenwashing		0.10		0.20	0.30
Do not know	0.10	0.45	0.59	2.42	2.92
No answer	0.10	0.25	1.53	4.45	4.70

Note: This table presents the topic frequencies (in %) for each priority and jointly for all priorities.

F Hurdle model with hypothetical returns

Table F.3: Hurdle Poisson, hypothetical returns, AME

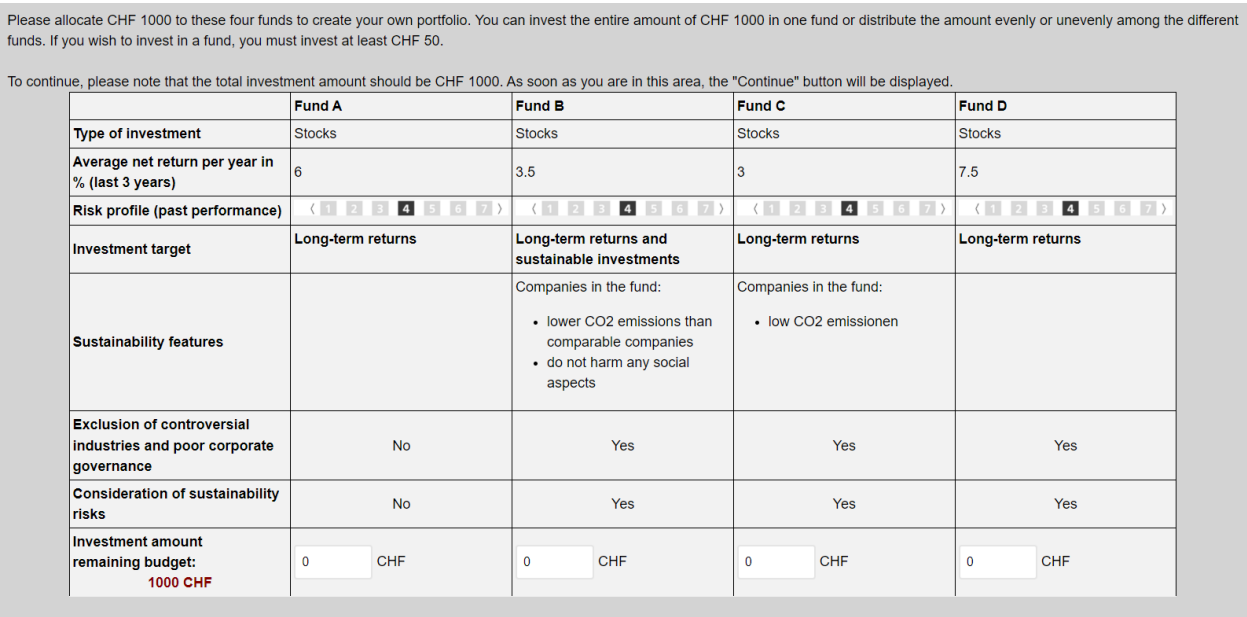
	Art. 9	Art. 8 (+)	Art. 8	Art. 6
	Binary			
	(1)	(2)	(3)	(4)
Treatment SFL	0.040**	0.011	−0.025	−0.001
	(0.016)	(0.021)	(0.022)	(0.019)
Treatment Placebo	0.007	0.000	−0.001	−0.026
	(0.016)	(0.022)	(0.022)	(0.019)
Return Art.9	0.063***	−0.063***	−0.045***	−0.012***
	(0.004)	(0.005)	(0.005)	(0.004)
Return Art.8 (+)	−0.025***	0.085***	−0.035***	−0.008*
	(0.004)	(0.004)	(0.005)	(0.004)
Return Art.8	−0.015***	−0.018***	0.073***	−0.021***
	(0.004)	(0.005)	(0.004)	(0.004)
Return Art.6	−0.012***	−0.001	−0.007	0.043***
	(0.004)	(0.005)	(0.005)	(0.004)
	Count			
	(1)	(2)	(3)	(4)
Treatment SFL	0.152	−0.384	−0.285	0.054
	(0.285)	(0.235)	(0.292)	(0.450)
Treatment Placebo	−0.145	0.095	0.434	0.516
	(0.294)	(0.242)	(0.302)	(0.467)
Return Art.9	1.241***	−0.775***	−0.616***	−0.255***
	(0.065)	(0.056)	(0.072)	(0.096)
Return Art.8 (+)	−0.622***	1.151***	−0.581***	−0.308***
	(0.061)	(0.058)	(0.069)	(0.105)
Return Art.8	−0.244***	−0.294***	1.064***	−0.373***
	(0.061)	(0.053)	(0.076)	(0.103)
Return Art.6	−0.167***	−0.132**	−0.174**	0.938***
	(0.061)	(0.054)	(0.068)	(0.106)
Num.Obs.	4042	4042	4042	4042

Note: *p<0.1; **p<0.05; ***p<0.01

This table shows the average marginal effects of both parts of the hurdle model (logistic regression and truncated Poisson regression). Unlike the results from the previous section, this table shows results from a non-incentivized hypothetical choice, where the past returns were randomized. Respondents had two separate choices; Standard errors are clustered on a respondent level.

G Additional Figures

Figure G.5: Choice Experiment - randomized past returns



Please allocate CHF 1000 to these four funds to create your own portfolio. You can invest the entire amount of CHF 1000 in one fund or distribute the amount evenly or unevenly among the different funds. If you wish to invest in a fund, you must invest at least CHF 50.

To continue, please note that the total investment amount should be CHF 1000. As soon as you are in this area, the "Continue" button will be displayed.

	Fund A	Fund B	Fund C	Fund D
Type of investment	Stocks	Stocks	Stocks	Stocks
Average net return per year in % (last 3 years)	6	3.5	3	7.5
Risk profile (past performance)	1 2 3 **4** 5 6 7	1 2 3 **4** 5 6 7	1 2 3 **4** 5 6 7	1 2 3 **4** 5 6 7
Investment target	**Long-term returns**	**Long-term returns and sustainable investments**	**Long-term returns**	**Long-term returns**
Sustainability features		Companies in the fund: • lower CO2 emissions than comparable companies • do not harm any social aspects	Companies in the fund: • low CO2 emissionen	
Exclusion of controversial industries and poor corporate governance	No	Yes	Yes	Yes
Consideration of sustainability risks	No	Yes	Yes	Yes
Investment amount remaining budget: 1000 CHF	0 CHF	0 CHF	0 CHF	0 CHF

Note: This figure shows a choice set from the non-incentivized part of the experiment with randomized past returns (English translation from German). The order of the columns was randomized.

Figure G.6: Choice Experiment - Fund Ratings

	Fund A	Fund B	Fund C	Fund D
Type of investment	Equity	Equity	Equity	Equity
Average net return per year in % (last 3 years)	4.7%	5.6%	6.5%	7.4%
Risk profile (past performance)	1 2 3 **4** 5 6 7	1 2 3 **4** 5 6 7	1 2 3 **4** 5 6 7	1 2 3 **4** 5 6 7
Investment target	**Long-term returns and sustainable investments**	**Long-term returns**	**Long-term returns**	**Long-term returns**
Sustainability features	Companies in the fund: • lower CO2 emissions than comparable companies • do not harm any social aspects	Companies in the fund: • low CO2 emissions		
Exclusion of controversial industries and poor corporate governance	Yes	Yes	Yes	No
Consideration of sustainability risks	Yes	Yes	Yes	No
Sustainability - Your Rating (1:very low, 10: very high)	0	0	0	0

Note: This figure shows a choice set from the last part of the experiment, where respondents gave their own sustainability rating for each fund. As before, the order of the columns was randomized. Participants received the following instruction for this exercise: "We would now like to ask you to give your assessment of the sustainability of the 4 funds. Please give each fund a rating between 1 and 10 (1: very low; 10: very high)."

H Additional Tables

Table H.4: Treatment effect on SFL score, with attitudes

	General + Specific	General + Specific	General	General
T. SFL	0.925***	0.910***	0.461***	0.446***
	(0.107)	(0.105)	(0.075)	(0.074)
T. Placebo	0.106	0.115	0.095	0.104
	(0.109)	(0.106)	(0.077)	(0.075)
SFL x Sust. prio	0.087	0.102	−0.018	−0.002
	(0.150)	(0.147)	(0.106)	(0.103)
Placebo x Sust. prio	−0.201	−0.201	−0.140	−0.142
	(0.151)	(0.148)	(0.107)	(0.104)
Sust. Priority	0.269**	0.213**	0.243***	0.199***
	(0.106)	(0.104)	(0.075)	(0.073)
Fin. Lit.		0.332***		0.230***
		(0.057)		(0.040)
Age		−0.004		−0.003
		(0.003)		(0.002)
Female		−0.191***		−0.168***
		(0.062)		(0.044)
Uni. ed.		0.305***		0.272***
		(0.063)		(0.045)
Pensioner		0.082		0.025
		(0.104)		(0.073)
Married		−0.014		−0.030
		(0.067)		(0.047)
HH-size		0.026*		0.020*
		(0.015)		(0.011)
Intercept	2.099***	1.242***	1.439***	0.867***
	(0.075)	(0.213)	(0.053)	(0.150)
Num.Obs.	2021	2021	2021	2021
R2	0.107	0.147	0.053	0.108

Note: *p<0.1; **p<0.05; ***p<0.01

This table shows the coefficients of an OLS regression with the SFL score (0-5) as dependent variable, including the sustainability attitudes from the open-ended question.

I Background Variables

Table I.5: Definition of variables obtained from the survey company

Variable	Description
Survey Variables	
Sustainability Attitude	An indicator variable that takes the value of 1 if a respondent mentioned the sustainability topic in the open-ended question on investment priorities at the start of the survey.
Treatment	Randomly assigned information treatment that takes either the value "SFL," "Aware," or "Placebo."
Financial Literacy	The "big three" questions on financial literacy by Lusardi and Mitchell (2008)
Income	Respondents were classified into seven intervals for their monthly income: "less than 3,000 CHF," "3,000 - 4'500 CHF," "4'501 - 6,000 CHF," "6,001 - 9,000 CHF," "9,001 - 12,000 CHF", "12,001 - 16,000 CHF" and "more than 16,000 CHF." We converted the intervals into a continuous variable by taking the average value for the interval when possible. The new continuous income variable thus takes the values: 3,000 CHF, 3,750 CHF, 5,250 CHF, 7,500 CHF, 10,500 CHF, 14,000 CHF, and 16,000 CHF.
Background Variables (provided by survey company)	
Female	A dummy variable that takes the value of 1 if the respondent identifies as female and 0 otherwise.
Age	Age in years.
University Degree	A dummy variable that takes the value of 1 if the respondent holds a university degree and 0 otherwise.
Pensioner	A dummy variable that takes the value of 1 if the respondent's current employment status is "pensioner" and 0 otherwise.
Married	A dummy variable that takes the value of 1 if the respondent is married and 0 otherwise.
Household size	The number of people currently living in the respondent's household.

Note: This table describes the variables used in this study.

J Treatment and SFL questions

J.1 SFL Treatment

Treatment	SFL Questions
Q1: What is sustainable finance? Sustainable finance considers **environmental, social, and governance (ESG)** characteristics alongside traditional financial risk and return analysis. The level of **sustainability varies** across financial products. Due to the **lack of standardized sustainability ratings,** government guidelines aim to increase transparency. European and Swiss authorities issued **guidelines for the disclosure** of sustainability characteristics that apply to most investment funds sold in Switzerland. Question: **The level of sustainability between different financial products can vary.** • True • False	1. **ESG Awareness:** The acronym "ESG" is often used in the context of sustainable finance investments. What do you think the abbreviation "ESG" stands for? • Environmental and Social Goals • Environmental and Sustainable Goals • Environmental, Social, and Governance • Environmental, Sustainable, and Governance • I do not know. 2. **SFL 1 - Lack of standards:** Sustainability ratings and labels for funds do not follow a uniform standard. As a result they are not directly comparable. • Yes • No • I do not know.

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Q2: What are funds that account only for sustainability risk alongside financial risk and return analysis? These funds consider ESG-related issues that can negatively impact a firm's financial performance. For example, they consider whether a company is exposed to the negative effects of climate legislation (e.g., higher CO2 taxes) or avoid investments in companies that are frequently affected by natural disasters due to climate change. A fund that considers **sustainability-related risks** in addition to the financial risk analysis pursues a purely financial investment objective and is **not considered a sustainable fund.** Question: **Sustainability risks can influence the profitability of companies.** • True • False	3. **SFL 2 - ESG risk integration:** Suppose a fund considers sustainability-related risks in addition to the financial risk analysis. Is that sufficient for this fund to be considered sustainable? • Yes • <u>No</u> • I do not know.

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Q3: What are funds with a medium degree of sustainability (also called "light green")? **In addition to financial returns,** these funds also take sustainability into account as an additional criterion. These funds include firms that show **positive environmental or social characteristics** (e.g. low carbon emissions or fair wages). The firms **do not need to meet a specific sustainability target** (e.g. a specific emission goal). Question: **Light green funds have sustainable characteristics.** • True • False	*The EU regulations differentiate between three different levels of sustainable funds: no sustainability (Art. 6), medium (light-green or Art. 8), and high (dark-green or Art. 9).* 4. **SFL 4 - EU SFDR light green:** A "light green" fund does not have to set specific CO2 reduction targets for companies. • Yes • No • I do not know.

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Q4: What are funds with a high degree of sustainability (also called "dark green")?

These funds have **two goals:** to meet a **sustainability objective** and to achieve **financial gains.** Regarding their, sustainability funds must meet two conditions:
(i) Declare and monitor a **sustainable objective:** firms in these funds must contribute to either a specific environmental or social objective (e.g., meet a specific target for CO2 emissions).
(ii) The **firms in the fund do not harm any other sustainability dimension** (e.g., a fund promoting fair wages must ensure that its firms do not cause any environmental harm).

Question: **Dark green funds have a specific sustainability objective.**

- True
- False

5. **SFL 5 - EU SFDR dark green:** Is it sufficient for a fund to define and monitor an environmental or social objective in order to be considered "dark green"?

- Yes
- No
- I do not know.

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Q5: When does a fund directly impact the sustainability performance of firms (e.g. on CO2 emissions)? A sustainable fund (light or dark green) is not obliged to influence the firms' sustainability strategy, e.g., CO2 emissions may remain unchanged following investment. A fund only impacts the sustainability of firms by • Obliging **low-sustainability firms to change** (e.g. introducing clean technologies like CO2-neutral production). • Investing in **new ventures** (e.g. building a new wind park). Question: **A sustainable fund always has an impact on a company's sustainability strategy.** • True • False	6. **SFL 3 - Impact investing:** A fund that invests in firms with a low CO2 footprint automatically reduces global CO2 footprint. • Yes • <u>No</u> • I do not know.

J.2 Awareness Treatment

Treatment 2 (Awareness)
Q1: How did the New York Stock Exchange (NYSE) get established? The NYSE, also called the "Big Board," is a stock exchange in NYC. **It was founded in 1792** by 24 stockbrokers who signed the Buttonwood Agreement, establishing rules for trading stocks and bonds. The NYSE grew rapidly in the 19th century, becoming the **dominant US exchange.**

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Question: **The NYSE was founded in 1792?**

- True
- False

Q2: What was the New York Stock Exchange's role in America in the 20th century?

The NYSE played a crucial role in American history during the 20th century. **It survived multiple crises**, including the Great Depression and the Black Monday crash, and continued to innovate. In 2007, **it merged with Euronext** to become the world's largest stock exchange. Today, with over 2,800 listed companies, it remains one of the most important financial institutions globally.

Question: **The NYSE has survived multiple crises.**

- True
- False

Q3: Why is the New York Stock Exchange a popular tourist destination?

The NYSE at 11 Wall Street in Lower Manhattan is a *symbol of the American economy* and a popular tourist destination. Built in 1903, the **neoclassical building** features six Corinthian columns and a pediment with a sculpture of Mercury, the Roman god of commerce. It houses a bustling **trading floor**, offices, conference rooms, and a museum showcasing the history of the exchange and the financial industry.

Question: **The NYSE is located in Upper Manhattan.**

- True
- False

Q4: What is the role of the opening and closing bell at the NYSE?

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The bell ringing at the NYSE is a **symbolic tradition** that marks the opening or closing of the trading day. It involves the ringing of the opening or closing bell by a prominent public figure, such as a celebrity, athlete, or corporate executive. The ceremony is **broadcast live** on major news networks and is often used as a platform for companies to promote their brand or upcoming events. The bell ringing is a highly **popular opportunity,** and many companies compete for the chance to participate.

Question: **The bell opens the opens the trading day.**

- True
- False

Q5: How does the New York Stock Exchange promote sustainable finance?
Sustainable finance considers **environmental, social, and governance (ESG)** characteristics alongside traditional financial risk and return analysis. The exchange has launched **several initiatives** to promote ESG investing, such as planning to introduce sustainability labels in the future.

Question: **The New York Stock Exchange promotes sustainable finance.**

- True
- False

J.3 Placbo Treatment

Treatment 1 (Placebo)

Q1: Why are surveys an important tool for research?
Surveys are a central means of **gathering data and opinions** to support decisions in research, business, and administration. Market researchers collect **demographic data, attitudes, and behaviors** of respondents and analyze the information to gain new insights. Therefore, surveys are a valuable means of gathering information and an instrument for any organization that wants to **better understand its stakeholders.**

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Question: **Surveys help analyze behaviors.**

- True
- False

Q2: Who typically organizes professional surveys?
Surveys are conducted by researchers at universities, the Federal Statistical Office, or market research institutes. The organization of a survey includes **planning**, creating the survey the questionnaire, **implementing it**, and **statistically evaluating the results.**

Question: **Organizing a survey only involves creating the questionnaire.**

- True
- False

Q3: What is special about online panels from market research institutes?
Online panels from market research institutes have some features that make them particularly valuable for market research:

- **Access to a target group:** With an online panel, companies gain access to a pool of potential participants who ideally match the target group.
- **Data quality:** Special recruitment sources and careful management of the panel ensure that surveys have a high-quality and **representative sample.**

Question: **A representative panel is crucial for the quality of a survey.**

- True
- False

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Q4: Which research areas are most market research institutes specialized in?
Most market research institutes specialize in the following areas:

- **Social science research:** Understanding human interactions and social trends.
- **Consumer research:** Understanding consumer decisions and behavior.

Question: **Most market research institutes specialize in consumer decisions.**

- True
- False

Q5: What are the commonly used survey tools?
Market research institutes offer a variety of survey tools, including:

- **Online surveys:** These are questionnaires that participants can complete online.
- **Telephone interviews:** In this method, an interviewer asks individual respondents questions over the phone.
- **Focus groups:** This involves a small group of people brought together to discuss a specific topic or product.

Question: **Online surveys are a commonly used survey tool.**

- True
- False