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Skeptical but Supportive? An Experimental Study on ESG and Investment Decisions of Business School Students in Sweden and China

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Abstract

As more and more investors utilize Environmental, Social, and Governance (ESG) to support their investment decisions, there is a growing body of research on ESG investing. However, most of the current research has focused primarily on sustainable finance, i.e., the Environment component of ESG, while neglecting the other two components. There is also little research addressing investors' attitudes towards ESG itself. In this study, I designed a motivated individual-level online experiment in a business school context. The results show that students in the Swedish business school ($N = 236$) who are skeptical about ESG are more inclined to invest in financial products with better ESG performance. In addition, students in the Chinese business school ($N = 221$) are most concerned with the Governance factor in ESG. Finally, both theoretical knowledge and practical experience related to ESG are instrumental in facilitating personal investment in ESG.

Keywords: Behavioral Finance, ESG, Investment Decisions, Business School

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1 Introduction and Literature Review

The Environmental, Social, and Governance (ESG), which was introduced by the United Nations Global Compact (2004), advocates the incorporation of ESG factors into both investment decision-making and active corporate governance. Over the years, ESG has transformed into an essential instrument for investors, serving not only as a criterion for assessing corporate ethics and practices but also as a strategic tool for forecasting financial outcomes. Research such as the study by Li et al. (2021), highlights the critical role of the three ESG components in investment analysis, showing that these factors are fundamental in evaluating the long-term sustainability and social impact of corporate operations. The European Banking Authority (2021) also emphasized the potential of ESG factors to significantly influence the financial strength and stability of various entities.

The ESG investing has witnessed exponential growth, documented by scholars like Daugaard (2019). By the end of 2022, the global market for sustainability-focused funds experienced a significant increase, with over \$2.5 trillion in assets under management in total, according to Bioy et al. (2023). This remarkable expansion has not only reshaped the investment landscape but has also sparked an intense academic focus. An extensive body of research, including over 2000 articles analyzed by Friede et al. (2015), exploring the relationship between ESG factors and financial performance.

In the traditional investment, which is guided predominantly by financial metrics, a shift is occurring with the increasing integration of ESG considerations. This change, influenced by the growing emphasis on sustainable development and corporate social responsibility, is reshaping investor priorities. Research by Giglio et al. (2023) focused on this transformation, revealing that investors typically hold conservative return expectations from ESG equities, possibly perceiving these stocks as overvalued or as strategic hedges against future environmental uncertainties.

The study by Giglio et al. (2023) also shows significant variations in investor expectations and motives concerning ESG returns, showing notable disparities in how investors perceive the potential excess returns from ESG investments. This indicates a complex landscape of investment motivations. Currently, studies such as those by Baker et al. (2022) highlight a growing trend among investors to willingly pay a premium for ESG-compliant funds, motivated by factors beyond mere financial gain, including ethical values and environmental concerns. Moreover, research by Haber et al. (2022) points out generational differences in ESG investment preferences, with younger investors more inclined to prioritize environmental and social considerations, even at the potential cost of their future financial security.

The correlation between investors' beliefs about ESG and their actual investment choices is striking. According to Giglio et al. (2023), investors with optimistic expectations regarding ESG returns tend to allocate a larger portion of their portfolio to ESG funds. This trend is particularly pronounced among those who believe ESG funds will outperform traditional

market indices. However, this alignment of beliefs with investment actions is not uniform across the investor. Research highlights a disconnect where positive environmental attitudes do not consistently lead to corresponding investment behaviors, an inconsistency observable across various domains, including consumer behavior related to environmental labeling (Gallarotti, 1995). This inconsistency extends to investment practices as well, as evidenced by Anderson and Robinson (2021), who discovered a significant gap between pro-environmental values and actual investment choices. Households with strong environmental convictions do not always mirror these values in their financial portfolios, often due to a disconnection from active financial decision-making processes.

In exploring the realm of ESG investing, the strength and influence of non-financial motives in shaping investor decisions present an intriguing aspect. This exploration aligns with and expands upon a growing body of research that investigates the dynamics behind ESG investment choices. Recent studies utilizing diverse methodologies, including surveys, field studies, and laboratory experiments, have collectively showed a trend: investors demonstrate a clear and positive willingness to invest in sustainable or impact-oriented initiatives. This inclination towards ESG investments is not solely driven by financial returns but also by ethical and social considerations. Significant contributions to this understanding come from Heeb et al. (2022), Humphrey et al. (2021), and Bauer et al. (2021), whose work collectively illustrates that investors are not just open to but actively seeking opportunities to support sustainable and impactful investments. These findings are crucial in understanding the evolving landscape of investment, where financial gains are not the sole determinant of investment decisions.

Further research investigates the flow of investments into ESG funds. Studies by Renneboog et al. (2011) and Döttling and Kim (2022) show the motivations driving investors toward ESG investments by analyzing actual investment patterns and flows. This approach provides a more practical and empirical understanding of how ESG considerations translate into real-world investment behaviors.

Financial literacy also plays a crucial role in investment decisions. Almenberg and Dreber (2015) find that a large portion of the gender gap in stock market participation rates can be explained by the gender gap in financial literacy. In ESG investing, Anderson and Robinson (2021) discover that green financial participation is higher when financial literacy is better or there are fewer barriers to accessing information.

The varied terminology employed in describing ESG investing, as Daugaard (2019) notes, adds another layer of complexity to the field. Terms such as sustainable, green, and eco-friendly, while often used interchangeably, each captures specific aspects of the ESG framework. This diversity in language, while reflective of the complex nature of ESG, can obscure the impacts and implications of each factor.

Also, despite significant research on ESG investment decision-making, several critical gaps and challenges remain unaddressed. These include the need for more precise definitions and measurements of ESG criteria, addressing the limitations and biases in current research

methodologies, and moving beyond generalizations to acknowledge the diverse and heterogeneous nature of investor behaviors.

In summary, the research on ESG investment decisions has significantly enhanced our understanding of investor motivations, preferences, and behaviors, along with the broader impacts of ESG investing. However, future research needs to address these challenges to further refine and advance the field. Addressing these issues will not only provide greater clarity and precision in the field but will also pave the way for more effective and responsible investment strategies that align with the evolving demands of a socially conscious market.

In this study, I designed an individual-level online experiment. The experiment was structured around a questionnaire, wherein I presented divergent sets of information to different participant groups. The core objective is to assess how varying information influences choices between two real index funds. I also designed a set of ESG-related questions in order to explore whether there is consistency between investor attitudes and their investment decisions. In addition, I integrated experience-related questions to distinguish the effects of theoretical and practical experiences on ESG investment decisions. The participants in the experiment are students from the Stockholm School of Economics (Sweden) and the School of Management, Fudan University (China). Both business schools are considered as one of the top business schools within their respective countries, and these students are expected to enter society after graduation and have a further impact on the business world in the future. Therefore, the choice of business schools as the context for this experiment holds considerable importance.

2 Experimental Design

I address my research question in an incentivized experimental survey with a sample of students at the Stockholm School of Economics and the School of Management, Fudan University. The experiment was conducted in a web survey which was designed in Qualtrics. I use a between-subject design in which respondents go through three main stages: investment, attitude and experience. In the investment and attitude stage, participants make an investment decision between two real ETF funds and answer four questions about attitudes toward ESG. The order of appearance of these two stages is randomized. In the experience stage, participants will indicate if they have taken ESG courses and have ESG-related internships or work experience.

Finally, participants select their age, gender and the appropriate charity organization to which they would like to donate the proceeds of their investment. For financial incentives, after the completion of the study, I draw 3 participants at random and make a real investment of SEK 500 (equivalent to approximately CNY 350) in their selected funds. After 3 months, the investment will be sold at the current market value, and the proceeds will be paid out to the charity the participants wish to give to. This section describes the business school context and my experimental procedures. The experiment was pre-registered on <https://osf.io/rdhwj/>.

2.1 Business School Context

The business school environment plays a central role in my experimental design. As the concept of Environmental, Social, and Governance (ESG) becomes increasingly noticeable in the public consciousness, business schools worldwide are gradually adding diverse courses related to sustainable finance, climate change policy, and corporate governance. This curriculum shift not only reflects changes in current market and societal demands but also indicates the direction of future business leader training.

Students from these business schools enter various industries after graduation, where they will profoundly influence the future development of ESG. The education they receive, especially their understanding and application of ESG principles, will play a significant role in their careers. By studying at business schools, students gain not only an understanding of the importance of ESG principles but also the skills to apply these principles in real business decisions.

Therefore, studying the behavior patterns of business school students when making ESG investment decisions, as well as their attitudes and understanding of ESG issues, has significant academic and practical significance. This can help us understand the mindset of the new generation of business leaders and assist in predicting and shaping the future business environment.

My data comes from the responses of students at the Stockholm School of Economics and the School of Management, Fudan University, to a questionnaire. These two business schools, located in Sweden and China respectively, are considered among the best in their respective countries. I obtained the email addresses of all undergraduate and master's students at these two schools and sent out two emails on November 8 and November 14, 2023, containing the link to the questionnaire and corresponding instructions (see Appendix B). In the end, I received 236 responses from the Stockholm School of Economics and 221 responses from the School of Management, Fudan University.

2.2 Procedures

The questionnaire contains three main stages, Investment, Attitude and Experience Stages. In the Investment Stage, I implement a treatment procedure to assess participant behavior in response to Environmental, Social, and Governance (ESG) considerations within an investment decision-making framework. Participants are requested to allocate a sum of SEK 500, equivalent to approximately CNY 350, between two distinct investment options. These options, referred to as Fund A and Fund B for the purpose of the study, are consistently offered to both the treatment group and the control group. This design choice ensures comparability and consistency in the experimental setup. The investment options are based on real-life investment funds: the iShares MSCI World UCITS ETF and its ESG-focused variant, the

iShares MSCI World ESG Enhanced UCITS ETF, thus grounding the study in real-world financial instruments.

For both the treatment and control groups, a uniform set of financial information is provided. This includes critical details such as the category of the fund, its total volume (assets under management), the fee structure, risk classification, and a history of past returns. These metrics are typical of what investors would encounter in standard investment fund prospectuses, thereby enhancing the validity of the study. Despite the similar financial profiles of the two funds, the ESG-oriented fund shows slightly lower past performance. As of the cut-off date of August 31, 2023, this performance differential is observable across various time frames: -2.39% rather than -2.37% over a one-month period, 6.58% compared to 7.01% over three months, 10.41% versus 11.17% over six months, 14.54% relative to 15.69% over one year, and 24.16% against 27.73% over a three-year period. These figures, based on actual historical performance, are strategically chosen to subtly position the ESG fund as a less financially enticing option, while maintaining a realistic investment scenario. In the control group, the true names of these funds and specific ESG characteristics are deliberately withheld.

In contrast, the treatment group is provided with full disclosure regarding the fund identities and supplemented with additional information on their ESG performance metrics. This includes that one of the two funds is specifically ESG-oriented, a detail that is hidden in the control group. This ESG-centric fund demonstrates superior performance in several key ESG metrics: a more favorable Sustainable Finance Disclosure Regulation (SFDR) Classification (Article 8 as opposed to Other), a higher MSCI ESG Quality Score (7.80 in contrast to 6.90), and a better MSCI ESG Rating (AA rather than A). These metrics, particularly the SFDR Classification introduced by the European Union and the ESG score and rating system developed by MSCI, are explained in the questionnaire. This ensures that all participants have a thorough understanding of these ESG metrics, thereby facilitating the decision-making.

The experimental design in this study sets an investment scenario where ESG factors are prominently featured against a traditional investment setting where these factors are not highlighted. A key element of the study's methodology is the introduction of a consequential dimension to the investment decisions made by participants. They are informed that for a select group of three randomly chosen participants, their investment choices will be actualized and the resulting funds will be donated to a charity of their choice after a period of three months. This element is designed to simulate real-world investment consequences, thereby creating a genuine financial incentive for participants. It encourages participants to engage seriously with the investment decisions, understanding that their choices could have real-world implications. This aspect of the study design is critical in ensuring that participant behavior at least partly reflects the investment decision-making processes, thereby enhancing the validity and applicability of the study's findings to real-world financial contexts. In addition, before making an investment decision, participants were required to answer two questions about the fund's returns. These two questions do not require any calculations and could be answered correctly by simply reading the fund information. These two questions were also set to ensure that participants took their investment decisions seriously.

In the Attitude Stage, I lead the participants' perspectives and priorities through four questions. The initial three questions focus the participants' valuation of individual investment returns as opposed to ESG ratings, their confidence in the long-term financial performance of ESG-oriented funds, and their level of skepticism towards the ESG concept itself. To avoid detailed responses, participants are presented with three declarative statements. They are then asked to express their level of agreement with each statement using a 10-point Likert scale, where 0 signifies complete disagreement and 10 denotes absolute agreement. This scale provides an easier assessment of participant attitudes.

The fourth and final question in this stage shifts focus to a comparative evaluation of the ESG components. Participants are instructed to prioritize Environmental, Social, and Governance factors in descending order of importance based on their personal views. This ranking task requires participants to engage in thoughtful analysis. The participants need to place the aspect they consider most crucial at the first and the one they consider least vital in the third position.

The study's design includes a strategic variation in the sequence of participation. Some participants engage in the investment decision before expressing their attitudes, while others are in the reverse order. This ordering is determined through a randomized assignment process. This approach ensures that the sequence of stages does not introduce bias into the participants' responses. Importantly, the Attitude Stage questions remain consistent, thereby maintaining the integrity and comparability of the data collected.

In the subsequent Experience Stage, the survey shifts to an evaluation of the participants' backgrounds concerning ESG. Here, participants sequentially disclose whether they have acquired theoretical knowledge through ESG-related academic courses and if they possess practical experience, such as ESG-related internships or work experience. Through these questions, we could get a comprehensive understanding of the participants' ESG expertise, including both academic and real-world experiences.

Finally, participants provide demographic information, including their age and gender, and identify a charitable organization of their choice. The organization is for receiving any potential returns generated from the participants' investment decisions made during the study. Those final questions not only serve as a demographic data point but also integrate a dimension into the investment decision process. The full structure and sequence of the survey questionnaire, including all stages and questions, are outlined in Appendix A of the study.

3 Main Questions and Empirical Strategy

In this section, I illustrate 5 main questions and the empirical strategy to be studied, which follow my pre-registration.

The first question is: Are investors more likely to invest in an index fund with a higher ESG rating than a regular fund? In my experimental design, funds with better ESG ratings perform relatively poorly in terms of financial returns, giving participants a more complex picture.

The second question is: Are women more likely to support ESG-related investments than men?

The third question is: Are people's attitudes towards ESG and their investment decisions aligned?. Consistency here means that participants choose to invest in the ESG fund rather than the regular one if they care more about ESG performance rather than personal returns, have more confidence in the financial performance of products with high ESG ratings, and believe that ESG is a good evaluation indicator. Otherwise, if participants do not agree with those three questions, they will not invest in the ESG fund.

The fourth question is: Which of the three ESG components (E, S or G) influences people's decisions on ESG-related investment? In this experimental design, participants are asked to rank the three indicators of ESG according to the importance of their personal preferences.

The fifth question is: Does theoretical knowledge and practical experience of ESG correlate with financial decisions? In this experimental design, participants are asked to respond to feedback on whether or not they had ESG-related theoretical (e.g., courses) and practical (e.g., internships, part-time or full-time jobs) experiences in the past.

All answers will be placed in the context of Swedish and Chinese business school students for comparison. Furthermore, although I am clear about the research questions, I have no hypotheses about the possible outcomes in advance. In the empirical analysis part, I utilize the following Logit regression model:

$$\begin{aligned} \log \left(\frac{P(Invest = 1)}{1 - P(Invest = 1)} \right) = & \beta_0 + \beta_1 Female \\ & + \beta_2 Personal\ Gain + \beta_3 Performance\ Optimistic + \beta_4 Better\ Indicator \\ & + \beta_5 ESG\ Ranking\ E + \beta_6 ESG\ Ranking\ S + \beta_7 ESG\ Theory + \beta_8 ESG\ Practice \end{aligned}$$

Table 1 shows the definitions of all variables.

Table 1: Overview of all variables

The table presents details of each variable.

	Type	Definition
<i>Invest</i>	Binary variable	1 = participants choose the ESG fund, 0 = participants choose the regular fund
<i>Female</i>	Binary variable	1 = participants choose Female as gender, 0 = participants choose Male or Prefer not to say as gender
<i>Personal Gain</i>	Continuous variable: 0 ~ 10	The answer for agreeing to the statement “In investment, my financial gain is more important than whether or not I invest in a financial product with a good ESG rating.”
<i>Performance Optimistic</i>	Continuous variable: 0 ~ 10	The answer for agreeing to the statement “While ESG-friendly funds may not perform well for the time being, I’m sure they’ll get better in a few more years.”
<i>Better Indicator</i>	Continuous variable: 0 ~ 10	The answer for agreeing to the statement “ESG is just another financial trick and I think there are clearer and more effective indicators to improve it.”
<i>ESG Ranking E</i>	Binary variable	1 = participants rank Environment in the 1 st place, 0 = Environment is not in the 1 st place
<i>ESG Ranking S</i>	Binary variable	1 = participants rank Social in the 1 st place, 0 = Social is not in the 1 st place
<i>ESG Theory</i>	Binary variable	1 = participants indicate they had taken ESG-related courses, 0 = participants have no experience in ESG knowledge
<i>ESG Practice</i>	Binary variable	1 = participants indicate they had ESG-related work experience, 0 = participants have no ESG-related practical experience

4 Results

4.1 Descriptive Analyses

In Table 2, I present the demographic information of all participants from the Stockholm School of Economics (SSE) and the School of Management, Fudan University (FDU). This information was collected in the final section of the questionnaire. Of the total 236 responses received from SSE, 114 were assigned to the Control group and 122 to the Treatment group. The average age of the Control group was slightly higher than that of the Treatment group. In terms of gender distribution, the Control group had fewer female respondents than males and the group of prefer not to say, while the gender ratio in the Treatment group was roughly equal.

Of the 221 responses received from FDU, the Treatment group had slightly more participants, and the average age of the Control group was a bit higher. Regarding gender, the Control group had slightly more females, but the numbers were roughly equal with males and prefer not to say. In contrast, the number of females in the Treatment group was just over half of the males and the group of prefer not to say.

Overall, the participants from FDU were younger on average. The gender ratio of participants from both schools was similar.

Table 2: Demographic characteristics of participants

The table presents an overview of the main demographic variables of participants in both the treatment and control groups. Standard deviations for the age of participants are in parentheses. SSE is the abbreviation of the Stockholm School of Economics and FDU is the School of Management, Fudan University.

	SSE		FDU	
	Control	Treatment	Control	Treatment
Age	23.16 (3.72)	22.68 (2.42)	21.65 (1.85)	21.12 (2.03)
Gender:				
Female	31.58%	50.82%	52.38%	33.62%
Male and Prefer not to say	68.42%	49.18%	47.62%	66.38%
Total	114	122	105	116

Figures 1 and 2 illustrate the investment proportions in the ESG fund for the Control and Treatment groups. Figure 1 (left) reflects the choices of participants from the Stockholm School of Economics (SSE), while Figure 2 (right) reflects the choices of participants from the

School of Management, Fudan University (FDU). Both figures include 95% confidence intervals.

The method of handling ESG-related information strongly shifted investors’ demand from ordinary funds to ESG funds. In the Treatment group at SSE, 66% of respondents chose the ESG fund. In the Control group, where participants did not receive any ESG-related information, only 23% chose the ESG fund. The demand for the climate fund in the Treatment group almost tripled. Similarly, in the Treatment group at FDU, 61% chose to invest in the ESG fund, which is just over twice the 30% in the Control group. Looking at the increased proportions, Swedish participants are more easily influenced by ESG-related information, as the proportion choosing the ESG fund in the Treatment group increased much more.

These results confirm that fund ESG-related information has a statistically significant impact on investment allocation. The strong change in investment behavior indicates that the treatment method is effective.

Figure 1: Salience of the treatment - Stockholm School of Economics (Left)

Figure 2: Salience of the treatment - School of Management, Fudan University (Right)

The graphs present the proportion of respondents who chose the ESG fund in both the control and treatment groups. In the treatment group alone, participants were given ESG-related information about the two funds. The bars represent 95% confidence intervals. The graph on the left displays results from the Stockholm School of Economics (SSE), while the one on the right shows data from the School of Management, Fudan University (FDU).

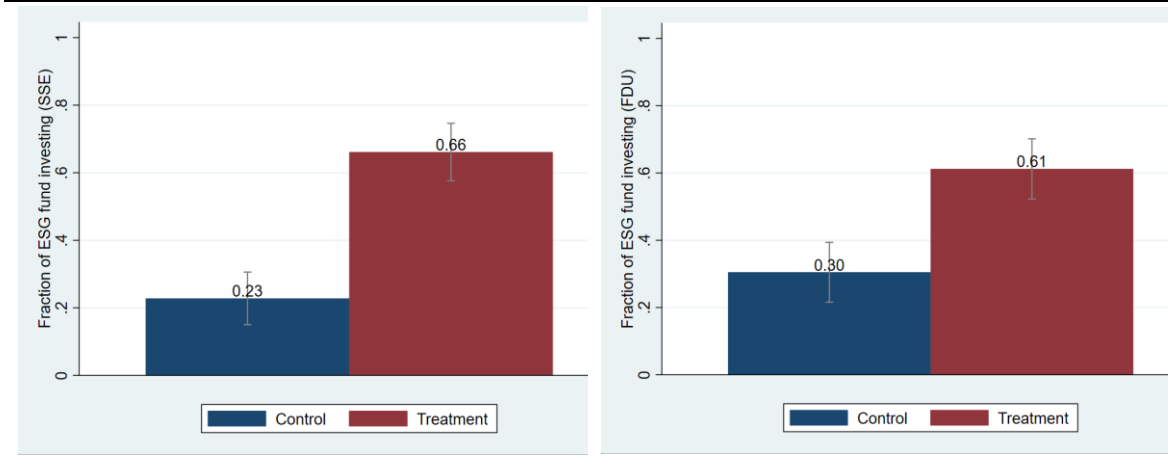


Table 3 reflects the responses of the Control and Treatment groups to the first three questions on ESG attitudes. Among the SSE participants, the Treatment group was significantly less concerned about personal investment returns compared to the higher ESG ratings. However, the Control group was more confident about the future performance of ESG funds. For the

question of whether there are better indicators than ESG, both the Control and Treatment groups gave relatively moderate answers, reflecting uncertainty. Similarly, the Treatment group from FDU also had a more pessimistic attitude towards the future performance of ESG funds. The two groups of FDU were consistent on the issue of personal returns.

From the responses of the two schools, the participants in the Treatment group generally lacked confidence in the performance of ESG funds, reflecting a skeptical attitude. Considering that some of the participants in the Treatment group made investment decisions before answering the attitude questions, it may be that they were influenced by the negative suggestion of the poor performance of the ESG fund given in the investment decision.

However, on the contrary, if they answered the attitude-related questions before making the investment decision, then it is hard to explain why they chose to invest in ESG funds without confidence in their performance. The participants were skeptical but supportive of ESG-related investments, which shows that ESG investment decisions may be a contradictory and difficult problem that cannot be easily explained by attitude as a starting point.

Table 3: Attitude towards ESG of participants – between groups

The table gives the mean values of the answers (a Likert scale of 10 points) to the first three attitude-related questions between the control and treatment groups. Standard deviations are in parentheses. p -value is obtained by using two-sided sample t-test.

	SSE			FDU		
	Control	Treatment	p -value	Control	Treatment	p -value
Personal	6.73	5.32	0.0001	5.83	5.85	0.9646
Gain	(0.26)	(0.26)		(0.23)	(0.26)	
Performance	5.92	4.81	0.0009	5.16	3.85	0.0000
Optimistic	(0.25)	(0.21)		(0.21)	(0.17)	
Better	5.31	6.04	0.0424	6.90	6.22	0.0152
Indicator	(0.26)	(0.25)		(0.19)	(0.20)	

Table 4 shows the responses of different gender participants from SSE and FDU to the first three questions on ESG attitudes. From a gender perspective, women significantly cared more about investing in financial products with higher ESG ratings than personal financial returns compared to men. There was no significant difference in attitudes between women and men on the questions of ESG financial product performance and whether there are better evaluation indicators.

If investing in ESG-friendly financial products is considered as a way to support the further development of companies with good ESG performance, then women may use this channel to convey their personal attitudes, especially on the Social and Governance indicators that are supportive to female development. In contrast, men tend to choose personal profit

maximization when faced with better ESG ratings and personal economic benefits, and easily ignore ESG.

Table 4: Attitude towards ESG of participants – between genders

The table gives the mean values of the answers (a Likert scale of 10 points) to the first three attitude-related questions between genders. Standard deviations are in parentheses. p -value is obtained by using a two-sided sample t-test.

	SSE			FDU		
	Female	Male	p -value	Female	Male	p -value
Personal	4.53	7.04	0.0000	5.27	6.71	0.0000
Gain	(0.26)	(0.23)		(0.22)	(0.24)	
Performance	5.34	5.36	0.9572	4.63	4.25	0.1842
Optimistic	(0.24)	(0.23)		(0.17)	(0.25)	
Better	6.01	5.46	0.1445	6.22	7.02	0.0054
Indicator	(0.27)	(0.24)		(0.19)	(0.21)	

4.2 Empirical Analyses

Based on my pre-registration, I use the Logit regression model for the empirical analyses in this section. Table 5 shows the situations of the Control and Treatment groups of SSE and FDU.

Columns (1) and (2) show the situations of the Control and Treatment groups of SSE, respectively. Among the variables, the most significant one is personal returns versus more support for financial products with good ESG performance. Because this question in the questionnaire was stated in reverse (i.e., I care more about personal returns than ESG ratings), the sign of the coefficient is negative. In addition, females also tended to invest in ESG funds, which is consistent with the previous discussion. However, the item “I think there are better indicators to replace ESG” was also significant at the 5% level. That is, participants were skeptical of the ESG indicator itself, but still chose to invest in ESG funds. Finally, ESG theoretical experience and practical experience may have prompted participants to choose to invest in ESG funds. But I find no evidence of different rankings of three ESG factors would correlate the investment decision of SSE participants.

Columns (3) and (4) reflect the situation of FDU. Similar to the responses of SSE, the most significant variable was also “personal returns”. Besides, the ESG theoretical experience promotes investing in ESG funds. Unlike the responses of SSE, the coefficient of the constant term was significant at the 5% level. According to the discussion in empirical model, the constant term reflects the situation of ranking Governance as the first factor. That is, among the three indicators of ESG, FDU participants valued Governance more. This is different from

the focus of ESG investment, which often discusses sustainability, climate development, and social responsibility. And this is also the one of the three factors that is currently relatively vague in definition and less discussed.

Table 5: Logit regression results of the treatment

The table shows the coefficients for the regression of the control and treatment groups from the Stockholm School of Economics (SSE) and the School of Management, Fudan University (FDU). Robust standard errors are in parentheses. ***, **, and * indicate that the parameter estimate is significantly different from zero at the 1%, 5%, and 10% levels, respectively.

VARIABLES	SSE		FDU	
	(1) Control	(2) Treatment	(3) Control	(4) Treatment
Female	0.851 (0.547)	1.369** (0.638)	0.011 (0.505)	0.462 (0.783)
Personal Gain	-0.023 (0.098)	-0.664*** (0.158)	-0.60 (0.106)	-0.659*** (0.179)
Performance Optimistic	-0.034 (0.088)	0.134 (0.124)	0.294** (0.118)	0.154 (0.196)
Better Indicator	-0.0418 (0.0907)	0.224** (0.109)	-0.061 (0.115)	-0.094 (0.172)
ESG Ranking E	-0.479 (0.648)	-0.950 (1.080)	0.187 (0.610)	-0.816 (0.903)
ESG Ranking S	-1.109 (0.812)	-0.640 (1.189)	0.119 (0.603)	-0.250 (1.129)
ESG Theory	-0.527 (0.495)	1.121* (0.678)	0.210 (0.491)	1.525** (0.732)
ESG Practice	0.135 (0.672)	1.633* (0.889)	-0.699 (0.615)	-0.639 (0.871)
Constant	-0.192 (1.341)	2.001 (1.539)	-1.693 (1.328)	4.379** (1.874)
Observations	114	122	105	116
R-squared	0.0478	0.5197	0.0775	0.5825

Table 6 shows whether the SSE participants in the Control and Treatment groups have different choices when facing different question orders. Columns (1) and (3) are the cases where the investment decision is made first and then the attitude question is answered, while columns (2) and (4) are the cases where the attitude question is answered first and then the investment decision is made.

It can be seen that if the attitude question is answered first, in the Treatment group, the

coefficient of personal gain is significant at the 1% level. This might be because the attitude-related questions played a “reminder” role before the participants made the investment decision. The Control group’s optimism about the performance of ESG-related financial products is significant at the 10% level, although the evidence is very weak, but this may also be due to the prior attitude-related questions.

If the investment decision is made first, it can be seen that except for the Personal Gain term in the Treatment group, all the variables are not significant.

Table 6: Logit regression results (SSE) – sequence of Investment and Attitude Stages

The table shows the coefficients for the regression of the different order of questions between control and treatment groups from the Stockholm School of Economics (SSE). "Investment - Attitude" implies that participants made an investment decision before answering the question about attitudes towards ESG, whereas "Attitude - Investment" is answering the attitude-related questions before making the investment decision. Robust standard errors are in parentheses. ***, **, and * indicate that the parameter estimate is significantly different from zero at the 1%, 5%, and 10% levels, respectively.

VARIABLES	Control		Treatment	
	(1) Investment – Attitude	(2) Attitude – Investment	(3) Investment – Attitude	(4) Attitude – Investment
Female	0.427 (0.748)	0.540 (0.947)	0.433 (0.885)	4.239** (1.909)
Personal Gain	0.036 (0.153)	-0.163 (0.173)	-0.484** (0.200)	-1.154*** (0.424)
Performance Optimistic	0.187 (0.132)	-0.299* (0.172)	0.131 (0.152)	0.059 (0.229)
Better Indicator	0.025 (0.139)	-0.037 (0.159)	0.182 (0.151)	0.176 (0.204)
ESG Ranking E	-0.182 (0.812)	-0.923 (1.369)	0.237 (1.507)	-5.366* (2.783)
ESG Ranking S	-1.236 (1.091)	-0.877 (1.533)	0.317 (1.655)	-5.229* (2.886)
ESG Theory	-0.599 (0.820)	-0.902 (0.801)	0.985 (0.908)	1.962 (1.964)
ESG Practice	-0.239 (0.859)	0.059 (1.317)	1.468 (1.429)	2.298 (2.304)
Constant	-1.642 (1.843)	2.517 (2.899)	0.646 (2.292)	8.242** (4.174)
Observations	53	61	51	71
R-squared	0.0792	0.1176	0.3488	0.7455

Similar to Table 7, Table 6 shows whether the FDU participants in the Control and Treatment groups have different choices when facing different question orders. For the FDU participants, there is no evidence that the question order affects the investment decision. This is because, except for the attitude of Personal Gain in the Treatment group participants, most terms are not significant.

Table 7: Logit regression results (FDU) – sequence of Investment and Attitude Stages

The table shows the coefficients for the regression of the different order of questions between control and treatment groups from the School of Management, Fudan University. "Investment - Attitude" implies that participants made an investment decision before answering the question about attitudes towards ESG, whereas "Attitude - Investment" is answering the attitude-related questions before making the investment decision. Robust standard errors are in parentheses. ***, **, and * indicate that the parameter estimate is significantly different from zero at the 1%, 5%, and 10% levels, respectively.

VARIABLES	Control		Treatment	
	(1) Investment – Attitude	(2) Attitude – Investment	(3) Investment – Attitude	(4) Attitude – Investment
Female	-0.602 (0.786)	0.633 (0.857)	0.308 (1.858)	1.337 (1.795)
Personal Gain	0.155 (0.198)	-0.238 (0.170)	-1.285** (0.540)	-1.135** (0.472)
Performance Optimistic	0.0362 (0.214)	0.488** (0.199)	-1.111 (0.722)	0.424 (0.322)
Better Indicator	-0.315 (0.208)	0.0558 (0.205)	0.0826 (0.417)	-0.260 (0.315)
ESG Ranking E	-2.166* (1.201)	2.441** (1.191)	-1.891 (2.019)	3.928* (2.293)
ESG Ranking S	-0.523 (0.975)	1.131 (1.150)	-1.076 (2.954)	-0.657 (2.174)
ESG Theory	1.230 (0.847)	-0.351 (0.825)	1.621 (1.622)	1.684 (1.305)
ESG Practice	-0.352 (0.967)	-1.339 (1.070)	-1.616 (2.255)	-0.432 (1.415)
Constant	0.834 (2.172)	-3.900 (2.566)	10.86 (6.668)	7.848* (4.530)
Observations	49	56	51	65
R-squared	0.1779	0.2469	0.6878	0.6712

5 Conclusion

In this study, I compare attitudes towards ESG and related investment decisions between students at two top business schools in Sweden and China: Stockholm School of Economics and the School of Management, Fudan University, through an individual-level motivated online experimental survey.

I find that the proportion of students, both Swedish and Chinese, investing in ESG funds is significantly higher when they know more comprehensive information about the ESG fund, i.e., the fund's relevant performance in ESG. Overall, the proportion of Swedish students investing in ESG funds is slightly larger than that of Chinese students. At the same time, the increase in the proportion of Swedish students investing in ESG funds is larger when compared to the proportion of Swedish students investing in ESG funds when they do not know the information. This suggests that ESG-related information significantly influences investors' investment decisions.

In terms of attitudes towards ESG, women students care more about the ESG performance of financial products than individual financial returns compared to men students. My understanding is that ESG focuses on the diversity of corporate governance, so women invest in financial products with good ESG performance to show support for diversity. However, there is no significant difference between men's and women's choices on the issues of future financial performance of ESG-oriented products and whether there are better metrics to replace ESG.

The results of the regression between investment decisions and attitudes towards ESG show that both Swedish and Chinese students are more likely to invest in ESG funds among participants who are relatively unconcerned about their personal financial returns but rather about ESG performance.

However, among the Swedish participants, they believe there are better metrics to replace ESG but they still invest in ESG funds. This reflects skepticism about ESG indicators. The skepticism, however, is in favor of ESG funds, which reflects ambiguous investment psychology. While ESG is relatively advanced in Europe, the skepticism may be due to a long-term emphasis on ESG but participants not seeing a corresponding improvement. However, despite the skepticism about ESG, there are no other methods or metrics that can better optimize ESG so the participants have to continue to support ESG-related investments. The ambiguity of the concept of ESG itself in the promotion process may also lead to skepticism. Also, it shows that ESG-related investment decisions cannot be made by attitudes alone as a point of entry and that other aspects should continue to be examined.

In addition, although the context of ESG investment has long been related to sustainable finance, this study found that Chinese participants placed more emphasis on the Governance factor. This suggests that the focus of ESG research in China in the future should probably

shift to topics such as corporate diversity governance.

Finally, both the theoretical and practical experience of ESG can be a catalyst for participants to shift to ESG-friendly investment decisions. This suggests that in business school education, students should continue to be guided in ESG awareness and encouraged to participate more in ESG-related practices as a way to promote better development of the ESG field in the future.

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Appendix

A Survey Questionnaire

1. Reception

This survey is part of a thesis on investment decisions and preferences. It is being conducted by Gong Xiao, a master's student at Stockholm School of Economics.

Here are some notes:

- ◆ Your answers will be treated anonymously and confidentially and cannot be linked to you personally.
- ◆ In this survey, all the investment targets are potentially real – 3 randomly picked participants will make a real investment in the selected funds.
- ◆ All investments and proceeds will go to the charity you wish to give to.
- ◆ So, please treat the investments in this survey as you would treat your own.
- ◆ It takes about 7 minutes to complete the survey.

Thank you in advance for your participation in this survey!

Some participants will start by investing ("Investment Stage") and others start by answering questions about their views on ESG ("Attitude Stage").

Shown here is the case where investments are made first. The questions are the same regardless of the order.

2. Investment Stage

Below we will provide information on two investment funds (Fund A and Fund B).

Subsequently, you can invest an amount of SEK 500 (CNY350) in Fund A or Fund B. This amount will be placed at your disposal.

After the completion of this study, we will draw 3 participants at random. If you are one of the winners, we will make a real investment of SEK 500 (CNY350) in the fund you have chosen. After 3 months, the investment will be sold at the current market value, and the proceeds will be paid out to the charity you wish to give to.

Note that your decisions -should you be one of these drawn winners - will trigger real investments and have a direct impact on the payout amount to your chosen charity.

Please read the information on Fund A and Fund B carefully.

Info for CONTROL

Fund A	Fund B
OVERVIEW	
Type: ETF	Type: ETF
The fund invests passively in a broadly diversified set of companies worldwide.	The fund invests passively in a broadly diversified set of companies worldwide.
FUND INFORMATION	
Category: Global Equity	Category: Global Equity
Fund Volume: USD 3.37 billion	Fund Volume: USD 56.65 billion
Cost per year: 0.20%	Cost per year: 0.20%
*Risk class: 1-2- <u>3</u> -4-5	* Risk class: 1-2- <u>3</u> -4-5
PERFORMANCE: CUMULATIVE (as of 2023-08-31)	
1M	
-2.39%	-2.37%
3M	
6.58%	7.01%
6M	
10.41%	11.17%
1Y	
14.54%	15.69%
3Y	
24.16%	27.73%
GEOGRAPHY BREAKDOWN: TOP 3	
United States: 67.41%	United States: 69.78%
Japan: 6.82%	Japan: 6.24%
Canada: 4.64%	United Kingdom: 3.97%

* Risk class:

Measure how much the fund's returns fluctuate compared to similar investments. A higher risk class means higher fluctuations.

Info for TREATMENT

Environmental, social, and governance (ESG) investing is used to screen investments based on corporate policies and to encourage companies to act responsibly.

Fund A: MSCI World ESG Enhanced ETF	Fund B: MSCI World ETF
OVERVIEW	
Type: ETF	Type: ETF
The fund invests passively in a broadly diversified set of companies worldwide.	The fund invests passively in a broadly diversified set of companies worldwide.
FUND INFORMATION	
Category: Global Equity	Category: Global Equity
Fund Volume: USD 3.37 billion	Fund Volume: USD 56.65 billion
Cost per year: 0.20%	Cost per year: 0.20%
* Risk class: 1-2- <u>3</u> -4-5	* Risk class: 1-2- <u>3</u> -4-5
PERFORMANCE: CUMULATIVE (as of 2023-08-31)	
1M	
-2.39%	-2.37%
3M	
6.58%	7.01%
6M	
10.41%	11.17%
1Y	
14.54%	15.69%
3Y	
24.16%	27.73%
GEOGRAPHY BREAKDOWN: TOP 3	
United States: 67.41%	United States: 69.78%
Japan: 6.82%	Japan: 6.24%
Canada: 4.64%	United Kingdom: 3.97%
SUSTAINABILITY CHARACTERISTICS (as of 2023-08-21)	
** SFDR Classification	
Article 8	Other
*** MSCI ESG Quality Score	
7.80	6.90
**** MSCI ESG Rating	
AA	A

* Risk class:

Measure how much the fund's returns fluctuate compared to similar investments. A higher risk class means higher fluctuations.

** SFDR Classification:

Classifications relating to the Sustainable Finance Disclosure Regulation (SFDR), introduced by the European Union on 10th March 2021. SFDR classifies funds as:

- ◆ Article 8: Products that promote environmental or social characteristics and promote good governance practices.
- ◆ Article 9: Products that have sustainable investments as an objective and follow good governance practices.
- ◆ Other: Products that do not meet the criteria to be classified as Article 8 or 9.
- ◆ -: Not in scope for SFDR classification.

*** MSCI ESG Quality Score:

The MSCI ESG Quality Score (0 - 10) for funds is calculated using the weighted average of the ESG scores of fund holdings. MSCI rates underlying holdings according to their exposure to industry-specific ESG risks and their ability to manage those risks relative to peers.

**** MSCI ESG Rating:

The MSCI ESG Rating is calculated as a direct mapping of ESG Quality Scores to letter rating categories (e.g. AAA = 8.6-10). The ESG Ratings range from leader (AAA, AA), average (A, BBB, BB) to laggard (B, CCC).

To ensure that you have read and correctly understood the descriptions, please answer the following questions.

Q2-1 Fund A - All

What is the return over the 3 years (cumulative performance) for Fund A?

- 1. 6.58%
- 2. 10.41%
- 3. 14.54%
- 4. 24.16%
- 99. don't know

Q2-2 Fund B - All

What is the return over the 3 years (cumulative performance) for Fund B?

- 1. 7.01%
- 2. 11.17%
- 2. 15.69%
- 3. 27.73%
- 99. don't know

(If one of the answers to questions Q2-1 ~ Q2-2 is incorrect)

Unfortunately, some of your answers were incorrect or you selected the option “Don’t know”. Please read the information carefully and answer the questions again.

(Questions Q2-1 ~ Q2-2 will reappear)

(If all of the answers to questions Q2-1 ~ Q2-2 are correct)

Q2-3 Investment Decision – All

You can now invest SEK 500 (CNY 350). In which fund would you like to invest this amount?

Click [here](#) if you want to check Info again.

After the completion of this study, we will draw 3 participants at random. If you are one of the winners, we will make a real investment of SEK 500 (CNY 350) in the fund you have chosen. After 3 months, the investment will be sold at the current market value, and the proceeds will be paid out to the charity you wish to give to.

Note that your decisions - should you be one of these drawn winners - will trigger real investments and have a direct impact on the payout amount to your chosen charity.

1. Fund A
2. Fund B

3 Attitude Stage

Q3-1 PERSONAL GAIN To what extent do you agree with the following statements?

In investment, my financial gain is more important than whether or not I invest in a financial product with a good ESG rating.

Please select from 0 ~ 10: _____
(0 is not at all, 10 is fully agree)

Q3-2 PERFORMANCE OPTIMISTIC To what extent do you agree with the following statements?

While ESG-friendly funds may not perform well for the time being, I'm sure they'll get better in a few more years.

Please select from 0 ~ 10: _____
(0 is not at all, 10 is fully agree)

Q3-3 BETTER INDICATOR To what extent do you agree with the following statements?

ESG is just another financial trick and I think there are clearer and more effective indicators to improve it.

Please select from 0 ~ 10: _____
(0 is not at all, 10 is fully agree)

Q3-4 Of the three components of ESG, which one do you think is the most important?

E: Environment, which includes but is not limited to:

- ◆ Publishes a carbon or sustainability report
- ◆ Limits harmful pollutants and chemicals
- ◆ Seeks to lower greenhouse gas emissions and CO2 footprint
- ◆ Uses renewable energy sources
- ◆ Reduces waste

S: Social, which includes but is not limited to:

- ◆ Operates an ethical supply chain
- ◆ Avoids overseas labor that may have questionable workplace safety or employ child labor
- ◆ Supports LGBTQ+ rights and encourages all forms of diversity
- ◆ Has policies to protect against sexual misconduct
- ◆ Pays fair (living) wages

G: Governance, which includes but is not limited to:

- ◆ Embraces diversity on the board of directors
- ◆ Embraces corporate transparency
- ◆ Someone other than the CEO is chair of the board
- ◆ Staggers board elections

Please rank them from 1st to 3rd. (1st is the most important and 3rd is the least important.)

1st: _____

2nd: _____

3rd: _____

4 Experience Stage

Q4-1 Have you taken ESG-related course(s)?

1 Yes

2 No

Q4-2 Do you have any ESG-related internships/work experience?

1 Yes

2 No

5 Closing

You have now reached the end of the survey. Thank you very much for your participation!

Q5-1 How old are you?

Please select the number: _____

Q5-2 Please indicate your gender:

1 Female

2 Male

3 Prefer not to say

Q5-3 You can also indicate the organization that you wish to receive donations:

1 Save the Children

2 UN World Food Programme

3 Gapminder Foundation

4 Other: _____ (please enter the name of the organization)

B Email

Dear Student,

My name is Gong Xiao and I am a 2nd year master's student in Economics. I am reaching out to humbly invite you to participate in my thesis survey, which plays a critical role in an experiment aimed at deciphering investment preferences.

Your perspectives are invaluable, and by contributing, you will provide essential data that has the potential to influence real-world investment strategies.

Here are the key features of this experiment:

- ◆ Anonymity: The survey is completely anonymous. No identifying information will be collected.
- ◆ Real Investments: Selections made by three random participants will direct real investment funds.
- ◆ Charity: If you become one of these three winners, the proceeds of your investment will be donated to your favorite charity!

Your voice has the power to echo in the actual financial markets. Please find the link to the questionnaire here:

https://qualtricsxm47mzxwzf.qualtrics.com/jfe/form/SV_eniuh5bh5zQII9U

It should take about 5 minutes of your time.

If there are any further questions or concerns, please do not hesitate to contact me at: 42438@student.hhs.se

Thank you very much for your valuable contribution and for being part of this exciting endeavor!

Warm regards,
Gong Xiao

C Pre-registration Plan

1) Data collection

Have any data been collected for this study already?

No, no data have been collected for this study yet.

2) Hypothesis

What's the main question being asked or hypothesis being tested in this study?

5 main questions will be studied:

- i. Are investors more likely to invest in an index fund with a higher ESG rating than a regular index fund (even if the financial performance of an ESG-enhanced fund is worse)?
- ii. Are women more likely to support ESG-related investments than men?
- iii. Are people's attitudes towards ESG and their investment decisions aligned?
- iv. Which of the three ESG components influences people's decision on ESG-related investment?
- v. Does theoretical knowledge and practical experience of ESG correlate with financial decision?

3) Dependent variable

Describe the key dependent variable(s) specifying how they will be measured.

The key dependent variable is whether people will invest in an ESG-enhanced fund. It is measured by the choices people make in the experiment.

I will code the decision as ESG_Investmet, which is a binary variable (1 = participant chooses ESG-enhanced fund; 0 = participant chooses regular fund).

4) Conditions

How many and which conditions will participants be assigned to?

Participants will be randomly assigned to a CONTROL or TREATMENT group. The experiment has 3 main stages: Investment, Attitude and Experience.

The first two stages are the investment stage and the attitude stage. Some of the participants would make an investment followed by the attitude expression, and others vice versa. The assignment of this order is randomized. Regardless of which stage is performed first, the questions in the two stages are the same.

In the investment stage, all participants will be asked to invest SEK 500 (CNY 350) in one of

two real funds. The CONTROL and TREATMENT groups will receive the same financial information about the two funds. However, the TREATMENT group will also receive information about the funds' ESG-related performance. The TREATMENT group will learn that one fund is the regular fund (with an average ESG rating), while the other (ESG-enhanced fund) has better ESG-related performance.

In the attitude stage, there are 4 questions. The first three questions focus on how much investors care about individual returns, confidence in the long-term performance of ESG funds, and skepticism about the concept of ESG itself. The final question asks investors to rank the components of ESG in terms of importance.

In the experience stage, participants need to indicate if they have theoretical or practical ESG-related experience.

5) Analyses

Specify exactly which analyses you will conduct to examine the main question/hypothesis.

i. Are investors more likely to invest in an index fund with a higher ESG rating than a regular index fund (even if the financial performance of an ESG-enhanced fund is worse)?

The result would be reflected by bars that show the fraction of respondents choosing the ESG-enhanced fund in the control and treatment groups. I will perform a chi-squared test to verify the difference.

For questions ii ~ v, I will use the following logit regression:

$$\begin{aligned} \log \left(\frac{P(Invest = 1)}{1 - P(Invest = 1)} \right) = & \beta_0 + \beta_1 Female \\ & + \beta_2 Personal\ Gain + \beta_3 Performance\ Optimistic + \beta_4 Better\ Indicator \\ & + \beta_5 ESG\ Ranking\ E + \beta_6 ESG\ Ranking\ S + \beta_7 ESG\ Theory + \beta_8 ESG\ Practice \end{aligned}$$

The following is how all independent variables are coded. The value of each independent variable depends on the participant's answer to the specific question.

Female: 1 = Female, 0 = Male and other

Personal_Gain: Continuous variable from 0 to 10

Performance_Optimistic: Continuous variable from 0 to 10

Better_Indicator: Continuous variable from 0 to 10

ESG_Ranking_E: 1 = Environmental factors ranked first, 0 = E is not in the first place

ESG_Ranking_S: 1 = Social factors ranked first, 0 = S is not in the first place

ESG_Theory: 1 = has taken ESG-related course, 0 = no experience in ESG knowledge

ESG_Practice: 1 = has ESG-related work experience, 0 = no ESG-related work experience

ii. Are women more likely to support ESG-related investments than men?

For question ii, I would focus on β_1 .

iii. Are people's attitudes towards ESG and their investment decisions aligned?

For question iii, I would focus on β_2 , β_3 , and β_4 .

Consistency means that:

- ♦ participants will choose to invest in an ESG-enhanced fund rather than a regular fund if they care about ESG ratings more than personal returns, have more confidence in the performance of financial products with high ESG ratings, and believe that ESG is a good evaluation indicator.
- ♦ participants do not agree with those three questions, they will not invest in the ESG-enhanced fund.

iv. Which of the three ESG components influences people's decision on ESG-related investment?

For question iv, I would focus on β_5 , β_6 , and β_0 (when participants ranked the G component in the 1st place). I will perform a Wald test to verify the difference.

v. Does theoretical knowledge and practical experience of ESG make a difference to people when making financial decisions?

For question v, I would focus on β_7 and β_8 .

6) Outliers and Exclusions

Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.

I designed the multiple-choice questions at the beginning of the investment stage about the basic characteristics of the fund. By carefully reading the characteristics of the fund, participants could answer the questions correctly and move on to the subsequent sessions. This design effectively screens out participants who don't answer attentively.

In addition, if a participant stays in the experiment for too short a time (less than 1 minute), that participant's answer would be excluded.

7) Sample size

How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.

The ambition is to maximize the number of answers from the available list of student e-mails

obtained from Stockholm School of Economics and School of Management, Fudan University.

8) Other

Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)

- ◆ I will study whether there is a gender difference in ESG-related investment decisions.
- ◆ I will conduct a comparison between all answers from students in selected business schools from Sweden and China.
- ◆ I don't have clear hypotheses for how these answers from the two countries would differ.
- ◆ The questionnaire will be in two languages: English for participants in Sweden and Chinese (simplified) for participants in China.
- ◆ The participants in the experiment are current students at business schools. In Sweden, they are from Stockholm School of Economics. In China, they are from School of Management, Fudan University (which is considered one of the best business schools in China).
- ◆ This experiment has financial incentives for participants. We will draw 3 people out of all the participants, make real investments (SEK 500/CNY 350 * 3) according to their investment decisions in the experiment, and sell them at market value after three months. All proceeds will be donated to the charitable organizations that the participants wish to give to.