

Beliefs, Preferences, Behaviors, and Knowledge: A Study of Sustainable Finance Literacy Among Dutch Individuals

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Abstract

It is crucial to assess whether individuals possess sufficient sustainable finance literacy (SFL) to make informed investment decisions. We conducted a survey in the Netherlands (N = 310) to examine SFL levels, beliefs, and preferences regarding sustainable investing, and the role of SFL in shaping financial behavior. Despite achieving high scores in financial literacy, participants demonstrated substantially lower accuracy when answering sustainable finance questions, particularly those related to EU regulations. However, individuals who perform well in financial literacy relative to their peers also tend to perform well in SFL. The gender gap where women score lower in financial literacy persists in our study, but there is no disparity between men and women in their SFL scores. Regression analysis reveals that confidence in one's SFL most significantly predicts the actual SFL scores and participation in sustainable investment.

1. Introduction

With rising concern for the planet, sustainable finance has become an ever increasingly hot topic. Companies and financial institutions actively engage in the market of green financial products. They introduce a flux of ESG related information to the investors either through voluntary or regulatory disclosure. Sustainability and climate change alone is a complex topic for laypeople (Sterman, 2011). Thus it appears relevant to ask how much individuals know about sustainable finance. The answer to this question might shed light on various knowledge gaps. For instance, Degryse et al. (2023) identify the lack of information as the main reason that prevent Dutch people from investing sustainably. With numerous EU regulations on sustainability disclosure entering into force, it is important to study whether individuals possess a sufficient level of SFL to process the incoming large amount of information. Next to knowledge, attitude is another important factor that drives investment decisions. Are knowledge and attitudes correlated in the context of sustainable investing? If so, does a prosocial attitude enhance SFL, or does a high level of SFL foster a prosocial attitude? Many intriguing questions like these can be explored once we gain some insight into individuals' SFL.

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Moreover, a recent study by ABP (2025), one of the world's largest pension funds, shows that the vast majority of its participants (78%) support responsible investing. A study on SFL could therefore help Dutch pension funds better align with and implement the sustainability preferences of their clients.

With curiosity in mind, we fielded a survey in May 2025 consisting of about 40 questions on sustainable finance to Dutch participants on Prolific, obtaining 310 responses shortly after. The sample is highly educated, with most respondents aged between 20 and 40, and 58% identifying as male. We found that while participants performed strongly in financial literacy, their knowledge of SFL was comparatively weaker. Despite this aggregate-level gap, at the individual level those who excel in financial literacy also tend to perform well in SFL relative to their peers. In our sample, women scored significantly lower than men in financial literacy, but this gender gap was not present in SFL.

Our study makes several contributions to the academic literature. First, it bridges between financial literacy and the emerging concept of SFL. The findings highlight a performance gap between the two, showing that even among a highly educated and financially literate sample, SFL remains underdeveloped. Meanwhile, by demonstrating that individuals who perform well in financial literacy also tend to do well in SFL relative to their peers, we provide evidence that skills in one area can transfer to the other, and the two forms of literacy are connected and complementary to each other, rather than being completely separate. Second, our findings contribute to the study on financial literacy and gender. While women in the sample underperform men in financial literacy, no such gender gap emerges in SFL. This provides evidence that sustainable finance may represent a more gender-inclusive domain of financial knowledge, challenging assumptions of a universal gender disadvantage in finance. Lastly, by fielding one of the first dedicated surveys on SFL among Dutch participants, the study provides new micro-level evidence and a potential benchmark for future cross-country comparisons in SFL research.

Section 2 sets out the context and motivation for our study. Section 3 introduces the survey design and sample. Section 4 presents the empirical results and key findings.

2. Why measure SFL in a survey for pension studies?

In recent years, the European Commission has introduced a series of legislative measures to support the transition toward a sustainable and circular economy. The Sustainable Finance Disclosure Regulation (SFDR) categorizes financial products according to their sustainability level and requires corresponding disclosures. The Taxonomy Regulation defines environmentally sustainable economic activities, providing a framework to further classify sustainable investments. The Corporate Sustainability Reporting Directive (CSRD) strengthens and standardizes sustainability reporting by EU companies. Together, these instruments aim to redirect capital toward sustainable investments through enhanced disclosure. According to

the Commission's rationale, mandatory and standardized disclosure reduces opportunities for greenwashing, allowing investors to use reliable, comparable, and relevant sustainability information to identify genuinely green projects and allocate their funds accordingly (European Commission, 2022).

This rationale follows the paradigmatic idea that disclosure can drive behavioral change. However, for this mechanism to function, two key assumptions are implied. First, it assumes that investors have a preference for green investment options; without such preferences, funds will not flow to sustainable projects, even when accurate information is provided to help investors identify green financial products. Second, it assumes that both institutional and retail investors are able to understand the sustainability information presented to them. If they cannot, disclosure alone cannot enable investors to recognize or select green financial products. While the first assumption has been empirically supported by multiple studies (Bauer, Ruof, & Smeets, 2021; Heeb et al., 2023), the second remains largely uncertain. A passion for sustainability does not automatically translate into the literacy required to comprehend management reports and Key Information Documents (KIDs), which may hinder the effectiveness of EU sustainable finance regulations in achieving their intended goals.

SFL is important not only for enabling investors to understand the sustainability characteristics of investment options presented by the market, but also for empowering them to communicate their sustainability preferences to financial advisers, thus feeding information back into the market.

In 2021, the European Commission adopted Delegated Regulation 2021/1253 and Delegated Regulation 2021/1257 to amend two of their crucial financial market legislations, MiFID II and IDD. MiFID II, the Markets in Financial Instruments Directive II, governs investment products, services, and firms. IDD, the Insurance Distribution Directive, regulates insurance activities and distributions. The amendment to these two legal instruments is the same, which is the requirement to include sustainability preferences when conducting a suitability assessment of the product and services against their clients. A suitability assessment is a legal requirement on financial and insurance advisers to check whether the product and service is suitable for the client's investment objectives, knowledge and expertise, and financial situation, when they provide personalized investment services. This is to ensure that products and services are offered or recommended in the best interest of the investors, one aspect of investor protection. The amendment now considers sustainability preferences a component of investors' investment objectives, that financial and insurance advisers are required to take into account. This decision would influence pension investors among investors in general, given the specific pension vehicle involves products and services covered by MiFID II or IDD. The European Insurance and Occupational Pensions Authority (EIOPA, 2022) has published *Guidance on the integration of the customer's sustainability preferences in the suitability assessment under IDD*.

The uncertainty from SFL is exacerbated by the special position of pension investors that they normally take a very passive, and almost inactive role, in the decision-making of their pension

portfolio (Bauer & Smeets, 2023). On the other hand, studies show that pension investors with lower financial literacy tend to rely on financial advisors more (Chalmers & Reuter, 2012). To know whether Dutch pension investors can articulate their sustainability preferences to their pension funds in a way that the EU regulators expect them to, it is important to understand whether individuals possess a sufficient level of SFL.

The method of a survey to answer this question is chosen after careful considerations. Previous research on financial literacy, sustainable literacy, and SFL made good use of questionnaires containing close-ended questions like multiple-choice and true-or-false questions to answer their research questions. This design comes with several advantages. First, it is easy to assess the correctness of an answer which can then be used to compute a literacy score in an equally straightforward manner. Second, completing a short survey imposes little stress and workload on the participants, which helps to attract more responses. Third, with online tools, surveys are easy to distribute and administer at a low cost.

3. The survey

In the opening section of our survey, we first ask two open-ended questions to elicit participants' perceptions of sustainable investment. We ask what comes to mind when participants hear the word "sustainable investments"; then we ask how participants would define a "sustainable investment" themselves. After these two questions, we then ask participants to rate their levels of financial literacy and SFL on the scale of 1-7. We put these four questions in the beginning to avoid the influence from the prompts of other questions. For instance, multiple questions about sustainable finance contain definitions of different concepts. They might interfere with participants' own perceptions of sustainable finance and the self-rating of their literacy level. Previous studies have measured people's understanding of sustainable finance against defined criteria, which we also do in our survey. However, little has been done to explore how individuals perceive the concept. Therefore, we invite participants to freely articulate their thoughts in a text box, so we can analyze their answers without imposing predefined categories or limiting their interpretations of sustainable finance. This might help us identify the gap between the understanding of retail investors and that of the financial professionals including regulators, or reveal sustainable finance issues that investors find most important. The self-rating literacy scores can be compared with the actual literacy scores.

The second part of our survey is the SFL assessment. It consists of nine closed-ended multiple-choice questions. We arrived at these nine questions by studying the literature (e.g., Degryse et al., 2023, Filippini et al., 2019, Seifert et al, 2025), by studying surveys in the pension industry, and by our own discussions. The tested content covers definitions of ESG-related concepts (3 questions), features of sustainable financial products (3 questions), and rules from EU sustainable finance regulations (3 questions). With definition questions, we examined participants' understanding of more common and broad terminology such as sustainable

investing and greenwashing, as well as more technical terms like impact investing and ESG. Regarding the characteristics of sustainable financial products, we asked about the availability and labels of sustainable investments. The last type of questions we asked are about concepts derived from EU sustainable finance regulations such as the Taxonomy Regulation and the Sustainable Finance Disclosure Regulation. All nine questions include 'I do not know' as a response option to minimize guessing. The questions vary in specificity and difficulty, allowing for a nuanced assessment of participants' SFL. Besides this SFL test, the core component of the whole survey, we also included the classic Big Three questions on financial literacy developed by Lusardi and Mitchell (2014). An intention is to study whether more financially literate individuals are also more literate in sustainable finance.

The rest of the survey is mainly devoted to the beliefs, preferences, and behaviors of the individuals regarding sustainable finance. Whether individuals have a preference for sustainable investment, how they weigh between risk, return, and sustainability, if there is a gap between self-stated support and actual engagement in sustainable finance, etc. We also invited participants to express their opinions on different Sustainable Development Goals (SDGs), the United Nations' global framework for addressing social, environmental, and economic challenges, as well as on various industry sectors via a Likert scale. The concluding section of the whole survey collects socio-demographic data of participants. Where necessary, the option of "Prefer not to say" is provided. We use these questions to study the relationships between various socio-demographic characteristics and SFL.

Variable	N	Mean	SD	Min	Median	Max
Gender (Male = 1)	307	0.6	0.5	0	1	1
Age	310	32.9	10.5	18	30	75
Education: Low	310	0	0.1	0	0	1
Education: Medium	310	0.2	0.4	0	0	1
Education: High	310	0.8	0.4	0	1	1
Partner (1 = Yes)	310	0.5	0.5	0	0	1
Children (1 = Yes)	310	0.2	0.4	0	0	1
Income	282	3168.4	1663.1	1000	3000	8000
Risk Tolerance	310	4.8	2.2	0	5	10
Patience	310	6	2.3	0	6	10
Altruism	310	5.1	2.6	0	5	10

Table 1. Descriptive statistics for socio-demographic characteristics of the sample

We collected 310 responses from Dutch individuals via Prolific. Among all participants, 58% identified as male and 40% as female. The sample's age ranges from 18 to 75 years, with a mean age of 33. Additionally, 47% reported having a partner, and 24% indicated they have children. Among those who consented to disclose their income, the average reported net monthly income was approximately €3,168. The most notable characteristic of the sample is their level of education. A total of 239 participants (77%) hold a degree from a Dutch university

(HBO or WO). Another 65 participants (21%) completed secondary education or vocational training (HAVO/VWO, MBO), while only 6 individuals (2%) reported having completed only elementary education or pre-vocational training (primary school, VMBO). This indicates that our sample is, on average, more highly educated than the Dutch national average (Centraal Bureau voor de Statistiek, 2024). And this high education level makes the sample particularly suitable for examining knowledge of complex and technical concepts such as sustainable finance.

In the socio-demographic section, we also included questions designed to elicit participants’ risk tolerance, patience, and altruism, based on literature from the German Socio-Economic Panel (SOEP). Using a self-assessment scale from 0 to 10, participants reported an average risk tolerance of 4.8, patience of 6, and altruism of 5.1. These results suggest that, on average, the sample tends to be moderately risk-averse, exhibits a relatively high level of patience, and shows a moderate degree of altruism. Such traits may influence their willingness to engage in long-term or prosocial financial behavior, including sustainable investing.

4. The results

4.1 How do Dutch individuals perceive and define sustainable investment?








Category	Number of Responses
 Environmental impact (e.g., green energy, CO ₂ , protect nature)	155
 Social responsibility (e.g., labor rights, avoiding weapons/oil)	55
 Governance / ESG-related aspects	40
 Long-term orientation	80
 Financial & sustainable return (combined goal)	65
 Skepticism / Greenwashing / Critical mentions	20
 Unclear / No idea / Generic responses	25

Figure 1.1. Frequency of responses across topics from the perception of sustainable investment by participants
 When asked, “What comes to your mind when you hear the words sustainable investments?”, participants most frequently mentioned keywords related to environmental concerns, such as CO₂, green technologies, and avoiding harm to nature. This is followed by topics in social responsibility and ESG-related governance issues. This trend is consistent with the findings by

Degryse et al. (2023) where 75% of the sustainable investors in the sample chose environmental issues as the most important aspect of ESG. Besides the sustainability aspects, the most salient financial dimension in the answers is long-term orientation. Participants generally acknowledge the compatibility of pursuing both financial returns and sustainability goals, indicating that many do not see these objectives as mutually exclusive. While some skepticism about greenwashing exists, it does not appear to be the dominant perception. Nevertheless, a degree of confusion and lack of clarity remains, suggesting that there is room for educational interventions to enhance SFL.








Category	Responses
 Environmental impact (e.g., green energy, low CO ₂ , protect nature)	140
 Financial & sustainable return (double bottom line)	75
 Long-term focus / Future-oriented	65
 Social responsibility (e.g., human rights, avoiding arms/oil)	50
 Governance/ESG adherence	35
 SDG or standards-based definitions	10
 Unclear / No idea / Generic positivity	25

Figure 1.2. Frequency of responses across topics from the definition of sustainable investment by participants

When asked, “How would you define a sustainable investment?”, participants’ responses largely echoed those from the previous question. Once again, environmental concerns were most frequently mentioned, alongside associations with long-term thinking, ongoing skepticism due to greenwashing, and the perceived compatibility between financial returns and sustainability. However, one additional theme emerged: ten participants explicitly defined sustainable investments in terms of the SDGs or other widely recognized ESG standards. A relatively small number of participants expressed confusion or uncertainty, suggesting that most were able to articulate at least a partial definition of sustainable investing.

Comparing these two open-ended questions reveals how subtle differences in phrasing can guide participants’ responses. The first question “What comes to your mind when you hear the words sustainable investments?” invites more intuitive, spontaneous thinking. Responses often take the form of loosely connected words or phrases rather than structured explanations. This framing does not require participants to provide a textbook definition or list the most pressing issues in sustainable finance. Instead, it allows them to freely associate sustainable

investing with a wide range of concepts, including scientific facts, societal phenomena, or even personal emotions.

The second question “How would you define a sustainable investment?” calls for more deliberate and organized thinking. It encourages participants to draw on both their conceptual understanding and personal values. Compared to the first question, respondents may feel more obliged to offer a 'correct' or coherent answer, which could explain the emergence of references to the SDGs and established ESG standards which are largely absent from the initial, more intuitive responses.

While there is considerable overlap in the content of the answers to both questions, the distinction in framing provides valuable insights. The main take-away is that, across both questions, participants consistently associate sustainable investments with long-term thinking, recognize the dual goals of financial return and sustainability, and predominantly focus on environmental concerns. These findings suggest that even when definitions vary in structure and depth, certain themes remain central in how individuals perceive and understand sustainable investing.

4.2 What is the SFL level of our Dutch sample?

At the aggregate level, participants achieved an 85.9% correct response rate on the financial literacy questions. This rate is calculated by dividing the total number of correct answers by the number of questions (3) and the total number of participants (310). This figure is comparable with and slightly higher than the result from the Dutch sample of van Rooij et al. (2011), which is 78.7%. Table 2 displays the percentage of correctly answer questions, wrongly answered questions, and questions answered by “I do not know”. The correct rates for all three questions are high. Participants are relatively more unsure of the risk levels of a single stock and a diversified portfolio. And the calculation of compounding interest yields the most wrong answers.

Question	Correct rate %	"I don't know" rate %	Wrong rate %
Real interest rate	90.3	4.5	5.2
Risk	87.4	9.7	2.9
Compound interest	80	0.6	19.4
Total	85.9	4.9	9.2

Table 2. Percentage of correct, incorrect, and “I do not know” responses in the financial literacy test, ordered by correct response rate (highest to lowest)

It is worth noting that 211 participants (68% of the total sample) achieved a full score on the financial literacy questions. The average score across all participants was 2.6 out of a maximum of 3. This performance is substantially higher than the results reported in the international comparison on financial literacy, *FLAT World*, by Lusardi and Mitchell (Lusardi, 2019). In that

study, the proportion of individuals with a full score was 50.1% in Switzerland, 53.2% in Germany, and 21.4% in Sweden. The Dutch sample in the study by van Rooij et al. (2011), which achieved a similar aggregate correct rate to our sample, also had a lower proportion of participants with a full mark than ours, only 44.8%. These figures date back to 2011–2013, which could partly explain the gap compared to our sample. However, a more recent financial literacy study conducted in 2023 on an American sample found that only 28.5% of participants achieved a full score (Lusardi & Streeeter, 2023). Taken together, both cross-temporal and international comparisons suggest that participants in our sample possess a relatively high level of financial literacy.

On the SFL questions, participants achieved a correct response rate of 53.5% across all questions on the aggregate level. Table 3 provides a detailed breakdown of responses to each question. Comparable studies have reported lower performance: Filippini et al. (2021) found an average correct response rate of 29.6%, while Seifert et al. (2025) reported 46.9%. Notably, Filippini et al. (2021) also observed that retail investors tend to demonstrate significantly lower literacy in sustainable finance compared to conventional financial literacy. These findings are consistent with our results and highlight a persistent knowledge gap for sustainable finance, even among otherwise financially literate individuals.

Questions	Correct rate %	"I don't know" rate %	Wrong rate %
Greenwashing	91.6	4.8	3.6
Sustainable investing	91	4.5	4.5
Type of assets	79.7	16.5	3.8
Impact investing	65.2	13.2	21.6
Lack of standards	44.2	42.9	12.9
ESG meaning	37.7	9.4	52.9
EU Taxonomy	37.7	58.1	4.2
Light green products	25.2	57.7	17.1
Light/dark green	9.4	68.1	22.5
Total	53.5	30.6	15.9

Table 3. Percentage of correct, incorrect, and “I do not know” responses in the SFL test, ordered by correct response rate (highest to lowest)

1. Greenwashing:	What is “greenwashing”?
2. Sustainable investing:	What is the main goal of sustainable investing?
3. Type of assets:	“Besides individual shares, also bonds, investment funds, or index funds and ETFs (Exchange Traded Funds) can be sustainable investment products.”
4. Impact investing:	“A fund that invests in firms with a low CO2 footprint automatically reduces global CO2 footprint.”
5. Lack of standards:	“Sustainability ratings and labels for funds do not follow a uniform standard. As a result they are not directly comparable.”
6. ESG meaning:	The acronym ‘ESG’ is often used in the context of sustainable finance investments. What do you think the abbreviation ‘ESG’ stands for?
7. EU Taxonomy:	“The EU Taxonomy is a classification system developed by the European Union to define which economic activities can be considered environmentally sustainable.”
8. Light green product:	Which statement is true about a ‘light green’ (Article 8) financial product?
9. Light/dark green:	Are the terms ‘light green’ and ‘dark green’ investment products officially used in European regulatory context?

Table 4. SFL question prompts, ordered by correct response rate (highest to lowest)

Table 4 presents all nine questions used to assess SFL. Appendix A provides the full survey, including both the questions and their respective answer options. Of the nine questions, three were adapted from previous studies, allowing for meaningful cross-study comparisons. The first adapted question, on the classification of asset types, comes from Seifert et al. (2025). Participants in that study achieved a correct response rate of 65.5%, compared to 79.7% in our sample. The second adapted question, taken from Filippini et al. (2021), asks about the meaning of the three ESG dimensions. While participants in Filippini et al. scored 26.4% correct, our sample achieved a higher rate of 37.7%. The third question, concerning the EU Taxonomy, was also drawn from Seifert et al. (2025). Here, our sample scored 37.7%, which is lower than the 50.1% correct rate reported in Seifert et al. (2025). Overall, participants in our study outperformed those in previous research on two out of the three comparable questions, indicating a relatively stronger understanding of some key sustainable finance concepts.

Unlike the financial literacy test, where more than two-thirds of participants achieved a perfect score, the SFL test revealed a markedly different pattern. Only 5 out of 310 participants (1.6%) answered all nine questions correctly. The distribution of scores, as shown by Figure 2, closely resembles a normal distribution, with the majority of participants clustering around the middle range. This bell-shaped pattern suggests that SFL is more evenly spread across different levels of understanding, rather than concentrated at the high end. It may indicate that, unlike general financial literacy, sustainable finance is a relatively newer or less familiar concept for many individuals. The absence of a ceiling effect also implies that the test had an appropriate level of difficulty, allowing meaningful variation in scores. This variation could be valuable for identifying predictors of SFL.

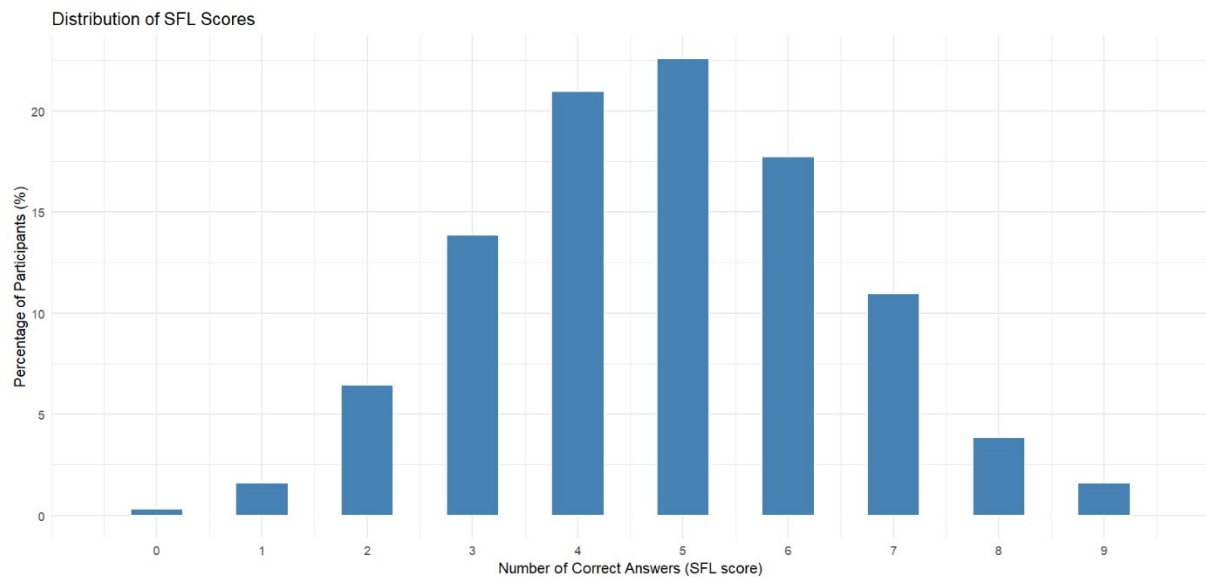


Figure 2. Distribution of SFL scores

On average, participants scored 32 percentage points lower on SFL than on financial literacy at the individual level. This figure was obtained by first normalizing both scores, financial literacy (ranging from 0 to 3) and SFL (ranging from 0 to 9), to a common scale of 1. The individual-level differences were then calculated, and the resulting gap is highly significant at the 0.1% level. Thus, despite performing strongly on the financial literacy test, Dutch participants still have considerable room for improvement when it comes to understanding the concepts of sustainable finance.

However, when the financial literacy and SFL scores are standardized into z-scores for each participant, the average gap between the two is not significantly different from zero. Z-scores indicate a participant's relative performance compared to the rest of the sample, by expressing each score in terms of standard deviations from the sample mean. This finding suggests that individuals who perform well in financial literacy relative to their peers also tend to perform well in SFL relative to the same group, and vice versa. In other words, while absolute performance levels differ, participants' relative rankings remain consistent across the two domains. This trend is further supported by a subgroup analysis comparing participants who achieved a perfect score in financial literacy with those who did not. Among the 211 participants with full marks on the financial literacy test, the mean SFL score is 5.1 out of 9. In contrast, the remaining 99 participants have an average score of 4.3. The difference of 0.8 points is statistically significant at the 0.1% level, suggesting that higher financial literacy is indeed associated with better performance in SFL. This relationship is also reflected in a Pearson correlation coefficient of 0.24 and corroborated by a Spearman's rank correlation of 0.22, both suggesting a weak but statistically significant positive association between financial literacy and SFL. While the strength of this association is modest, it reinforces the notion that a general foundation in financial knowledge may support, but does not guarantee, competence in sustainability-related financial concepts.

4.2.1 Gender gap

Having examined SFL in relation to financial literacy, both in terms of absolute performance and relative positioning, it is equally important to investigate how SFL varies across key socio-demographic characteristics. One particularly noteworthy pattern emerges with respect to gender. Historically, women have consistently underperformed men in financial literacy assessments. A systematic review conducted in 2024 found that, across all seven studies examining gender differences in financial literacy between 2012 and 2023, women scored significantly lower than men, on average, 13 percentage points lower (Blanco et al., 2024). These studies span diverse age groups, from college students to individuals over the age of 51. Our survey data reflects this same pattern. In our sample, the mean financial literacy score is 2.4 out of 3 for women and 2.7 out of 3 for men. Female participants scored, on average, 11.7 percentage points lower than male participants on the financial literacy test (calculated as the difference in group means divided by the maximum possible score of 3). This gender gap is statistically significant at the 0.1% level. This result that greatly resembles the findings from the systematic review reinforces the persistent and well-documented disparity in financial literacy outcomes between men and women.

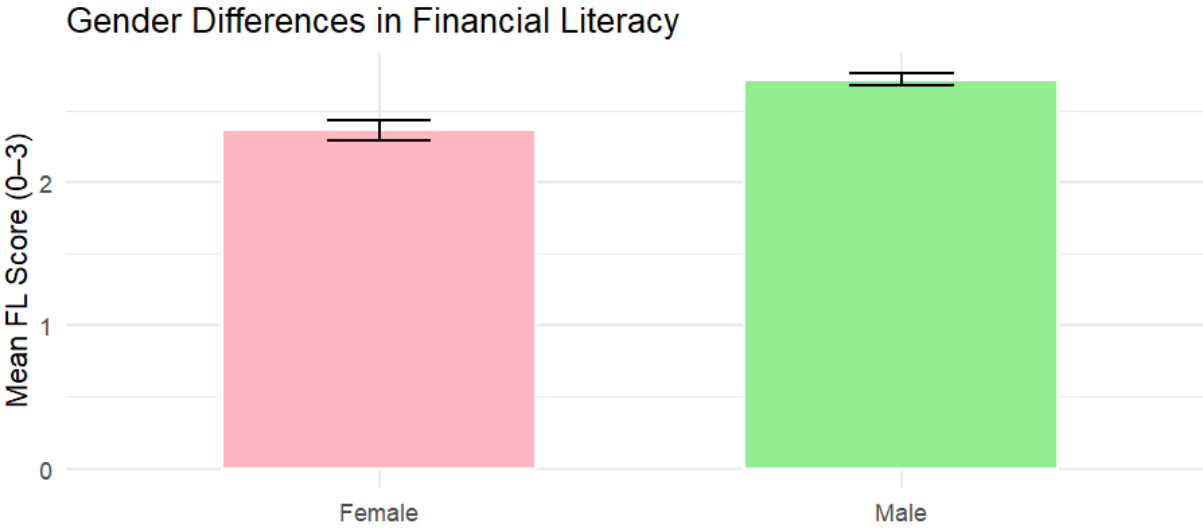


Figure 3.1. Mean financial literacy scores by gender

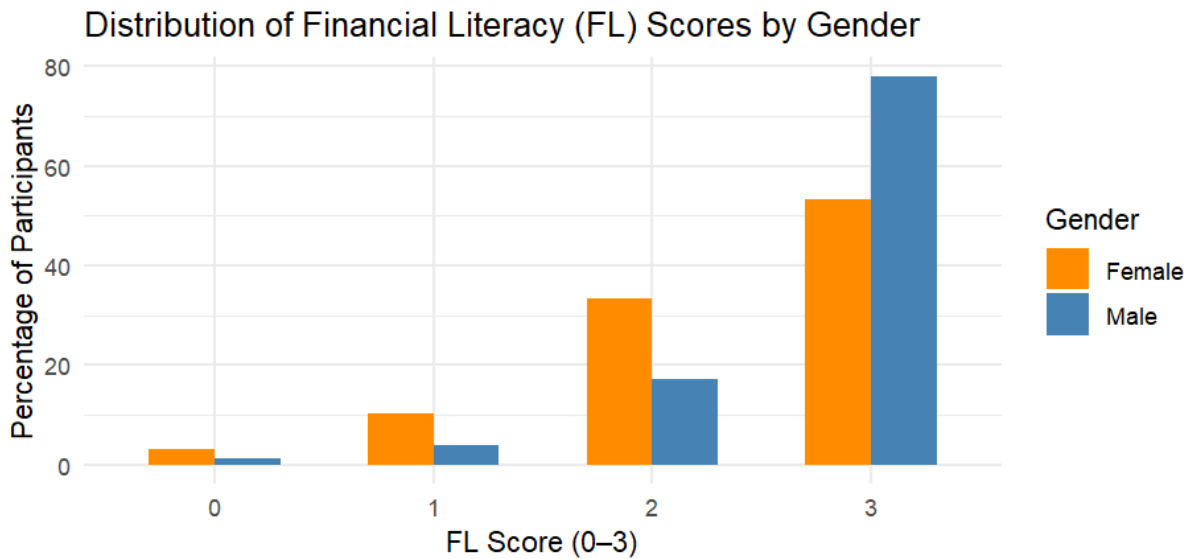


Figure 4.1. Distribution of financial literacy scores by gender

When comparing SFL scores between men and women, no statistically significant difference is observed. In our sample, the mean SFL score is 4.79 out of 9 for women and 4.84 out of 9 for men, a marginal difference of just 0.05 points. This gap is statistically insignificant. This finding is particularly noteworthy given the persistent gender gap observed in traditional financial literacy studies, including our own results. The absence of a gender difference in SFL may suggest that this emerging domain of financial knowledge is not yet shaped by the same structural or educational disparities that contribute to the traditional financial literacy gap.

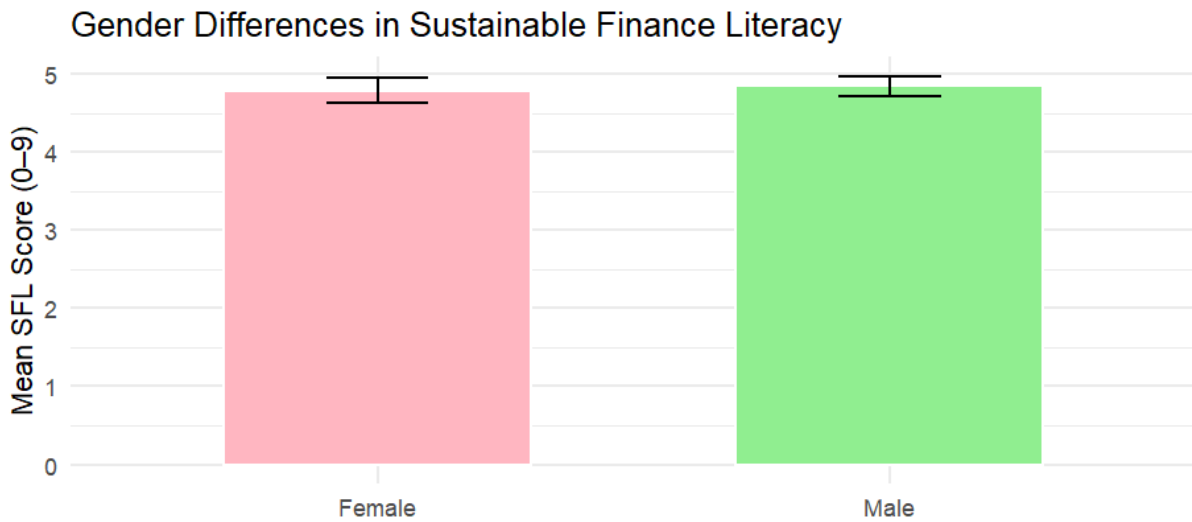


Figure 3.2. Mean SFL scores by gender

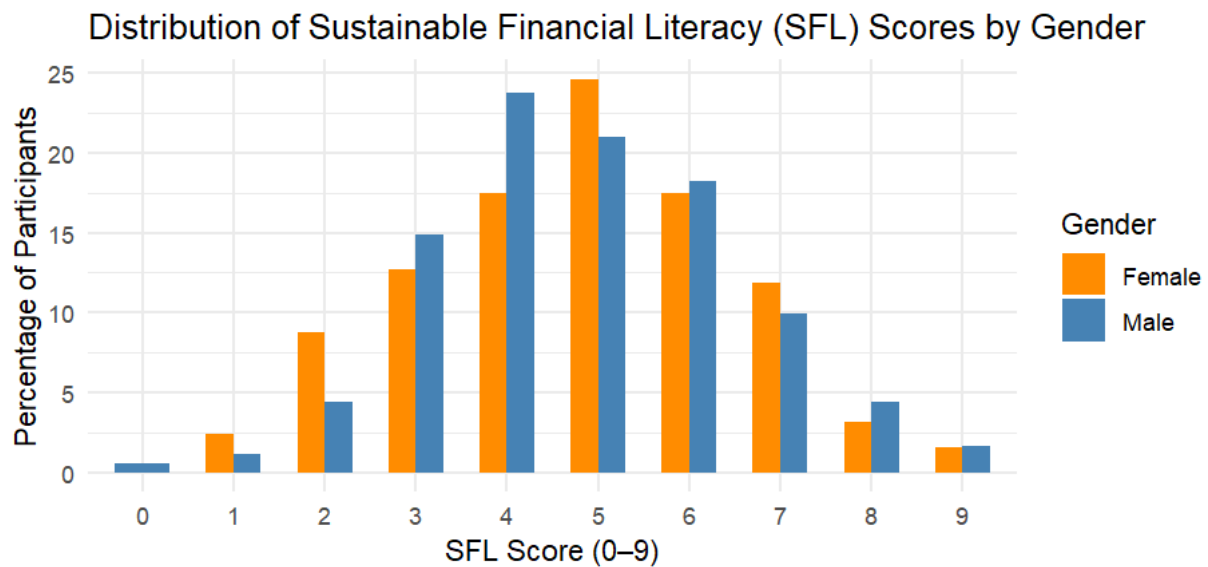


Figure 4.2. Distribution of SFL scores by gender

A common explanation for women’s underperformance in financial literacy assessments is a lower level of confidence. Bucher-Koenen et al. (2021) found that women are more likely to select the “I don’t know” response option. When this option is removed, women often end up choosing the correct answer. Using a latent class model, the authors estimate that approximately one-third of the gender gap in financial literacy can be attributed to women's lower confidence levels. Similarly, Cupák et al. (2021) demonstrate that lack of confidence not only contributes to lower financial literacy scores among women but also correlates with reduced holding in risky assets.

Our data aligns with these findings. In the opening section of our survey, participants were asked to self-assess their financial literacy and SFL on a scale from 1 to 7, offering a useful proxy for confidence. The average self-stated financial literacy is 4 for women and 4.6 for men, a statistically significant difference of 0.6 points ($p < 0.001$). Likewise, the mean self-stated SFL is 3.3 for women and 3.9 for men, with a similarly significant gap of 0.6 points ($p < 0.001$). These results suggest that, in our sample, women exhibit significantly lower confidence in both financial literacy and SFL relative to men. Notably, however, this lower confidence does not translate into an actual performance gap in SFL, where scores between men and women are nearly identical.

Consistent with prior literature, gender differences in risk attitudes are also evident in our data. When asked to rate their willingness to take risks on a scale from 0 (risk-averse) to 10 (fully prepared to take risks), women report a mean score of 4.2 compared to 5.3 among men. The 1.1-point gap is statistically significant at the 0.1% level, further reinforcing the broader pattern of gender differences in financial behavior and perception.

The gender gap in financial literacy has often been attributed to women's comparatively lower levels of financial confidence and risk tolerance. However, another socio-demographic factor, altruism, has also been found to differ systematically by gender and may offer further insights, particularly in the context of sustainable finance. A growing body of research highlights a strong connection between altruism and sustainable investment behavior. This may help explain the absence of a gender gap in SFL, despite persistent disparities in traditional financial literacy.

Riedl and Smeets (2017), drawing on administrative data, surveys, and experimental evidence, identified social preferences as one of the key drivers behind sustainable investment decisions. Their findings demonstrate that investors of a Dutch mutual fund provider are willing to forgo a portion of financial returns in exchange for aligning their investments with personal social values. This conclusion is supported by more recent experimental work by Heeb et al. (2023), which reaffirms the importance of non-financial motivations in sustainable investment choices.

Insights from behavioral economics suggest that women tend to exhibit higher levels of altruism than men. Using a large-scale Dictator Game experiment with over 3,500 participants, Brañas-Garza et al. (2018) found that women were not only more likely to give (only 31.2% of women gave nothing, compared to 45.7% of men), but also gave more on average (5.7% more than men). In a more nuanced study, Andreoni and Vesterlund (2001) showed that gender differences in altruism depend on cost: women are more altruistic when giving is expensive, whereas men are more altruistic when it is cheap. Sustainable investing, often perceived as involving a financial trade-off, is exactly the type of context where altruistic behavior is likely to come at a cost (Riedl & Smeets, 2017). Thus, women's greater willingness to act altruistically even at a higher cost may translate into stronger engagement with prosocial aspects of sustainable finance.

Our survey explored participants' altruism levels by asking them to rate their willingness to give to a good cause without expecting anything in return, on a scale from 0 to 10. Higher scores indicate greater willingness to act altruistically. Women in our sample reported a mean score of 5.7, compared to 4.6 for men, a statistically significant difference of 1.1 points ($p < 0.001$). This result aligns with the literature that women tend to exhibit more altruistic behavior than men. In the context of SFL, this difference in altruism may play a compensating role. Although women report lower levels of confidence and risk tolerance, two factors that are often associated with lower financial literacy, their higher level of altruism could make them more engaged with or receptive to the ideas and goals of sustainable finance. Since sustainable finance involves integrating environmental and social values into financial decision-making, individuals who score higher on altruism may be more motivated to understand and apply these concepts, regardless of their financial confidence or risk appetite. Therefore, the elevated altruism among female participants might help close or offset the gender gap observed in traditional financial literacy, resulting in the absence of a significant gender difference in SFL.

4.2.2 Break down of SFL questions

To gain deeper insight into the patterns behind the overall scores, we now turn to the response patterns for each individual question, examining the distribution of correct, incorrect, and "I don't know" answers selected by participants. The questions are again ordered by their correct response rate from the highest to the lowest. Green bars highlight the correct answers.

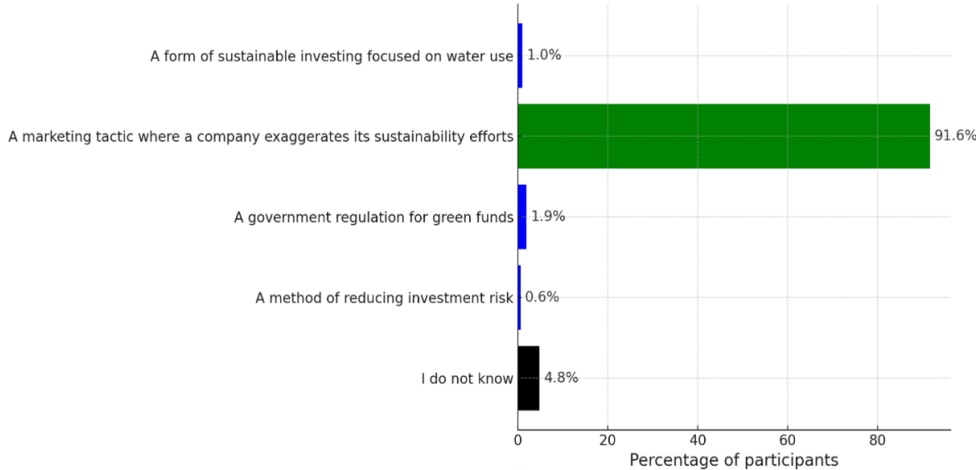


Figure 5.1. Percentage of responses to the question “What is greenwashing?” (Greenwashing)

The vast majority (91.6%) correctly identified greenwashing as *a marketing tactic where a company exaggerates its sustainability efforts*, indicated by the green bar. Only a small minority confused it with government regulation, risk reduction, or water-related investing, while 4.8% admitted they did not know the answer. This suggests that, among all the questions, greenwashing is the most widely understood concept in the sample.

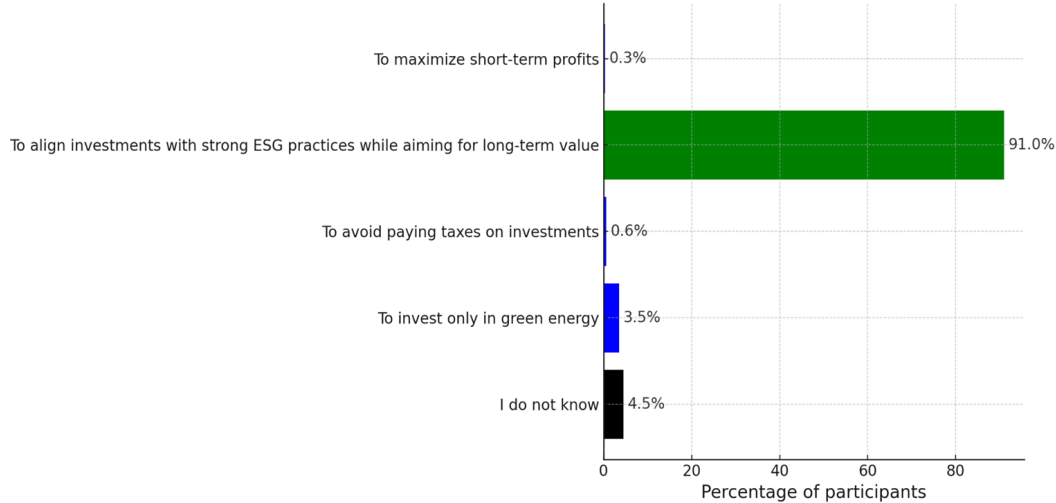


Figure 5.2. Percentage of responses to the question “What is the main goal of sustainable investing?” (Sustainable investing)

While sustainable investing can have multiple valid interpretations in an open-ended context, the incorrect response options in this question, as displayed, are not merely less appropriate, they are clearly flawed. Therefore, the question maintains clarity and is unlikely to confuse participants. A large majority of participants (91%) correctly selected *“To align investments with strong ESG practices while aiming for long-term value”* (green bar). Very few respondents chose incorrect answers such as maximizing short-term profits, avoiding taxes, or investing only in green energy. About 4.5% indicated they did not know. These results suggest that most participants have a clear understanding of the overarching objective of sustainable investing, recognizing its focus on integrating ESG considerations with long-term financial goals.

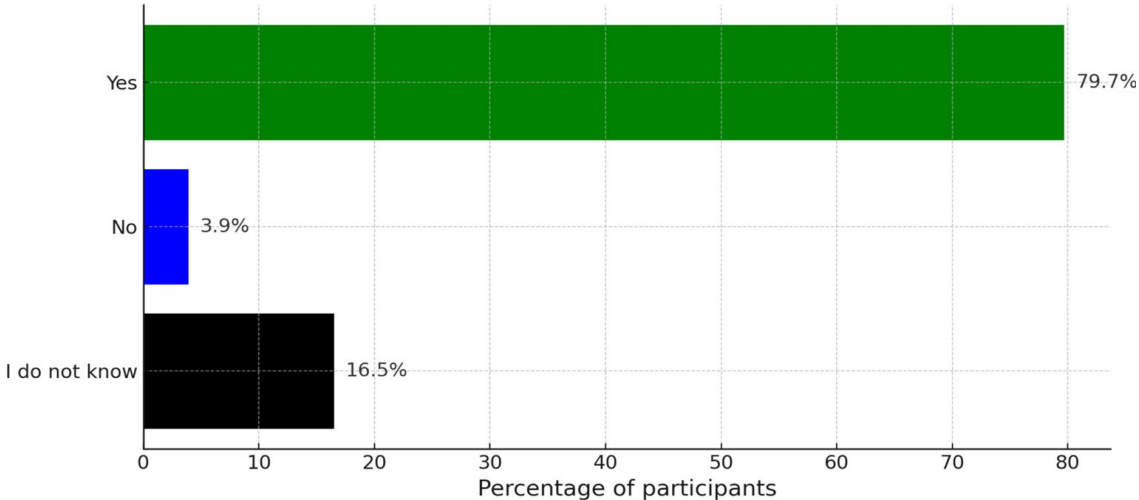


Figure 5.3. Percentage of responses to the question “Besides individual shares, also bonds, investment funds, or index funds and ETFs (Exchange Traded Funds) can be sustainable investment products.” (Type of assets)

Again the majority of the participants (79.7%) chose the correct answer. Thus, most of them know the diversity of sustainable investment product types. Compared to the previous two questions, there are more people who selected “I do not know” (16.5%).

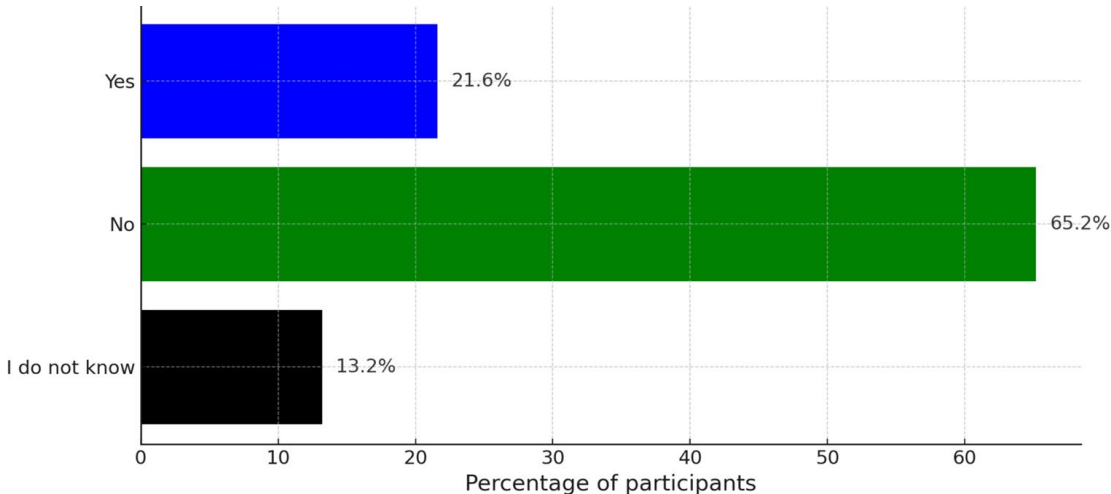


Figure 5.4. Percentage of responses to the question “A fund that invests in firms with a low CO2 footprint automatically reduces global CO2 footprint.” (Impact investing)

More than half of the participants (65.2%) chose correctly. Nevertheless, around one-fifth (21.6%) thought that the statement is correct. This question is relatively more difficult than previous ones, as one would need to understand that investors do not influence operational decisions by providing funds. Moreover, in the secondary market, when investors want to shift to a greener company, they must sell the shares of the less sustainable one to another party. This does not eliminate the source of financing; it merely transfers ownership. The result suggests that most participants understand the mechanism of trading.

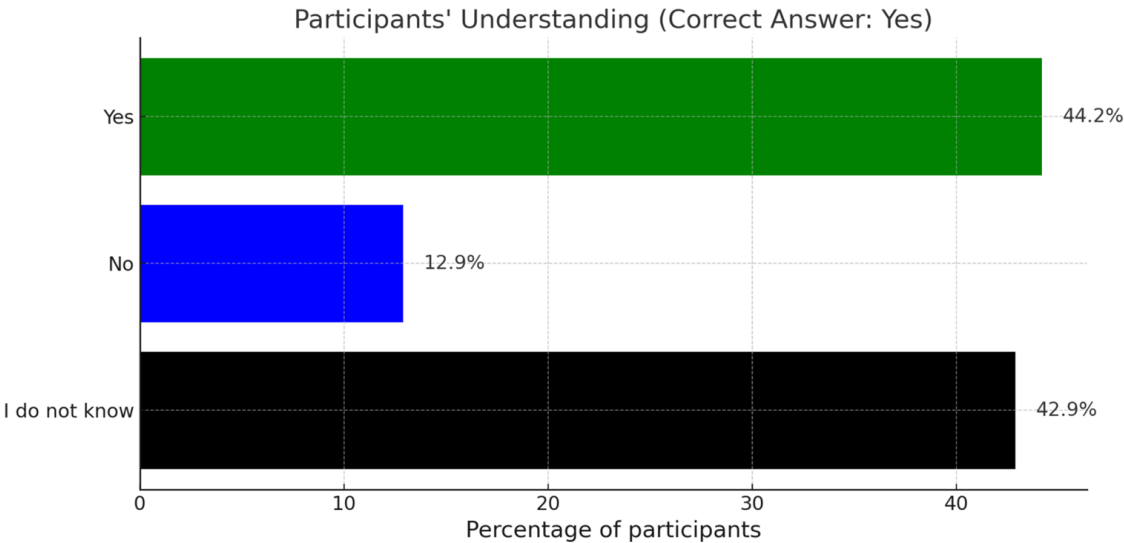


Figure 5.5. Percentage of responses to the question “Sustainability ratings and labels for funds do not follow a uniform standard. As a result they are not directly comparable.” (Lack of standards)

This question tests participants’ knowledge of regulatory frameworks and market practices in sustainable finance. To answer correctly, candidates first need to be aware of the existence of sustainability rating standards, then they also need to know the content of at least a number of ratings and labels on the national or international level. As the bar plot shows, the proportion of participants answering “I do not know” is substantially higher than in previous questions. Nearly half of the participants (42.9%) chose this option, and the other near half (44.2%) chose correctly. Roughly one-tenth of them believed that existing ratings and labels are already standardized and thus comparable. The result suggests a lack of knowledge about sustainability standards.

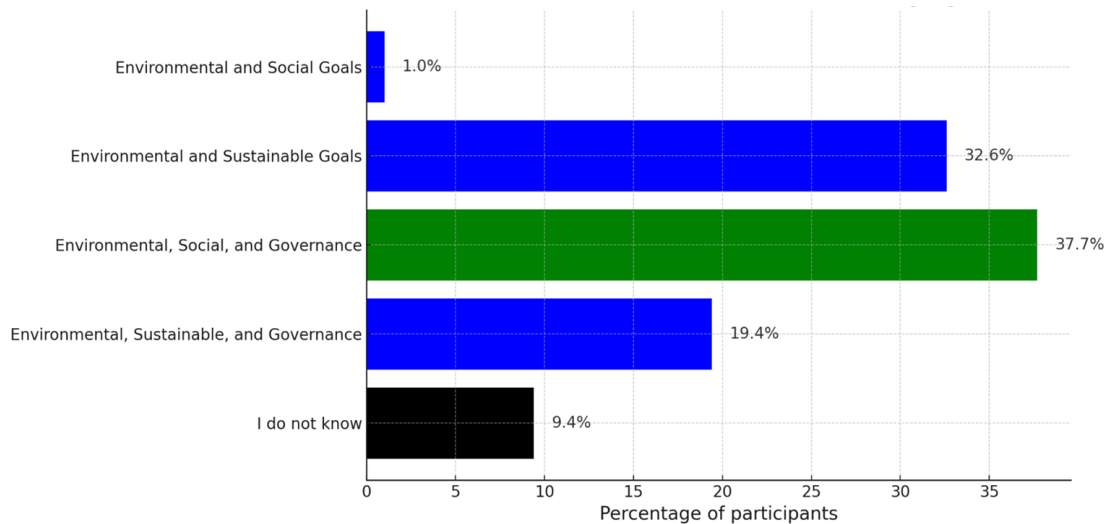


Figure 5.6. Percentage of responses to the question “The acronym ‘ESG’ is often used in the context of sustainable finance investments. What do you think the abbreviation ‘ESG’ stands for?” (ESG meaning)

This multiple choice question tests candidates’ conceptual understanding of sustainable finance terminology. To answer correctly, candidates need to know that “ESG” stands for Environmental, Social, and Governance, the three key factors used to evaluate the sustainability and ethical impact of an investment in a company or business. Understanding this acronym is foundational, as ESG considerations underpin many sustainable investing strategies, reporting standards, and regulatory frameworks. Compared to greenwashing and sustainable investment, the concept of ESG could be more difficult to interpret literally because it is an abbreviation. Also, it categorizes sustainability matters into three different aspects, making the word more technical. The first two options, “Environmental and Social Goals” and “Environmental and Sustainable Goals”, both incorrectly interpret the “G” in ESG as “goals.” Interestingly, significantly more participants selected the second option, likely due to the presence of the word “sustainable.” However, when “G” is correctly identified as “governance,” more respondents also correctly recognized that “S” stands for “social.” This question had the highest error rate among all, with 53% of participants answering incorrectly. Still, 37.7% selected the correct answer, which is just over one-third.

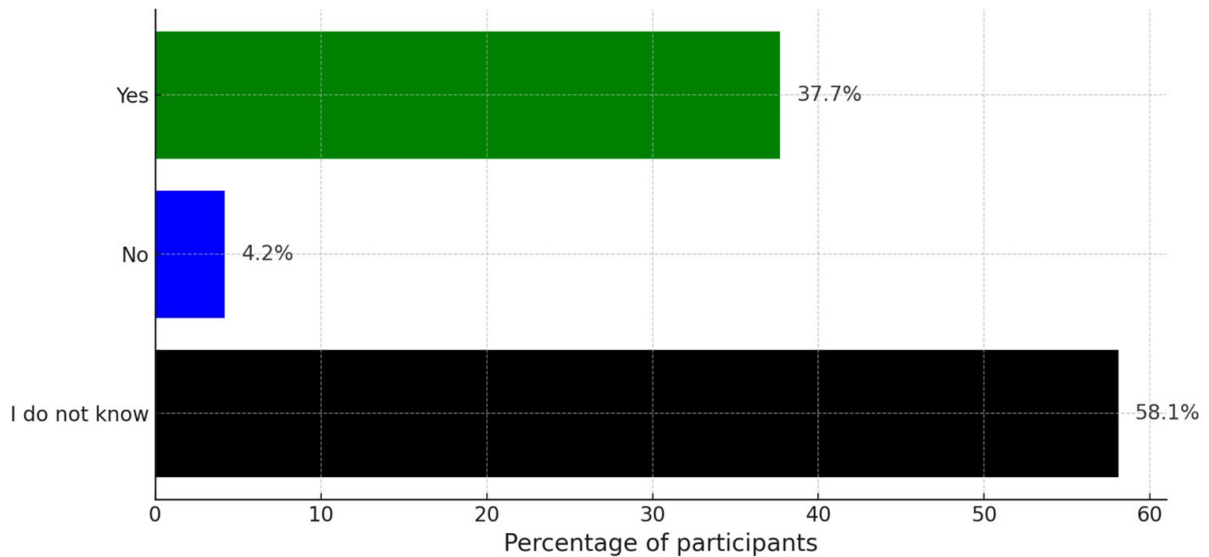


Figure 5.7. Percentage of responses to the question “The EU Taxonomy is a classification system developed by the European Union to define which economic activities can be considered environmentally sustainable.” (EU Taxonomy)

This question also examines sustainable finance regulatory frameworks, but with a specific focus on the legislation, the EU Taxonomy Regulation. Here we see another peak for the proportion of participants choosing “I do not know”, 58.1%, approaching closely to 60%. This is a foreseeable result, because EU sustainable finance regulations represent a highly specialized subfield within sustainable finance, and the Taxonomy Regulation is relatively new. Moreover, the prompt statement consists of several legal elements: a classification system, developed by the European Union, that define economic activities as opposed to other activities, as environmentally sustainable as opposed to sustainable in general. Any uncertainty about these specific elements may lead participants to consider the statement wrong. The word taxonomy does refer to the idea of classification, which could provide some guidance by intuitive interpretation. Same as last question, a little more than one-third of the participants answered correctly.

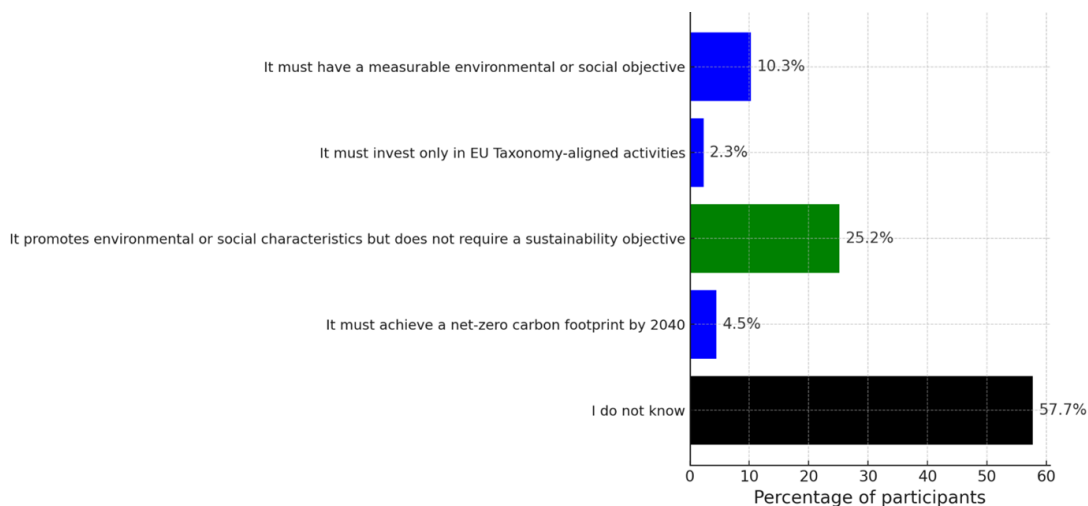


Figure 5.8. Percentage of responses to the question “Which statement is true about a ‘light green’ (Article 8) financial product?” (Light green product)

Same as the last one, this question tests knowledge about EU sustainable finance regulation, in particular the Sustainable Finance Disclosure Regulation. Compared to the last question that asks about the general function and aim of the EU Taxonomy Regulation, this question dives even deeper into the content of a specific article. Namely, Article 8 that defines a light green financial product. The rate of “I do not know” is equally high as the previous question (57.7%). And the correct response rate is a lot lower, 25.2% compared to 37.7%. But among people who did not choose “I do not know”, the majority selected the correct answer despite its difficulty. The word “light” in “light green” might have offered a subtle cue, that the relevant product is somewhat sustainable but not entirely. Nevertheless, this question is still difficult, and we witness another drop in the correct response rate.

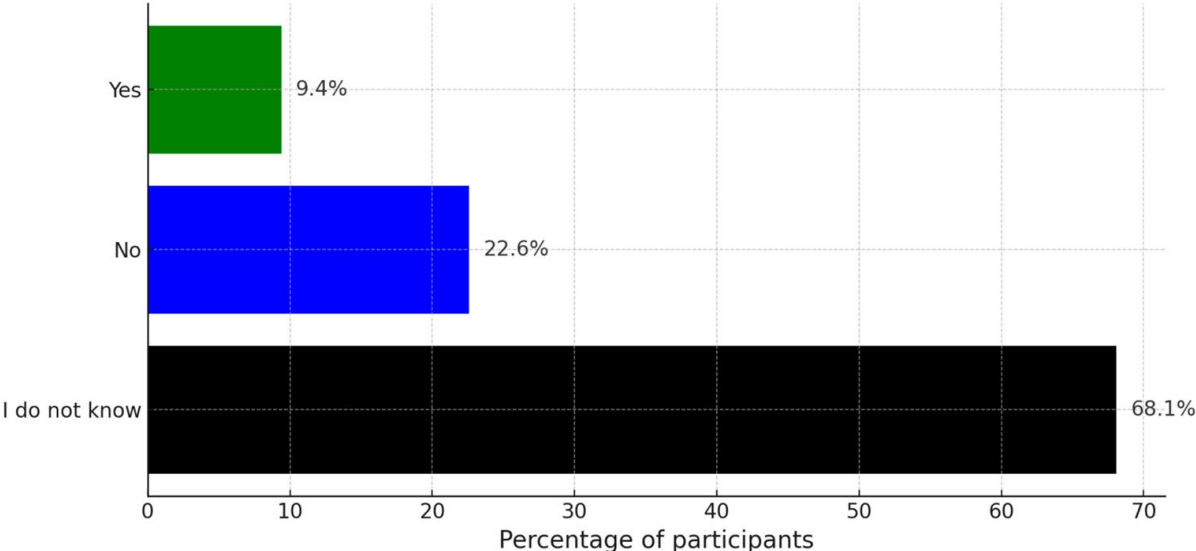


Figure 5.9. Percentage of responses to the question “Are the terms ‘light green’ and ‘dark green’ investment products officially used in European regulatory context?” (Light/dark green)

This question once again assesses participants’ knowledge of the EU Sustainable Finance Disclosure Regulation. Specifically, it refers to the content of Articles 8 and 9, which classify financial products based on their degree of sustainability. Article 8 outlines criteria for so-called “light green” products that promote environmental or social characteristics, while Article 9 pertains to “dark green” products with sustainable investment as their explicit objective. These two articles form the backbone of the Regulation framework. However, the terminology remains technical and can be obscure to retail investors, making this question particularly challenging for a general audience. It yielded the lowest correct rate (9.4%) and the highest “I do not know” rate (68.1%) out of all nine questions. Thus, roughly 90% of the participants do not know about the light green and dark green products.

It is important to note that all our questions might have been framed in a challenging way before making a conclusion on the performance of our participants in SFL. In our survey, respondents demonstrated a strong familiarity with the definitions of greenwashing and sustainable investing. However, awareness dropped notably when terminology became more specific and technical, for example, the meaning of ESG was less well understood. This could partly be explained by the fact that “ESG” is an English acronym while participants were Dutch, as well as by the framing of our ESG question, which had the highest incorrect response rate and may have been made more challenging through the use of similar answer options.

Out of the three categories of the questions, definitions of terms, features of sustainable investment products, and EU sustainable regulations, the last category is the most difficult. Relevant questions yielded both a lower correct response rate and a higher proportion of “I do not know” responses compared to other topics. In particular, lack of standards, the EU Taxonomy, and the classification of products as light green or dark green attracted especially high “I do not know” rates. “I do not know” is to be distinguished from wrong answers because it reflects an explicit recognition of a lack of knowledge, whereas wrong answers indicate the presence of misconceptions or incorrect beliefs. The high “I do not know” rate for regulation questions suggests that participants may be entirely unaware of the existence of these regulations, leaving alone their content.

Overall, our findings indicate that while participants possess a broad awareness of the general concept of sustainable finance, they may struggle to articulate their preferences when these are framed within specific regulatory contexts. This is particularly noteworthy given that our sample consists of highly educated individuals who achieved exceptionally high scores in traditional financial literacy, suggesting that the challenge lies not in general financial competence but in the specialized subfield of sustainable finance.

4.3 What are the beliefs, preferences, and behaviors of Dutch individuals regarding sustainable investment?

Our survey included questions on participants’ actual and hypothetical holdings of sustainable investments. To capture real-life holdings, we asked: *“Do you have any sustainable investments outside of mandatory pension savings, and if so, what percentage of your total financial portfolio is invested in them?”* Results show that 37% of respondents currently own sustainable investments, with 73% of these holding 1–25% of their portfolio in such assets, and the remaining 27% allocating a higher proportion. To capture hypothetical preferences, we asked: *“Suppose you have €10,000 to invest over the long term. How would you allocate this amount between conventional (not explicitly addressing ESG criteria) and sustainable investments?”* In this scenario, 87% of respondents expressed a willingness to hold sustainable investments, with 43% of them allocating 1–25% of their portfolio and 57% allocating a higher proportion.

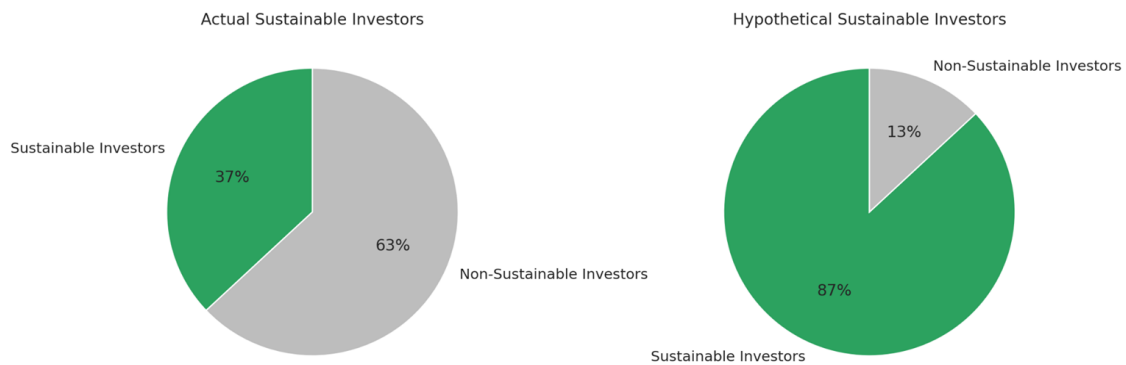


Figure 6. Proportion of sustainable investors in real life and in a hypothetical scenario

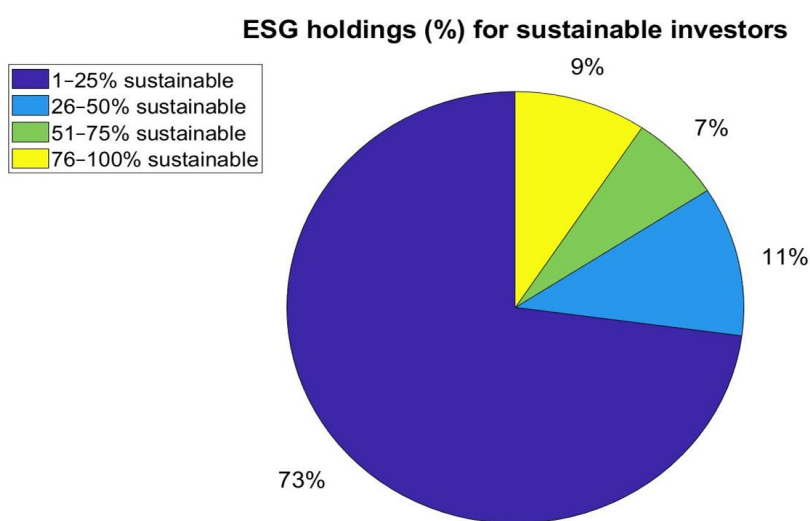


Figure 7.1. Proportion of sustainable investment in the overall portfolio of actual sustainable investors

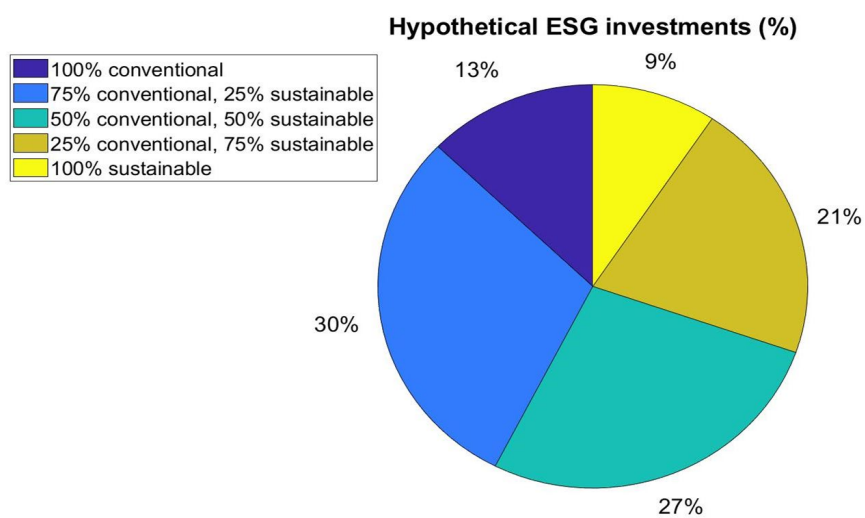


Figure 7.2. Proportion of sustainable investment in the overall portfolio of hypothetical sustainable investors

As the pie charts show, the famous hypothetical gap, where individuals' stated intentions or preferences in a survey context differ from their actual real-world behavior (Murphy et al., 2005), exists in our sample for sustainable investment holding. It could first stem from the framing of our question, because we asked for actual sustainable investment holding only outside mandatory pension schemes, while we asked for hypothetical sustainable investment holding in general. A second explanation is the behavioral pattern of inertia that individuals often do not exert the effort to move their investments to green funds even when willing to invest sustainably. This mirrors findings from Madrian & Shea (2001), who show that default settings dominate 401(k) choices, as most participants stick with the status quo rather than actively making changes. A third possibility is the presence of informational barriers, such as limited awareness of available sustainable investment products or concerns about their perceived risk–return trade-off, which may prevent individuals from translating their pro-sustainability intentions into action, as shown by Degryse et al. (2023) and Anderson & Robinson (2022). Lastly, the gap could also be attributed to the different way we framed the two questions. Overall, this suggests that stated willingness to invest sustainably does not always translate into actual investment behavior.

In addition to sustainable investment behaviors, our survey also examined participants' beliefs. Across the full sample, 73% of respondents believed that a conventional portfolio including all assets would yield a higher return over a 10-year horizon than a sustainable portfolio excluding non-sustainable assets. Interestingly, both groups, the 73% who favored conventional portfolios and the 27% who favored sustainable portfolios, estimated the return difference at roughly 3.7 percentage points. This aligns with prior evidence from Giglio et al. (2025), which found that individuals generally expect lower 10-year returns from ESG investments. A recent study found that the belief in a negative performance from ESG portfolios is the main barrier to the willingness-to-pay for ESG investment products (Zhang & Zou, 2025). Once the performance was held constant, authors saw a latent preference for ESG.

When asked, *“What would be the most important reason for you to invest sustainably?”*, 49% of participants selected *“mainly for financial reasons”*, while the remaining 51% chose *“mainly for non-financial reasons”*, reflecting an almost even split. This finding challenges traditional utility function theories that focus primarily on financial outcomes, highlighting the need for extended models, such as that proposed by Pastor et al. (2020), which explicitly incorporate ESG-related preferences and values. In response to the question, *“Which sustainability topic is the most important for you?”*, 57% prioritized environmental aspects, 23% chose social aspects, and 20% selected governance aspects. This contrasts with the findings of Degryse et al. (2023), who reported respective shares of 75%, 17.1%, and 7.9%.

Overall, participants expressed a self-reported preference for sustainable investment, although their actual investment behavior did not fully align with these stated intentions, likely due to informational barriers. A majority believed that a sustainable portfolio would yield lower financial returns, and there was an almost even split between those motivated by

financial versus non-financial reasons. Consistent with insights from our open-ended responses, where sustainable investment was most often associated with environmental issues, participants overwhelmingly identified environmental aspects as the most important dimension among the three ESG pillars.

4.4 What factors shape SFL?

While the descriptive patterns shed light on participants' attitudes, beliefs, and self-reported behaviors toward sustainable finance, they do not reveal which underlying factors are systematically associated with higher SFL or with the likelihood of engaging in sustainable investment. To address this, we turn to regression analysis, which allows us to isolate the effects of socio-demographic characteristics, preferences and beliefs, on both knowledge and behavior in sustainable finance.

4.4.1 What determines one's SFL score?

We ran simple Ordinary Least Squares regressions for the SFL score, because it is a continuous variable ranging from 0 to 9 with an almost perfect normal distribution.

Bivariate vs multivariate OLS (SFL Score) regressed on socio-demographic factors

Variable	Bivariate Coefficient (SE)	Multivariate Coefficient (SE)
Gender (Male = 1)	0.1 (0.2)	-0.1 (0.2)
Age	0.0 (0.0)	0.0 (0.0)
Education: Medium	-0.3 (0.2)	0.7 (0.7)
Education: High	0.3 (0.2)	0.6 (0.7)
Partner (Yes = 1)	0.4* (0.2)	0.3 (0.2)
Children (Yes = 1)	0.1 (0.2)	0.0 (0.3)
Income (per 1000 EUR)	0.2** (0.1)	0.2* (0.1)
Risk Tolerance	0.1* (0.0)	0.1* (0.0)
Patience	0.1* (0.0)	0.1* (0.0)
Altruism	0.0 (0.0)	0.0 (0.0)
Num.Obs.	282 to 310	280
R2	0.0 to 0.0	0.1
R2 Adj.	0.0 to 0.0	0.0
AIC	1092.1 to 1212.7	1085.8
BIC	1103.0 to 1223.9	1129.4
Log.Lik.	-603.3 to -543.1	-530.9
RMSE	1.7 to 1.7	1.6

OLS regression estimates with standard errors in parentheses.

*+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 5.1. OLS bivariate and multivariate regression coefficients for SFL scores as the dependent variable, with socio-demographic factors as independent variables

Table 5.1 presents the OLS regression coefficients of the SFL score on socio-demographic factors. And it compares results from two types of regression analysis: bivariate models that look at each explanatory variable separately and the multivariate model that look at all explanatory variables together.

In the bivariate results, having a partner is associated with a 0.4-point increase in SFL scores. Higher income was also linked to better SFL scores, for every extra €1,000 in income, the score increased by about 0.2 points. People with greater risk tolerance and patience also tended to have slightly higher scores.

When we look at all factors at the same time in the multivariate model, only three predictors still had a clear link to higher SFL scores: higher income, greater risk tolerance, and greater patience. The effects of having a partner were no longer statistically meaningful, suggesting that these relationships may be explained by other factors.

The multivariate model explained about 10% of the variation in SFL scores, and the prediction error (RMSE) improved slightly compared to the bivariate models.

Bivariate vs multivariate OLS (SFL Score) regressed on non-demographic factors

Variable	Bivariate Coefficient (SE)	Multivariate Coefficient (SE)
Subjective SFL	0.4*** (0.1)	0.3*** (0.1)
ESG Seriousness	0.1 (0.1)	0.1 (0.1)
Hassle of Sustainable Investment	-0.3*** (0.1)	-0.2*** (0.1)
Non-financial Motivations of Sustainable Investing	0.4* (0.2)	0.4* (0.2)
Self-rating of Sustainable Lifestyle	0.0 (0.1)	-0.2+ (0.1)
Financial Literacy Score	0.6*** (0.1)	0.4*** (0.1)
Sustainable Investment outside Pension	1.4** (0.5)	0.1 (0.5)
Num.Obs.	310	310
R2	0.0 to 0.1	0.2
R2 Adj.	0.0 to 0.1	0.2
AIC	1180.8 to 1212.7	1157.9
BIC	1192.0 to 1223.9	1191.5
Log.Lik.	-603.4 to -587.4	-569.9
RMSE	1.6 to 1.7	1.5

OLS regression estimates with standard errors in parentheses.

*+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 5.2. OLS bivariate and multivariate regression coefficients for SFL scores as the dependent variable, with non-demographic factors as independent variables

Table 5.2 presents the OLS regression coefficients of the SFL score on non-demographic factors such as beliefs and preferences regarding sustainable finance.

In the bivariate results, a one-point increase on the scale of 1 to 7 in self-stated subjective SFL was linked to a 0.4-point higher SFL score. Viewing sustainable investing as more of a hassle was linked to a 0.3-point lower score per point increase on the hassle scale. Having non-financial motivations for sustainable investing were associated with a 0.4-point higher score, and a one-point increase in financial literacy score on the scale of 0 to 3 corresponded to a 0.6-point increase in SFL. A one percentage point increase in the proportion of sustainable

investments outside of pension savings was linked to an average increase of 0.014 points in SFL.

When all factors were considered together in the multivariate model, the associations were smaller but several remained significant. A one-point increase in subjective SFL was linked to a 0.3-point higher actual SFL score, having non-financial motivations were linked to a 0.4-point higher score, and each additional point in financial literacy was associated with a 0.4-point increase in SFL. Viewing sustainable investing as more of a hassle remained negatively associated, with each point increase on the hassle scale linked to a 0.2-point lower score. The proportion of sustainable investments outside of pension savings was not significantly related to SFL once other factors were taken into account. The multivariate model explained 20% of the variation in SFL scores and reduced the prediction error to 1.5.

Bivariate vs multivariate OLS (SFL Score) regressed on all factors

Variable	Bivariate Coefficient (SE)	Multivariate Coefficient (SE)
Gender (Male = 1)	0.1 (0.2)	-0.3 (0.2)
Age	0.0 (0.0)	0.0 (0.0)
Education: Medium	-0.3 (0.2)	0.4 (0.7)
Education: High	0.3 (0.2)	0.2 (0.7)
Partner (Yes = 1)	0.4* (0.2)	0.3 (0.2)
Children (Yes = 1)	0.1 (0.2)	0.0 (0.3)
Income (per 1000 EUR)	0.2** (0.1)	0.1 (0.1)
Risk Tolerance	0.1* (0.0)	0.0 (0.0)
Patience	0.1* (0.0)	0.1 (0.0)
Altruism	0.0 (0.0)	0.0 (0.0)
Subjective SFL	0.4*** (0.1)	0.3*** (0.1)
ESG Seriousness	0.1 (0.1)	0.0 (0.1)
Hassle of Sustainable Investment	-0.3*** (0.1)	-0.2** (0.1)
Non-financial Motivations of Sustainable Investing	0.4* (0.2)	0.4+ (0.2)
Self-rating of Sustainable Lifestyle	0.0 (0.1)	-0.2* (0.1)
Financial Literacy Score	0.6*** (0.1)	0.4* (0.1)
Sustainable Investment outside Pension	1.4** (0.5)	-0.2 (0.5)
Num.Obs.	282 to 310	280
R2	0.0 to 0.1	0.2
R2 Adj.	0.0 to 0.1	0.2
AIC	1092.1 to 1212.7	1051.4
BIC	1103.0 to 1223.9	1120.5
Log.Lik.	-603.4 to -543.1	-506.7
RMSE	1.6 to 1.7	1.5

OLS regression estimates with standard errors in parentheses.

*+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 5.3. OLS bivariate and multivariate regression coefficients for SFL scores as the dependent variable, with all factors as independent variables

What Table 5.3 offers in addition is the multivariate regression including both socio-demographic and non-demographic factors simultaneously.

In this combined model, four predictors remained significantly associated with SFL scores. A one-point increase in subjective SFL was linked to a 0.3-point higher score, while a one-point increase in actual financial literacy scores was associated with a 0.4-point higher actual SFL score. The positive effect of financial literacy is consistent with the earlier finding that participants achieving a full financial literacy score also tend to have higher SFL scores. Viewing

sustainable investing as more of a hassle was related to a 0.2-point lower score per point increase on the hassle scale. And lastly, a one-point increase in self-rating of a sustainable lifestyle was associated with a 0.2-point lower score.

Income, risk tolerance, patience, and other socio-demographic variables did not show a statistically significant association with SFL once non-demographic factors were included in the model, suggesting that much of their apparent effect in earlier models is explained by these attitudinal and knowledge-related variables. The full model explained 20% of the variation in SFL scores and reduced the prediction error to 1.5, which is similar to the values in Table 2 where only non-demographic factors are included as explanatory variables.

4.4.2 What makes one a sustainable investor?

We also analyzed which factors are associated with being a sustainable investor (1 = sustainable investor, 0 = non-sustainable investor) using both bivariate and multivariate OLS regressions.

Bivariate vs multivariate OLS (SI Engagement) regressed on socio-demographic factors

Variable	Bivariate Coefficient (SE)	Multivariate Coefficient (SE)
Gender (Male = 1)	0.2*** (0.1)	0.1* (0.1)
Age	0.0** (0.0)	0.0 (0.0)
Education: Medium	-0.1 (0.1)	0.5** (0.2)
Education: High	0.1+ (0.1)	0.5** (0.2)
Partner (Yes = 1)	0.2*** (0.1)	0.2** (0.1)
Children (Yes = 1)	0.1 (0.1)	-0.1 (0.1)
Income (per 1000 EUR)	0.1*** (0.0)	0.0+ (0.0)
Risk Tolerance	0.0*** (0.0)	0.1*** (0.0)
Patience	0.0** (0.0)	0.0** (0.0)
Altruism	0.0* (0.0)	0.0** (0.0)
Num.Obs.	282 to 310	280
R2	0.0 to 0.1	0.2
R2 Adj.	0.0 to 0.1	0.2
AIC	372.3 to 414.3	329.9
BIC	383.3 to 425.5	373.5
Log.Lik.	-204.2 to -183.2	-153.0
RMSE	0.5 to 0.5	0.4

OLS regression estimates with standard errors in parentheses.

*+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 6.1. OLS bivariate and multivariate regression coefficients for sustainable investor status as the dependent variable, with socio-demographic factors as independent variables

Table 6.1 presents the OLS regression coefficients of the engagement in sustainable investment on socio-demographic factors.

In the bivariate analysis, sustainable investment participation was significantly higher among men, those that are older, those with a partner, and those with higher income, risk tolerance,

patience, and altruism. Men were about 20 percentage points more likely than women to be sustainable investors, and living with a partner was associated with an increase of roughly 20 percentage points. Higher income also showed a sizeable association: an additional €1,000 was linked to about a 10-percentage-point higher likelihood. Risk tolerance, patience, and altruism, and age were each positively related as well; their estimated effects were statistically detectable but small in magnitude.

In the multivariate analysis, several associations persisted. Men remained more likely to be sustainable investors, by about 10 percentage points. This might seem contradictory to the explanations we provided for the absence of gender gap in SFL scores. However, it is worth noting that a lack of participation in sustainable investing could be due to a lack of participation in investing in general, as discovered by Anderson and Robinson (2022). Education became a strong predictor once covariates were included: having medium or high education was each associated with roughly 50 percentage-point higher likelihood compared with low education. Living with a partner continued to matter, with an increase of about 20 percentage points. Behavioral traits also retained independent associations: each one-unit increase in risk tolerance corresponded to about a 10-percentage-point higher probability, while patience and altruism had smaller but statistically reliable positive effects. Income was only marginally related after adjustment. The multivariate model explained about 20% of the variance in sustainable-investment participation, with a prediction error of 0.4.

Bivariate vs multivariate OLS (SI Engagement) regressed on non-demographic factors

Variable	Bivariate Coefficient (SE)	Multivariate Coefficient (SE)
Subjective SFL	0.1*** (0.0)	0.1*** (0.0)
ESG Seriousness	0.0 (0.0)	0.0 (0.0)
Hassle of Sustainable Investment	-0.1*** (0.0)	-0.1*** (0.0)
Non-financial Motivations of Sustainable Investing	0.1 (0.1)	0.0 (0.1)
Self-rating of Sustainable Lifestyle	0.1** (0.0)	0.1* (0.0)
Financial Literacy Score	0.1* (0.0)	0.0 (0.0)
Sustainable Finance Literacy Score	0.1*** (0.0)	0.0 (0.0)
Num.Obs.	310	310
R2	0.0 to 0.2	0.2
R2 Adj.	0.0 to 0.2	0.2
AIC	362.1 to 415.9	351.9
BIC	373.3 to 427.1	385.5
Log.Lik.	-204.9 to -178.0	-166.9
RMSE	0.4 to 0.5	0.4

*OLS regression estimates with standard errors in parentheses.
+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 6.2. OLS bivariate and multivariate regression coefficients for sustainable investor status as the dependent variable, with non-demographic factors as independent variables

Table 6.2 presents the OLS regression coefficients of the engagement in sustainable investment on non-demographic factors.

In the bivariate models, subjective SFL showed a positive association with sustainable investment participation: a one-unit increase in self-stated SFL was linked to roughly a 10 percentage-point higher probability of being a sustainable investor. Perceived hassle of

sustainable investment had the opposite effect, with each one-unit increase corresponding to about a 10 percentage-point lower probability. Self-rating of a sustainable lifestyle, financial literacy scores, and SFL scores were also positively related, increasing the probability by around 10 percentage points per unit.

In the multivariate model, the associations for subjective SFL and hassle of sustainable investment persisted almost unchanged: a one-unit increase in SFL was still associated with a 10 percentage-point higher probability, while a one-unit increase in perceived hassle was linked to a 10 percentage-point lower probability. Self-rating of a sustainable lifestyle retained a less significant positive effect with the same effect size as in its corresponding bivariate model. Financial literacy scores and SFL scores were no longer statistically significant after adjustment.

The multivariate model explained about 20% of the variance in sustainable investment participation and had a prediction error of approximately 0.4.

Bivariate vs multivariate OLS (SI Engagement) regressed on all factors		
Variable	Bivariate Coefficient (SE)	Multivariate Coefficient (SE)
Gender (Male = 1)	0.2*** (0.1)	0.1+ (0.1)
Age	0.0** (0.0)	0.0 (0.0)
Education: Medium	-0.1 (0.1)	0.5* (0.2)
Education: High	0.1+ (0.1)	0.5** (0.2)
Partner (Yes = 1)	0.2*** (0.1)	0.2** (0.1)
Children (Yes = 1)	0.1 (0.1)	-0.1 (0.1)
Income (per 1000 EUR)	0.1*** (0.0)	0.0 (0.0)
Risk Tolerance	0.0*** (0.0)	0.0** (0.0)
Patience	0.0** (0.0)	0.0+ (0.0)
Altruism	0.0* (0.0)	0.0* (0.0)
Subjective SFL	0.1*** (0.0)	0.1*** (0.0)
ESG Seriousness	0.0 (0.0)	0.0 (0.0)
Hassle of Sustainable Investment	-0.1*** (0.0)	0.0+ (0.0)
Non-financial Motivations of Sustainable Investing	0.1 (0.1)	0.0 (0.1)
Self-rating of Sustainable Lifestyle	0.1** (0.0)	0.0 (0.0)
Financial Literacy Score	0.1* (0.0)	0.0 (0.0)
Sustainable Finance Literacy Score	0.1*** (0.0)	0.0 (0.0)
Num.Obs.	282 to 310	280
R2	0.0 to 0.2	0.3
R2 Adj.	0.0 to 0.2	0.3
AIC	362.1 to 415.9	310.1
BIC	373.3 to 427.1	379.1
Log.Lik.	-204.9 to -178.0	-136.0
RMSE	0.4 to 0.5	0.4

OLS regression estimates with standard errors in parentheses.

*+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 6.3. OLS bivariate and multivariate regression coefficients for sustainable investor status as the dependent variable, with all factors as independent variables

Table 6.3 presents OLS regression coefficients of the engagement in sustainable investment on all factors.

In this new multivariate model, which combines socio-demographic and non-demographic factors, five socio-demographic factors and one non-demographic factor are significant. Having a medium or high level of education was strongly associated with sustainable

investment participation, increasing the probability by approximately 50 percentage points compared with low education. Having a partner was linked to about a 20 percentage-point higher likelihood of being a sustainable investor. Among behavioral and attitudinal measures, having a higher level of risk tolerance and altruism is associated with higher likelihood of being a sustainable investor. The effects are statistically significant despite their small magnitude. Last but not least, subjective SFL remained a strong predictor. One unit increase in self-stated SFL score is associated with 10 percentage point higher probability.

This combined multivariate model managed to explain 30% of the variance in the outcome, with a prediction error of 0.4.

4.5 How do individuals view sustainable finance in the context of pension?

Our survey devotes a special section to four pension-related questions.

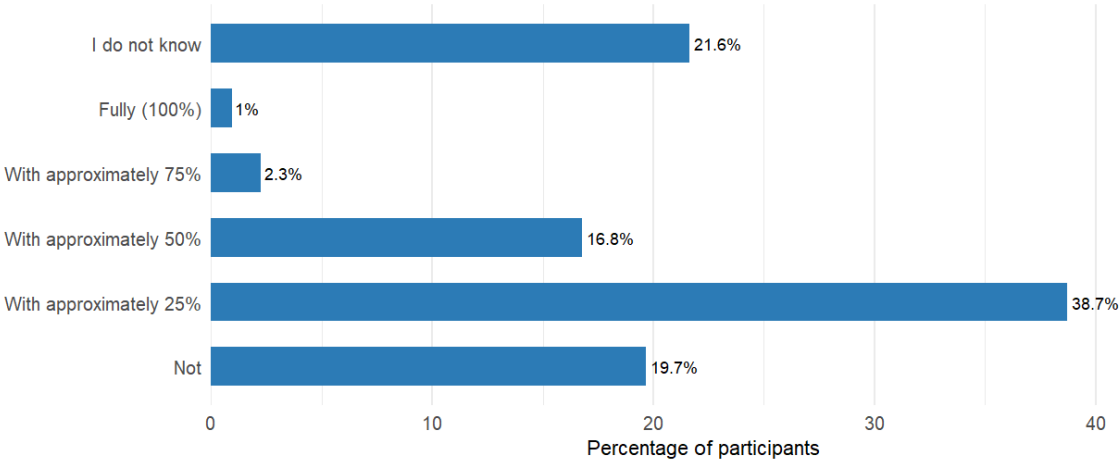


Figure 8.1. Percentage of responses to the question “To what extent do you think your pension is invested sustainably?”

We first asked our participants, to what extent they think their pension is invested sustainably. Around one-fifth of them (21.6%) indicated that they did not know. Among those who did know, the majority (38.7% of the whole sample) chose “approximately 25%”. Second to them, a large group of participants chose “not”. This result suggests that the involvement of sustainable finance is currently low in the pension sector. However, as mentioned previously, pension investors generally have a low participation in the making of their portfolio. Guessing is more likely to happen in this question. Thus this question is less informative than the next one.

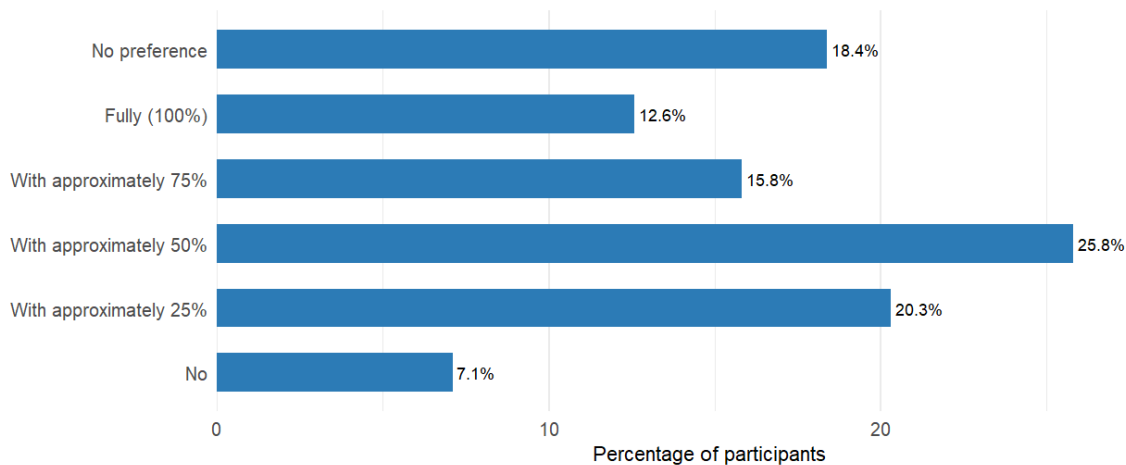


Figure 8.2. Percentage of responses to the question “Do you want your pension to be invested sustainably? ”

In the next question, we asked our participants whether they want to have their pension invested sustainably. This question elicits subjective wishes, providing another measure of the strength of participants’ sustainability preferences. Roughly one-fifth of the whole sample had no preferences regarding sustainable investment in pension. Among those who did express a preference, most of them (25.8% of the whole sample) wished for a half-and-half split between sustainable and conventional investment in their portfolio. Less than one-tenth of them (7.1% of the whole sample) preferred no sustainable investment at all in their pension.

Bivariate vs multivariate OLS (Pension SI Engagement) regressed on all factors

Variable	Bivariate Coefficient (SE)	Multivariate Coefficient (SE)
Gender (Male = 1)	-0.1** (0.0)	-0.1 (0.1)
Age	0.0 (0.0)	0.0 (0.0)
Education: Medium	0.0 (0.1)	0.0 (0.2)
Education: High	0.0 (0.1)	0.1 (0.2)
Partner (Yes = 1)	0.1+ (0.0)	0.1+ (0.1)
Children (Yes = 1)	0.0 (0.1)	0.0 (0.1)
Income (per 1000 EUR)	0.0* (0.0)	-0.1** (0.0)
Risk Tolerance	0.0 (0.0)	0.0 (0.0)
Patience	0.0 (0.0)	0.0 (0.0)
Altruism	0.0*** (0.0)	0.0** (0.0)
Subjective SFL	0.0 (0.0)	0.0 (0.0)
ESG Seriousness	0.1*** (0.0)	0.1*** (0.0)
Hassle of Sustainable Investment	0.0 (0.0)	0.0 (0.0)
Non-financial Motivations of Sustainable Investing	0.2*** (0.0)	0.1 (0.1)
Self-rating of Sustainable Lifestyle	0.1*** (0.0)	0.0 (0.0)
Financial Literacy Score	0.0 (0.0)	0.0 (0.0)
Sustainable Finance Literacy Score	0.0+ (0.0)	0.0 (0.0)
Num.Obs.	282 to 310	280
R2	0.0 to 0.1	0.2
R2 Adj.	0.0 to 0.1	0.2
AIC	326.9 to 370.7	289.8
BIC	337.9 to 381.9	358.9
Log.Lik.	-182.4 to -160.5	-125.9
RMSE	0.4 to 0.4	0.4

OLS regression estimates with standard errors in parentheses.

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7. OLS bivariate and multivariate regression coefficients for pension sustainable investor status as the dependent variable, with all factors as independent variables

Using the answers to the second question, we ran a regression on what factors makes one a sustainable investor in the context of pension.

In the bivariate models, men are less likely to be a sustainable investor in pension. Having higher altruism, viewing ESG issues as more serious, having non-financial motivations to invest sustainably, and having a higher self-rating of a sustainable lifestyle are all associated with a higher probability of being a sustainable investor in pension. The coefficient of income is a small negative value (-0.04) that rounds to 0.0.

In the multivariate model, fewer explanatory variables remain significant. Income continued to be associated with a decrease in the likelihood of being a pension sustainable investor, while altruism was still linked to a marginal positive effect. ESG seriousness, bearing the highest significance level, was associated with a 10-percentage-point higher probability of being a pension sustainable investor.

The multivariate model explains about 20% of the variance in the outcome. And it has a prediction error of 0.4.

We then proceeded to ask about participants' beliefs on sustainable investment in pension.

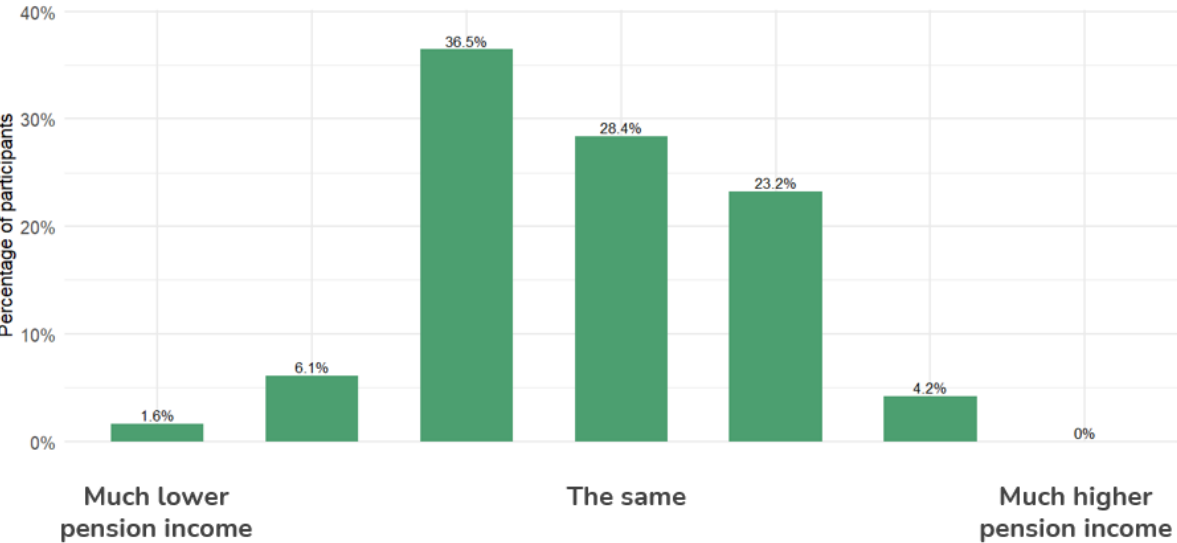


Figure 9.1. Distribution of ratings (1–7) on the perceived impact of ESG criteria on future pension income

We first asked “To what extent do you believe that considering ESG-related criteria in pension investments will affect your pension income in the future?” A little over one-third of the participants thought that considering ESG would yield a slightly lower pension income. This is the most chosen answer, consistent with the previous finding that most participants believed a conventional portfolio would yield higher financial returns than a sustainable one. The second largest group is the ones who believed the pension income would stay the same. The

third largest group is the ones who thought considering ESG would yield a slightly higher pension income.

Bivariate vs multivariate OLS (Pension ESG Income) regressed on socio-demographic factors

Variable	Bivariate Coefficient (SE)	Multivariate Coefficient (SE)
Gender (Male = 1)	-0.4* (0.2)	-0.3 (0.2)
Age	0.0 (0.0)	0.0 (0.0)
Education: Medium	-0.1 (0.2)	0.1 (0.6)
Education: High	0.1 (0.2)	0.4 (0.6)
Partner (Yes = 1)	0.1 (0.2)	0.2 (0.2)
Children (Yes = 1)	-0.1 (0.2)	0.2 (0.3)
Income (per 1000 EUR)	-0.1* (0.1)	-0.2* (0.1)
Risk Tolerance	0.0 (0.0)	0.0 (0.0)
Patience	0.0 (0.0)	0.0 (0.0)
Altruism	0.1** (0.0)	0.1** (0.0)
Num.Obs.	203 to 222	202
R2	0.0 to 0.0	0.1
R2 Adj.	0.0 to 0.0	0.1
AIC	665.8 to 728.7	662.5
BIC	675.7 to 738.9	702.2
Log.Lik.	-361.3 to -329.9	-319.3
RMSE	1.2 to 1.2	1.2

OLS regression estimates with standard errors in parentheses.

*+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 8.1. OLS bivariate and multivariate regression coefficients for ratings of ESG influence on pension income as the dependent variable, with socio-demographic factors as independent variables

We ran another OLS regression with the rating of ESG influence on pension income as the dependent variable on socio-demographic factors. The multivariate analysis show that a €1,000 increase in monthly income is significantly associated with a 0.2-point decrease in the rating. In other words, the higher an individual's income, the more negatively they perceive the impact of ESG on pension income. Altruism also emerges as a significant predictor: each one-unit increase in altruism is linked to a 0.1-point increase in the rating, suggesting that more altruistic individuals view the influence of ESG on pension income more positively.

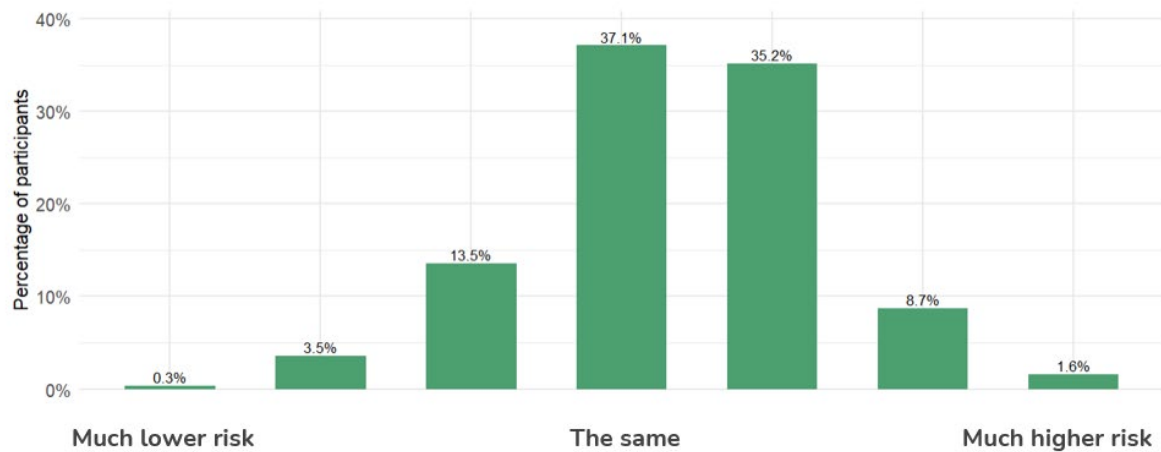


Figure 9.2. Distribution of ratings (1–7) on the perceived impact of ESG criteria on future pension income risk

We also asked “To what extent do you believe that considering ESG-related criteria in pension investments will affect the risk level (uncertainty) of your future pension income?” Most participants (37.1%) chose the neutral option of no effect. Almost equally amount of people (35.2%) believed that considering ESG would slightly increase the risk of pension income. They together make up 72.3% of the whole sample.

Bivariate vs multivariate OLS (Pension ESG Risk) regressed on socio-demographic factors

Variable	Bivariate Coefficient (SE)	Multivariate Coefficient (SE)
Gender (Male = 1)	0.0 (0.2)	0.0 (0.2)
Age	0.0 (0.0)	0.0 (0.0)
Education: Medium	0.1 (0.2)	-0.8 (0.6)
Education: High	-0.2 (0.2)	-0.7 (0.5)
Partner (Yes = 1)	-0.1 (0.2)	-0.1 (0.2)
Children (Yes = 1)	0.2 (0.2)	0.3 (0.3)
Income (per 1000 EUR)	-0.1* (0.1)	-0.2* (0.1)
Risk Tolerance	0.0 (0.0)	0.0 (0.0)
Patience	0.0 (0.0)	0.0 (0.0)
Altruism	0.0 (0.0)	0.0 (0.0)
Num.Obs.	177 to 195	177
R2	0.0 to 0.0	0.1
R2 Adj.	0.0 to 0.0	0.0
AIC	580.8 to 639.3	592.0
BIC	590.3 to 649.1	630.1
Log.Lik.	-316.7 to -287.4	-284.0
RMSE	1.2 to 1.2	1.2

OLS regression estimates with standard errors in parentheses.

*+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 8.2. OLS bivariate and multivariate regression coefficients for ratings of ESG influence on pension income risk as the dependent variable, with socio-demographic factors as independent variables

The multivariate OLS regression shows that each additional €1,000 in monthly income is significantly associated with a 0.2-point decrease in the perceived risk that considering ESG poses to future pension income. Taken together with the previous analysis, the results suggest

that the higher one's income, the less profitable and less risky ESG-aligned pensions are perceived to be. This is in line with the classic idea of risk-return trade off (Markowitz, 1952).

5. Conclusion

Through the SFL test in our survey we managed to answer the main question of this paper: what is the SFL level of Dutch individuals? While concepts like greenwashing and sustainable investing is well known by our participants, people are still confused by more technical terms such as ESG. They are somewhat literate about the features of current sustainable investment products. But when it comes to EU sustainable finance regulations, the illiteracy level had a rise. When we compare the SFL score to the financial literacy score of the same sample that is highly educated, their lack of knowledge in sustainable finance became noticeable.

Another finding of our survey is the absence of gender gap in SFL scores. Like many previous studies, we discovered that women scored significantly lower than men in financial literacy. However, when it comes to SFL scores, women had an equally good performance. The reasons behind this phenomenon is worthy of further research. The higher level of altruism exhibited by women could offer some insight on this matter.

With regression analysis, we found that the self-stated SFL level significantly predicts not only the actual SFL score, but also whether someone is a sustainable investor or not. This reflects the importance of investors' confidence in sustainable finance.

These findings offer some guidance for pension practitioners. First, the current Dutch pension investors might not possess sufficient level of SFL to express their sustainability preferences as required by amendments to the IDD and MiFID II. Pension advisors might need to introduce education modules in their suitability assessment process where detailed and careful explanations are given to the investors.

Second, the equal performance of women in SFL suggests that sustainable finance could act as a "level playing field" where female investors are not at a structural disadvantage. Pension funds and advisors might therefore ensure that their communication materials and guidance are inclusive and accessible to both men and women, avoiding assumptions about gendered differences in knowledge or preferences. This finding also indicates that sustainability-related topics could provide an entry point for engaging women more in pension decision-making overall, which may have positive spillovers for narrowing the broader gender gap in investing (van Rooij et al., 2011).

Third, given that investor confidence is strongly linked to actual SFL scores and sustainable investing behavior, pension providers could focus on enhancing all investors' understanding and comfort with the choices available to them. This might include interactive tools or educational modules that clarify product features, regulatory aspects, and potential trade-offs, allowing individuals to make informed decisions that align with their own values and financial

goals. Such measures would strengthen financial literacy broadly, and reduce the risk of mismatches between stated preferences and actual portfolio composition.

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Appendix A. SFL Survey

Begin

Open-ended question [Duraj, Siegel, et al. 2024; adapted to ESG]

- a. What comes to your mind when you hear the words “sustainable investments”?
- b. How would you define a sustainable investment?

Subjective Financial Literacy

How do you rate your financial knowledge compared to the average Dutch citizen?

- a. 1 (Very poor)
- b. 2
- c. 3
- d. 4
- e. 5
- f. 6
- g. 7 (Very good)

[Degreyse 2025]

Subjective Sustainability Financial Literacy

How do you rate your knowledge about sustainable investments compared to the average Dutch citizen?

- a. 1 (Very poor)
- b. 2
- c. 3
- d. 4
- e. 5
- f. 6
- g. 7 (Very good)

Sustainable Finance Literacy

ESG meaning

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

[correct answer: 3]

(Filipini)

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

[correct answer: yes]

Impact investing

A fund that invests in firms with a low CO2 footprint automatically reduces global CO2 footprint.

- Yes
- No
- I do not know

[correct answer: no]

EU taxonomy

The EU Taxonomy is a classification system developed by the European Union to define which economic activities can be considered environmentally sustainable.

1 = true

2 = false

3 = I do not know

[correct answer: 1]

[Based on Seiffert et al., 2024]

Light and dark green

Are the terms “light green” and “dark green” investment products officially used in European regulatory context?

- a) Yes
- b) No
- c) I do not know

[Correct answer: a]

[Page break]

Greenwashing

What is “greenwashing”?

- a) A form of sustainable investing focused on water use
- b) A marketing tactic where a company exaggerates its sustainability efforts
- c) A government regulation for green funds
- d) A method of reducing investment risk
- e) I do not know

[Correct answer: b]

Sustainable investing

What is the main goal of sustainable investing?

- a) To maximize short-term profits
- b) To align investments with strong ESG practices while aiming for long-term value
- c) To avoid paying taxes on investments
- d) To invest only in green energy
- e) I do not know

[Correct answer: b]

Types of assets

Besides individual shares, also bonds, investment funds, or index funds and ETFs (Exchange Traded Funds) can be sustainable investment products.

1 = True

2 = False

3 = I do not know

[correct answer: 1]

[Seiffert et al 2025]

Light-green products

Which statement is true about a “light green” (Article 8) financial product?

- a) It must have a measurable environmental or social objective
- b) It must invest only in EU Taxonomy-aligned activities
- c) It promotes environmental or social characteristics but does not require a sustainability objective
- d) It must achieve a net-zero carbon footprint by 2040
- e) I do not know

[Correct answer: c]

Further questions on Awareness and Motivations

Hassle factor

I think that investing in the stock market is complicated and I have to spend a lot of time and effort into it.

1=do not agree at all, 7=agree completely

[Adapted from Seifert et al.]

ESG-awareness

Environmental, Social, and Governance (ESG) is a set of aspects considered when investing in companies, that recommends taking environmental issues, social issues and (corporate) governance issues into account. You can think of investment products that contribute to reducing greenhouse-gas emissions, improving human rights, and reducing corruption and bribery, and so on. This is also called a “sustainable investment”.

Do you believe that ESG-related challenges are serious and need to be solved?

1=completely disagree, 7=completely agree

[Adapted from Heeb et al. (2021)]

Hassle factor sustainable

I think that investing in sustainable ESG-products is complicated and I have to spend a lot of time and effort into it.

1=do not agree at all, 7=agree completely

[Adapted from Seifert et al.]

Motivation

What would be the most important reason for you to invest sustainably?

a. Mainly a financial reason

(For example, you expect that sustainable investments would yield a higher return (profit) than non-sustainable investments)

b. Mainly a non-financial reason (For example, you opt for sustainable investments because of the positive impact on society or the environment)

[Degreyse et al (2025)]

Reason for ESG investments

If you had to choose, which sustainability topic is the most important for you?

- a. Environment and climate (for example, lower CO2 emissions, less energy and water consumption, etc.)
- b. Social (for example, gender equality, ethnic diversity, working conditions, human rights, safety, etc.)
- c. Governance (for example, no corruption and bribery, independence of the board of directors, protection of stakeholders, etc.)

[Degreyse et al 2025]

Greenwashing

How much do you think sustainable investments are related to greenwashing (a marketing tactic where a company exaggerates its sustainability efforts)?

- a. 1 (Not at all)
- b. 2
- c. 3
- d. 4 (Don't disagree, don't agree)
- e. 5
- f. 6
- g. 7 (A lot)

[Degeryse et al 2025]

Relative financial performance

For which of the two do you expect a higher financial return in the next 10 years?

- 1. Conventional stock portfolio, including all assets
- 2. Sustainable stock portfolio, excluding non-sustainable investments

[based on Merkle et al 2025, Giglio et al. 2025]

How much better will this portfolio perform compared to the other?

Slider 0%-10%

[based on Merkle et al 2025]

Sustainable person

How sustainable would you say your daily lifestyle is?

a. 1 (Not at all)

b. 2

c. 3

d. 4

e. 5

f. 6

g. 7 (Very much)

[partially based on Stancu et al 2020, <https://www.mdpi.com/2071-1050/12/24/10400>],
ChatGPT :)

Sectors

To what extent do you perceive each of the following industries as sustainable?

(Likert scale/slider per industry: 0 = Not at all sustainable, 10 = Very sustainable)

Weapon industry

Nuclear power

Oil, gas, and coal

Alcohol and tobacco

SDGs

How important are the following UN Sustainable Development Goals (SDG) to you?

7-points Likert scale: Not important at all (1), ..., Extremely important(7)

(showing 4 random items of the following 17 to each individual - 4 out of 17; don't show the numbers to the participants)

1. No Poverty – End poverty in all its forms everywhere.
2. Zero Hunger – End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.
3. Good Health and Well-being – Ensure healthy lives and promote well-being for all at all ages.
4. Quality Education – Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
5. Gender Equality – Achieve gender equality and empower all women and girls.
6. Clean Water and Sanitation – Ensure availability and sustainable management of water and sanitation for all.
7. Affordable and Clean Energy – Ensure access to affordable, reliable, sustainable, and modern energy for all.
8. Decent Work and Economic Growth – Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all.
9. Industry, Innovation, and Infrastructure – Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation.
10. Reduced Inequality – Reduce inequality within and among countries.
11. Sustainable Cities and Communities – Make cities and human settlements inclusive, safe, resilient, and sustainable.
12. Responsible Consumption and Production – Ensure sustainable consumption and production patterns.
13. Climate Action – Take urgent action to combat climate change and its impacts.
14. Life Below Water – Conserve and sustainably use the oceans, seas, and marine resources for sustainable development.
15. Life on Land – Protect, restore, and promote sustainable use of terrestrial ecosystems, manage forests, combat desertification, and halt biodiversity loss.

16. Peace, Justice, and Strong Institutions – Promote peaceful and inclusive societies, provide access to justice for all, and build effective, accountable, and inclusive institutions.
17. Partnerships for the Goals – Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Sustainable Investments

ESG investor

Do you have any sustainable investments outside of mandatory pension savings, and if so, what percentage of your total financial portfolio is invested in them?

- a. No: 0%
- b. 1–25%
- c. 26–50%
- d. 51–75%
- e. 76–100%
- f. I don't know

Traditional or sustainable

Suppose you have €10,000 to invest over the long term. How would you allocate this amount between conventional (not explicitly addressing ESG criteria) and sustainable investments?

- a. 100% conventional
- b. 75% conventional, 25% sustainable
- c. 50% conventional, 50% sustainable
- d. 25% conventional, 75% sustainable
- e. 100% sustainable

Pension-related questions

Probably you have a mandatory pension plan via your employer, if not, then suppose you have one.

To what extent do you think your pension is invested sustainably?

1. Not
2. With approximately 25%
3. With approximately 50%
4. With approximately 75%
5. Fully (100%)
6. Don't know

Do you want your pension to be invested sustainably?

1. No
2. With approximately 25%
3. With approximately 50%
4. With approximately 75%
5. Fully (100%)
6. No preference

To what extent do you believe that considering ESG-related criteria in pension investments will affect your pension income in the future?

1 – Much lower pension income

2

3

4 – No difference

5

6

7 – Much higher pension income

To what extent do you believe that considering ESG-related criteria in pension investments will affect the risk level (uncertainty) of your future pension income?

1 – Much lower risk level

2

3

4 – No difference

5

6

7 – Much higher risk level

Financial Literacy

Compound interest

Suppose you have €100 in a savings account, the interest rate is 2 percent per year, and you leave the money in this account for 5 years. How much do you think you would have in the account after 5 years:

1. More than €110
2. Exactly €110
3. Less than €110
4. I don't know

[Lusardi 2008 Q1, also in van Rooij Q2; OECD 2022 QK6]

Real interest rate

Imagine that the interest rate on your savings account was 1 percent per year and inflation was 2 percent per year. How much could you buy with the money in your account after one year? (Assuming you do not have to pay an account maintenance charge.)

1. More than today
2. Exactly the same as today or
3. Less than today
4. I don't know

[Lusardi 2008 Q2, also in van Rooij Q3; Fessler 2019]

Risk

Do you agree with the following statement: "Buying a single company stock usually provides a safer return than investing in a fund with shares of similar companies"?

1. I agree
2. I disagree
3. I don't know

Socio-economic variables

Gender

Are you...?

- 1 Male
- 2 Female
- 3 Other
- 4 I don't want to answer this question

Age

What is your age?

Education

What is the highest degree you have obtained?

- 1 primary school
- 2 vmbo
- 3 havo/vwo
- 4 mbo
- 5 hbo
- 6 wo

Civil status

What is your civil status?

1 Married/Living common-law

2 Widowed

3 Separated/Divorced

4 Single

Children

Do you have children?

1 No

2 Yes

Net personal income in Euros

What is your best estimate of your individual income in the last month, from all sources, after taxes and deductions?

€0 – €1,999

€2,000 – €2,999

€3,000 – €3,999

€4,000 – €4,999

€5,000 – €5,999

€6,000 – €7,999

€8,000 or higher

Prefer not to say

Risk preferences (SOEP)

How would you describe yourself: Are you generally willing to take risks, or do you try to avoid risks?

0 - Risk averse

...

10 - Fully prepared to take risks

Time preferences (SOEP)

How would you describe yourself: Are you generally an impatient person, or someone who always shows great patience?

0 - Very impatient

...

10 - Very patient

Social Preferences (SOEP)

How much are you willing to give to good causes without expecting anything in return?

0 - Very unwilling

...

10- Very willing

Evaluation

a. Did you find it difficult to answer the questions?

b. Did you find the questions clear?

[7-point Likert-scale: 1 = definitely not, 7 = definitely yes]

Do you have any comments for us (such as if you liked the survey)

The end

We thank you very much for your participation. You can now close this window.

Appendix B. Explanations of variables used in the regression analysis

Nr.	Variable Name	Description	Range	Notes
1	Sustainable Finance Literacy (SFL) Score	Number of correctly answered question out of the 9 SFL questions	0-9	
2	Sustainable Investment (SI) Engagement	Whether one indicates having any sustainable investment outside mandatory pension savings in reality	Yes=1, No, I do not know=0	
3	Pension SI Engagement	Whether one wants any sustainable investment in their pension in a hypothetical setting	Yes=1, No, no preference=0	
4	Pension ESG Income	How one thinks considering ESG would affect future pension income	1-7, 1=much lower income, 7=much higher income	
5	Pension ESG Risk	How one thinks considering ESG would affect future pension risk	1-7, 1=much lower risk, 7=much higher risk	
6	Gender	Whether one is female or male	Male=1, Female=0, Prefer not to answer, other=NA	
7	Age	One's age in years	As one indicates, minimum is 18	
8	Education Low	Whether one has a highest diploma from primary school, VMBO	Yes=1, No=0	
9	Education Medium	Whether one has a highest diploma from HAVO/VWO, MBO	Yes=1, No=0	
10	Education High	Whether one has a highest diploma from HBO or WO	Yes=1, No=0	
11	Partner	Whether one is married or living common law	Yes=1, No=0	
12	Children	Whether one has any children	Yes=1, No=0	

13	Income	Approximate net income of last month after deductions like tax	1000-8000 EUR, Prefer not to say=NA	Unit is per 1000 EUR in regression analysis
14	Risk Tolerance	Self-rating of how risk averse one person is	0-10, 0=risk averse, 10=fully prepared to take risks	
15	Patience	Self-rating of how patient one person is	0-10, 0=very impatient, 10=very patient	
16	Altruism	Self-rating of how much one person is willing to give to a good cause without expecting anything in return	0-10, 0=very unwilling, 10=very willing	
17	Subjective SFL	Self-rating of SFL level	1-7, 1=very poor, 7=very good	
18	ESG Seriousness	How much one agrees with the statement that ESG issues are serious and need to be solved	1-7, 1=completely disagree, 7=completely agree	
19	Hassle of Sustainable Investment	How much one agrees with that investing sustainably is complicated, time-consuming and energy-consuming	1-7, 1=completely disagree, 7=completely agree	
20	Non-financial Motivations of Sustainable Investing	Whether one has non-financial motivations to invest sustainably	Yes=1, No=0	
21	Self-rating of Sustainable Lifestyle	Self-rating of how sustainable one's daily lifestyle is	1-7, 1=not at all, 7=very much	
22	Financial Literacy Score	Number of correctly answered questions out of the 3 financial literacy questions	0-3	
23	Sustainable Investment Outside Pension	If one has any sustainable investment outside pension, the proportion of sustainable investment in the portfolio	0-0.875, 0=No, I do not know	