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Financial literacy and sustainable finance decisions among Italian households☆

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ABSTRACT

This paper empirically investigates whether financial literacy affects people's attitudes toward sustainability, considering the degree of knowledge on sustainable finance, sustainable development and Environmental, Social, and Governance (ESG) factors and whether this knowledge affects sustainable investment decisions. We investigate a sample of 5000 respondents from the 2022 survey led by the Italian Financial Education Committee. We find that financial literacy is positively related to the level of knowledge of sustainable finance topics and that understanding these topics has a positive effect on several sustainable investment variables. We aim to highlight the role of financial literacy in sustainability goals and enrich the existing literature on the relationship between financial literacy and sustainable finance, providing further empirical evidence about a relationship that is not yet sufficiently explored.

1. Introduction

Stakeholders have recently started to pay more attention to sustainability, not only for philanthropic vocation. Many challenges must be known and dealt with, from environmental degradation to health implications. The focus on sustainability is a concern that has affected the financial system in recent years. A pivotal role has been assigned to the financial sector, as established in the Action Plan to finance sustainable growth, launched in March 2018 by the European Commission to promote investments in sustainable projects and to increase integrating ESG (Environmental, Social, and Governance) criteria into risk management. The aim is to spread the ownership of sustainable financial products such as green, ESG, and sustainability-linked loans and bonds to the greatest extent possible (Driessen, 2021).

Financial decisions, in general, are affected by many factors, such as individual attitudes, risk perception, personal traits, and financial literacy (Gentile et al., 2015). It is essential to have the right financial knowledge and competencies to have more possibilities to make aware and correct financial decisions (Lusardi & Mitchell, 2014). Financial literacy describes the skills and knowledge necessary for financial decision-making. Financially literate people show higher financial autonomy and are more familiar with sophisticated financial choices (Borgers & Pownall, 2014). Therefore, financial literacy potentially plays an important role even in

sustainable finance decisions. In this paper, we investigate the Italian context of the relationship between financial literacy and sustainable financial decision-making, verifying first whether the individual level of financial literacy is positively associated with the level of knowledge of sustainable finance topics, such as sustainable finance, sustainable development, and ESG factors, and then whether this knowledge influences several sustainable investment variables, such as the ownership of sustainable investment products, the relevance given to sustainability profiles in investment choices, the personal interest in sustainable investments and the future intention to own sustainable investment products. The knowledge of sustainable finance, usually identified as "sustainable finance literacy," could, in fact, be a highly significant factor in the ownership of sustainable products (Filippini et al., 2024). The study is focused on an Italian sample comprising the respondents to the third survey (2022) on the level of financial literacy of Italian households conducted by the Italian Financial Education Committee. The aim is to answer two research questions: Does financial literacy affect individuals' perceived knowledge about sustainable finance? Does this knowledge have a positive impact on sustainable investment decisions?

These questions are also crucial in light of global challenges, such as the 2030 Agenda for Sustainable Development adopted by the United Nations General Assembly (2015), which sets out 17 Sustainable Development Goals (SDGs), and the 2021 National Recovery and Resilience Plans adopted by European countries after the Covid-19 pandemic. The concerns of the United Nations SDGs have become critical issues. These challenges require commitment and collective action from various actors (Arvidsson & Dumay, 2021). Financial literacy can play a crucial role in achieving the SDGs (Klapper et al., 2016), in particular in eliminating poverty (Goal 1), fostering education (Goal 4), and reducing gender inequality (Goal 5) (Kara et al., 2021), while sustainable investments aim to finance sustainable economic growth (Goal 8) and projects and interventions with the goals, for example, of developing clean energy technologies, using renewable resources (Goal 7) or contributing to mitigating the climate change (Goal 13).[1] The spread of sustainability-oriented financial decisions also represents a crucial issue in the National Recovery and Resilience Plans'[2]; goals, especially concerning Missions 1 and 4, aiming, respectively, at fostering the green transition of the economy and society, enhancing social cohesion, and reducing social disparities.

This work's contribution illustrates Italy's case in the relationship between financial literacy and sustainability among households, showing the positive association between financial literacy and sustainable finance decisions, and shedding light on the diffusion of these choices among Italian households. Some studies express this relationship at the country level (Meunier & Ohadi, 2022; Brent & Ward, 2018; Anderson & Robinson, 2022; Gutsche et al., 2021), usually based on survey responses (Brunen & Laubach, 2022). This type of work, using survey data from the Italian Financial Education Committee, is made possible thanks to the data collected in the survey, through specific questions that not only measure financial literacy, but also analyze knowledge of the main concepts of sustainable finance, ownership of sustainable investment products, the importance given to ESG factors, the personal interest and future intentions regarding these investments, allowing us to get measurements of sustainable finance literacy and sustainable finance decisions and to study the relationships of interest for our research.

We also aim to enrich the literature that relates these issues, which at the moment does not confirm with certainty the nature of this relationship and does not provide conclusive results, by presenting the Italian case and trying to understand something more about this relationship. As we will see in more detail, some studies show a positive relationship between financial literacy and sustainability (Carlsson Hauff, 2022; Gutsche et al., 2021 Anderson & Robinson, 2022), while others have found a negative relationship (D'Hondt et al., 2022; Riedl & Smeets, 2017).

Therefore, the main aim of the research is to fill the gaps mentioned above. The findings from our results could add importance to the role of financial literacy in the economy and society. They could be helpful for policymakers, suggesting an increase in awareness campaigns and promoting programs to improve the general level of financial literacy and increase the widespread ownership of sustainable financial products and the adoption of more sustainability-oriented financial decisions. The remainder of the paper proceeds as follows. Section 2 presents a review of the literature regarding these topics, Section 3 presents data and methods used, and Section 4 describes the results. Finally, Section 5 discusses main implications and Section 6 concludes.

2. Literature review

As mentioned in the introduction, this study deals with different types of literacy: financial literacy and literacy regarding sustainable finance topics, usually identified as sustainable finance literacy.

Financial literacy is defined as the "combination of financial awareness, knowledge, skills, attitudes and behaviors necessary to make sound financial decisions and ultimately achieve individual financial well-being" (OECD, 2020). As can be deduced from the definition, financial literacy not only considers the knowledge field, but also the behavioral, attitudinal, and decisional fields. Moreover, it has precise goals, which are individual and social financial well-being.

Financial literacy is usually measured with survey data through a set of questions to investigate the respondents' financial knowledge and skills and develop a score. The questions may be different depending on the survey experience. Still, some questions have been cross-validated to measure financial literacy, such as the Big 3 questions (Lusardi & Mitchell, 2008) on the topics of interest rate, inflation, and risk diversification. In the existing literature, financial literacy is often associated with positive financial outcomes, such as individual financial decision-making, access to finance, risk protection, job planning, savings for retirement, and also, but less frequently, with sustainable finance (Deuflhard et al., 2019; Gaudecker, 2015; Lusardi & Mitchell, 2007; Van Nguyen et al., 2022; Van

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[1] https://sdgs.un.org/goals
[2] https://commission.europa.eu/system/files/2021–01/document_travail_service_part1_v2_en.pdf

Rooij et al., 2011, 2012). In fact, papers dealing with this relationship are quite recent, adopt different perspectives, and do not provide conclusive results.

The concept of sustainable finance literacy was introduced by Filippini et al. (2024). Sustainable finance literacy encompasses financial and sustainable finance knowledge and skills. It is defined as the "knowledge and skill of identifying and assessing financial products according to their reported sustainability-related characteristics." Compared to financial literacy, this kind of literacy focuses on sustainable finance. It investigates whether an individual has adequate knowledge, skills, and awareness to make sustainability-oriented financial decisions.

After several consultations with industry and academic experts, Filippini et al. (2024) developed a measure of sustainable finance literacy. The measure comprises eight multiple-choice questions covering topics, such as ESG definition knowledge, assessment of sustainable investments, and ESG regulation. In their study, the authors analyze the relationship between this measure and the ownership of sustainable finance products in Switzerland, finding a positive and significant influence. They do not directly examine the relationship between financial literacy and sustainable finance literacy, as we do in our study. Still, they find that sustainable finance literacy is quite low on average compared with the Swiss context, where the average level of financial literacy is relatively high. Thus, the relationship between financial and sustainable finance literacy is not so evident.

Being recent, the literature on sustainable finance literacy is still quite limited. Other examples from the literature are provided by Strauß et al. (2023), who led a study with similar structure and goals, finding that higher sustainable finance literacy, measured with a slightly different score from the previous one, is related to a stronger likeliness among the Swiss population of investing in sustainable finance, and by Horn (2024), highlighting how financial literacy should be accompanied by sustainability or ESG literacy to develop higher awareness of sustainable investments.

Although recent, the literature exploring the relationship between financial literacy and sustainable finance has been particularly fertile in recent years. Several examples empirically examine the relationship between financial literacy and sustainable finance, aiming to discover whether financial literacy could be included among the various determinants of sustainable finance decisions, directly or affecting individual literacy on sustainable finance concepts. We ideally divide these contributions into two separate strands of the literature.

First, there are studies belonging to the environmental science and sustainability field, such as the one by Meunier and Ohadi (2022), based on UK and US individuals, showing that lower levels of financial literacy are often associated with wrong conceptions about socially responsible investments (SRI), such as the idea that they underperform traditional investments, or that they have higher management fees. Socially responsible investing is a form of investment characterized by embracing ESG issues, whose relevance has significantly increased over the last decade (Bauer & Smeets, 2015; Soler-Domínguez et al., 2020). Therefore, financial literacy becomes essential to promote more informed and positive views about these investments. According to Brent and Ward (2018), financial literacy is a statistically significant determinant of investing in Australia's energy efficiency. In the same vein, Twumasi et al. (2022) showed that financial literacy has positive effects on renewable energy adoption, while Ngo et al. (2022) and Lee-Ying et al. (2022) found evidence of the positive role that financial inclusion and education have in promoting sustainable economic growth.

The other strand, which contains most of the research investigating this relationship, is characterized by studies belonging to the economic and financial fields. Some of these studies show how financial literacy could positively affect the propensity for sustainable investments and how a higher level of financial literacy is associated with greater sensibility and awareness toward sustainability issues, especially among retail investors (Cucinelli & Soana, 2023; Borgers & Pownall, 2014), aiming to identify how investors' characteristics affect sustainable investments (Brunen & Laubach, 2022). Based on a large survey conducted among Swedish households, Anderson and Robinson (2022), found that green financial engagement is stronger where financial literacy is higher. This finding emerges from analyzing the relationship between a financial literacy measure that consists of the correct answers to the Big 5 financial literacy questions (about the interest rate, inflation, risk diversification, bond prices and mortgages) pioneered by Lusardi and Mitchell (2007), and beliefs regarding green investments and environmental values. Similar findings are reported in the studies by Gutsche et al. (2021) and Carlsson Hauff (2022), where it is found that financial literacy, measured with the Big 3 financial literacy questions (about interest rate, inflation, and risk diversification) proposed by Lusardi and Mitchell (2008), is positively related to individual awareness of sustainable investments in Japan and the willingness to invest in sustainable products in Sweden. Aristei and Gallo (2024) showed that individuals' preferences for sustainable finance significantly increase with financial knowledge in Italy.

However, as previously reported, papers dealing with this relationship do not provide conclusive results. Indeed, studies in the literature show the opposite findings. The relationship between financial decisions and social impact is an issue that has long been debated in the literature, generating conflicting evidence and opinions (Friedman, 1962; Freeman, 1984). Since the cognitive and cultural bases related to financial literacy might be different from those related to sustainability, it may happen that a higher level of financial literacy is not positively associated with a higher preference for sustainability. Furthermore, more financially literate investors may be more sensitive to, returns penalties, either real or perceived. We can mention the study by D'Hondt et al. (2022), or Riedl and Smeets (2017), which found a negative relationship between financial literacy and the exposure of the stock portfolio to sustainability factors. Likewise, Rossi et al. (2019) found that individuals who consider themselves financially literate are less interested in SRI.

A summary of the illustrated literature is reported in Appendix 1.

3. Sample and method

The data we used for the analysis was taken from the third survey on the level of financial literacy of Italian households, led by the Italian Financial Education Committee, (2022) [3]. Empirical studies dealing with financial literacy are often based on country-level surveys. The choice to analyze Italy comes first from the Italian Financial Education Committee dataset characteristics and the specific survey questions about these topics, allowing us to measure our variables from the answers to these questions. Our sample is large and representative. It is composed of 5000 respondents from Italy who are older than 18 years. The respondents are responsible for the management of household's financial resources. The sample's composition and dimension allow us to say that it is a national representative sample, and it grants an error margin of 1.9 % as the maximum, with a 95 % confidence level. The sample is very heterogeneous in terms of sociodemographic variables such as age, geographical origin, educational level, and income. Approximately 62 % of the sample are men, and 38 % are women. The respondents' geographical distribution is well balanced among the north, center, and south of Italy, as well as age (18–44, 45–64, 65+) and educational level (from PhD or post-grad master to elementary school). Moreover, the sample covers several income levels. The main descriptive statistics about sample composition are shown in Table 1.

Italy is a country where these kinds of issues assume a special relevance, given the critical situation in the population's financial literacy level (Klapper et al., 2015). Mentioning the Italian Financial Education Committee, 2022 survey report, the overall financial literacy of Italian households is still limited, considering that only 44.3 % of the respondents answered the Big 3 financial literacy questions correctly, and this data have been substantially the same in the last 3 years (Italian Financial Education Committee, 2022).

Given the goals of our study, we consider several sustainable finance variables developed with answers to survey questions about knowledge of sustainable finance topics, holding of sustainable investment products, and attitudes toward sustainable investments. The sustainable finance knowledge variable is Sustainable Finance Literacy, which is the degree of self-declared knowledge of three definitions of sustainable finance concepts—sustainable development, ESG factors, and sustainable finance—in line with the selected concepts used for the sustainable finance literacy score by Filippini et al. (2024). However, compared to the score proposed by Filippini et al. (2024), who measure sustainable finance literacy with objective questions, this variable is built from the answers to the questions where respondents were asked to assess their own level of knowledge of these topics. Thus, our variable measures subjective knowledge of sustainable finance topics, representing what individuals believe about sustainable finance concepts. Additionally, compared to this measure, despite our questions covering topics on sustainable finance, there are differences in content. The measure proposed by Filippini et al. (2024) includes eight questions they developed about knowledge of ESG, sustainable investments and sustainable finance regulation; in contrast, in this study we used the three questions available from the survey that investigate the knowledge of sustainable finance concepts.

Each response to these questions takes the value 1 if the respondent declares to have heard of it or to have basic or advanced knowledge of it; otherwise, it takes the value of 0. Considering this approach for the three questions on these topics, *Sustainable Finance Literacy* is a discrete variable that takes a value between 0 and 3. The sustainable investment variables are four. *Sustainable Investments (SI) Ownership* represents the ownership of sustainable investment products; a dummy variable which takes the value of 1 to confirm ownership, and otherwise, it is 0. *Sustainability Relevance* is the relevance assigned by the respondents to the sustainability profiles in their investments; it is a categorical variable that assumes a value from 1 to 5, where 1 is "no relevance" and 5 is "great relevance." Finally, *SI Interest* represents the personal interest of the respondents in sustainable investments, and *SI Future Intention*, is the future intention of the respondents to own sustainable investment products. For both these dummy variables, 1 confirms the interest and the future intention in ownership; otherwise, it is 0.

To analyze the relationship between financial literacy and sustainable finance, we measure observed financial literacy by the number of correct answers to the financial literacy questions in the survey. In the survey, the "financial literacy questions" section tests the respondents' financial literacy level, comprising 19 questions (see Table 6 and Appendix 2). This measure of financial literacy represents the percentage of correct answers to these 19 questions, and is a continuous variable with values between 0 and 1. This measure can be considered as complete enough because the questions cover different aspects of financial literacy: the Big 3 questions (Lusardi & Mitchell, 2008), which are used at the international level for testing the level of financial literacy on interest rate, inflation and risk diversification topics. The other questions cover other financial topics, such as compound interest, risk-return relationships, mortgages, insurance, and retirement planning. This set of questions includes knowledge and behavioral questions.

Finally, we consider as control variables the financial advisory received by the respondents for assessing their investment decisions and several individual sociodemographic factors, such as gender, age, education and income of the respondents. According to the literature, financial advisory is often associated with a higher propensity to invest (Gentile et al., 2015) and could have a significant influence on SI decisions (Barreda-Tarrazona et al., 2011; Diouf et al., 2016; Anderson & Robinson, 2022; Gaudecker, 2015). We take our measure of financial advisory (*Investment Advisory*) from a survey question that asks whether the respondents used financial advisory to assess investment choices from March 2020 to June 2022 (end of data collection). We consider this variable a dummy where 1 represents the affirmative answer; otherwise, it is 0. Regarding sociodemographic control variables, we consider three age groups (young 18–44, adult 45–64, elderly 65+), three educational levels (university, high school, lower education), and three

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[3] We were unable to use the 2023 or previous (2020, 2021) editions of the survey because some of the questions we use to measure our variables were not present in those editions. Further clarifications about these questions are specified in Table 6 description.

Table 1
Sample composition.

Panel A		Gender	
	Freq.	Percent.	Cum.
Men	3086	61.72	61.72
Women	1914	38.28	100.00
Total	5000	100.00	
Panel B		Age	
	Freq.	Percent.	Cum.
18–44	1809	36.18	36.18
45–64	2592	51.84	88.02
65+	599	11.98	100.00
Total	5000	100.00	
Panel C		Geographical area	
	Freq.	Percent.	Cum.
North west	952	27.68	27.68
North east	666	19.37	47.05
Centre	689	20.03	67.08
South and islands	1132	32.92	100.00
Total	5000	100.00	
Panel D		Education	
	Freq.	Percent.	Cum.
University	2161	43.22	43.22
High school	2315	46.30	89.52
Lower education	524	10.48	100.00
Total	5000	100.00	
Panel E		Income	
	Freq.	Percent.	Cum.
0 – 1264	1076	21.52	21.52
1265 – 2454	2267	45.34	66.86
More than 2455	1657	33.14	100.00
Total	5000	100.00	

This table shows statistics about the sample composition, and in particular about gender, age, geographical origin, education, and income of the respondents. The first column reports frequencies, the second column reports percentages, while the third column reports cumulative percentages.

monthly income levels: high (more than €2455), medium (€ 1265–€ 2454), and low (less than € 1265).[4] The number and survey questions used to define our variables are listed in Table 6 and reported in Appendix 2, 3, 4, and 5.

Regarding the methodology, we structured the analysis in two stages: first, we verified whether financial literacy affected households' level of sustainable finance literacy, and second, we determined whether the level of sustainable finance literacy affected the variables of SI decisions. We consider two different empirical Ordinary Least Squares (OLS) models, Model 1 and Model 2, expressed as follows:

$$Sustainable\ Finance\ Literacy_i = \quad \beta_0 + \quad \beta_1 Financial\ Literacy_i + \sum \delta_j + \varepsilon_i \tag{1}$$

$$Sustainable\ Investments_i = \quad \beta_0 + \quad \beta_1 Sustainable\ Finance\ Literacy_i + \beta_2 Investment\ Advisory_i + \sum \delta_j + \varepsilon_i \tag{2}$$

In the first part of the analysis, we employ Model 1 where *Sustainable Finance Literacy*$_i$, which is the level of self-declared knowledge of sustainable finance topics by individual *i*, represents the outcome variable, while our measure of observed *Financial Literacy*$_i$ related to individual *i is* the main interest variable. To address endogeneity concerns in this key relationship that potentially arise from a variety of factors such as omitted variables, measurement errors and reverse causality, we adopt an instrumental variable (IV) approach, using three different instruments for financial literacy that were selected considering similar instrumental variables typically used in financial literacy studies (Lusardi & Mitchell, 2014). These variables measured aspects related to the general financial experience in geographical areas or learning experiences that may have affected the individual level of financial literacy (Bucher-Koenen & Lusardi, 2011; Behrman et al., 2012; Cucinelli & Soana, 2023).

The first is the average geographical level of financial literacy considering four geographical areas of the country (northeast, northwest, center, south and islands) measured with the answers to the Big 3 questions in the previous survey edition (Italian Financial Education Committee, 2021) from the individuals who did not participate in the 2022 edition (1572 individuals). Big 3 financial literacy questions are typically used internationally to measure individual financial literacy (Lusardi & Mitchell, 2008). The second is the number of POS terminals and ATMs available per resident at the regional level (20 Italian regions considered), which are regarded as important territorial financial inclusion indicators that drive financial literacy (GPFI, 2014). Data on POS and ATMs are available

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[4] These clusters are the ones considered in the description of the survey results in the report released by the Italian Financial Education Committee.

from Bank of Italy. The third is represented by numeracy skills, a relevant requirement for financial literacy and financial decision-making (Lusardi, 2012). In particular, an indicator of inadequate numeracy at the regional level was selected from ISTAT (Italian Statistics Institute), given by the percentage of high school students with insufficient calculation skills. Following previous studies (Semadeni et al., 2014), we employ a 2SLS regression analysis.

In the second part of the analysis, the focus is on Model 2, where we consider *Sustainable Finance Literacy$_i$* and *Investment Advisory$_i$*, as the independent variables, and as the outcome variable *Sustainable Investments$_i$*, which is a proxy for our SI decisions variables. This indicates, first, the ownership of sustainable investment products (*SI Ownership*); second, the relevance of sustainability profiles in investment choices (*Sustainability Relevance*); third, the individual interest in sustainable investments (SI *Interest*); and, finally, the individual future intention to own sustainable investment products (*SI Future Intention*) by individual i.

Additionally, because respondents' features are heterogeneous, we further include sociodemographic control variables, as indicated by $\sum \delta_j$, controlling for gender, age, education, and income of the respondents in both models.

In the last two editions of the survey on the level of financial literacy among Italian households, from the Italian Financial Education Committee (2021), (2022), the relationship between financial literacy and sustainability topics has already been investigated. In particular, a positive correlation has been identified between interest and propensity toward sustainability and financial knowledge, measured by the number of correct answers to the Big 3 financial literacy questions. The general goal of the survey was to analyze the level of financial literacy of Italian people, not only to verify the connection between these topics. Hence, the focus on these aspects was not particularly in-depth. For this reason, we aim to make something different, focusing our analysis on collecting more significant and robust evidence about this relationship, considering several outcome variables to evaluate the individual propensity for sustainable finance decisions, and using a more complete and exhaustive measure of financial literacy, composed by 19 questions and including financial, insurance and retirement knowledge. Additionally, we use a multivariate regression model, including several control variables such as financial advisory and sociodemographic factors, and address potential endogeneity issues with an IV approach.

4. Results

The analysis starts with preliminary statistics about the answers to the sustainable finance questions in our sample. Regarding sustainable finance literacy, we see in Panels A, B, and C from Table 2 that the answers generally show limited knowledge about sustainable finance topics, especially ESG. The highest percentages of the respondents answered the sustainable development and sustainable finance questions with "Just heard about it" and "Basic knowledge," while for ESG, most of the respondents had never heard of it (45.72 %).

For the SI questions, we see in Panels D, E, F, and G of Table 2 that Italian people are still unfamiliar with this kind of decision. Only 4.08 % of the respondents own SI products, while most (40.98 %, answer 3) give only a medium degree of relevance to sustainability profiles in investment decisions. Finally, we see that only 17.94 % of the respondents declare they are interested in SI, and only 14.04 % express the intention to own SI products in the future.

The main results from our models are reported in Tables 7–9. Table 7 reports the results of the estimations of Model 1, where we analyze the relationship between *Financial Literacy$_i$* and *Sustainable Finance Literacy$_i$*. In line with the evidence reported by Anderson and Robinson (2022) and Gutsche et al. (2021), we find that *Financial Literacy$_i$* is positively associated with the degree of literacy about sustainable finance topics (Table 7). Our results are robust and statistically significant, as indicated by the p-values. In column 1, we initially consider *Financial Literacy$_i$* as our main independent variable and we find a positive and statistically significant relationship at the 1 % level between the level of financial literacy and *Sustainable Finance Literacy$_i$*. To ascertain that other individual characteristics do not drive the effect we report in the model, in column 2 we include gender, age group, education, and income as sociodemographic control variables. The results remain substantially the same, with the only consideration of improving the R-squared from 7.19 % to 9.43 %. In terms of coefficient magnitude, we find in column 2 that a unit increase in financial literacy corresponds to an average increase of 0.94 in the degree of knowledge about sustainable finance topics. Regarding sociodemographic control variables, we find typical differences in financial literacy studies. In fact, we find that the level of sustainable finance literacy is higher among male, highly educated (university) respondents and with high income (more than € 2455). Moreover, the level of sustainable finance literacy is higher for young respondents (18–44), which is not typical for financial literacy studies. While basic financial knowledge tends to increase with age and tends to be lower among young people, the interest and awareness toward sustainable finance seem to be particularly widespread among young people compared to adults (CONSOB, 2024), indicating the particular sensitivity of young people on these issues.

In Table 8, we show the results of our 2SLS regressions analysis adopted to control for potential endogeneity problems with our three different instrumental variables: the level of financial literacy in the geographical area of the individual, measured by the Big 3 questions for 2021 respondents who did not participate in the 2022 edition of the survey, the number of POS and ATMs per resident at the regional level, and the inadequate numeracy among high school students at the regional level. These 2SLS regressions confirm the previous OLS results, and the F-statistic indicators show that the chosen instrumental variables cannot be considered weak instruments. Panel A reports the coefficients of the 2SLS regression using the Big 3 questions as instrumental variables. In the first stage of the 2SLS model, we regress *Financial Literacy$_i$* on the IV (Instrumental Variable)—geographical level of financial literacy in 2021. The corresponding first-stage results show a significant positive coefficient for this instrumental variable (F-test = 29.16). In the second stage, we use the first stage fitted values for financial literacy and again estimate the model considering *Sustainable Finance Literacy$_i$* as outcome variable. As indicated in column 2, the coefficient on the fitted value of financial literacy remains positive and statistically significant at the 1 % confidence level, with a larger magnitude as often occurs in IV estimations (Lusardi & Mitchell, 2014). In Panel B,

Table 2
Sustainable Finance Literacy and Sustainable Investments questions.

Panel A			
Sustainable development	Freq.	Percent.	Cum.
1 Never heard about it	439	8.78	8.78
2 Just heard about it	2044	40.88	49.66
3 Basic knowledge	1913	38.26	87.92
4 Advanced knowledge	604	12.08	100.00
Total	5000	100.00	
Panel B			
Sustainable finance	Freq.	Percent.	Cum.
1 Never heard about it	1319	22.78	22.78
2 Just heard about it	2074	41.48	64.26
3 Basic knowledge	1461	29.22	93.48
4 Advanced knowledge	326	6.52	100.00
Total	5000	100.00	
Panel C			
ESG factors	Freq.	Percent.	Cum.
1 Never heard about it	2286	45.72	45.72
2 Just heard about it	1508	30.16	75.88
3 Basic knowledge	938	18.76	94.64
4 Advanced knowledge	268	5.36	100.00
Total	5000	100.00	
Panel D			
SI ownership	Freq.	Percent.	Cum.
0 No	4796	95.92	95.92
1 Yes	204	4.08	100.00
Total	5000	100.00	
Panel E			
Sustainability Relevance	Freq.	Percent.	Cum.
1 No relevance	346	6.92	6.92
2	526	10.52	17.44
3	2049	40.98	58.42
4	1338	26.76	85.18
5 Great relevance	741	14.82	100.00
Total	5000	100.00	
Panel F			
SI Interest	Freq.	Percent.	Cum.
0 No	4193	82.06	82.06
1 Yes	897	17.94	100.00
Total	5000	100.00	
Panel G			
SI Future Intention	Freq.	Percent.	Cum.
0 No	4298	85.96	85.96
1 Yes	702	14.04	100.00
Total	5000	100.00	

This table represents how the answers from our sample to the sustainable finance literacy and sustainable investments questions are distributed for our dependent variables used considering the overall sample. The first column reports frequencies, the second column reports percentages, while the third column reports cumulative percentages.

Table 3
Financial Literacy.

Financial Literacy	N	Mean	SD	Min	p25	Median	p75	Max
Total sample	5000	0.65	0.23	0.00	0.53	0.68	0.84	1.00

This table shows summary statistics about our measure of financial literacy among the overall sample.

Table 4
Sustainable Finance Literacy.

Sustainable Finance Literacy	N	Mean	SD	Min	p25	Median	p75	Max
Total sample	5000	2.23	0.93	0.00	2.00	3.00	3.00	3.00

This table shows summary statistics about our measure of sustainable finance literacy among the overall sample.

Table 5

Investment advisory.

Investment Advisory	Freq.	Percent.	Cum.
0 No	3963	79.26	79.26
1 Yes	1037	20.74	100.00
Total	5000	100.00	

This table shows the answers given by the respondents on our measure of financial advisory for investment decisions among the overall sample.

Table 6

Variables description.

Variable	Description	Survey questions
Sustainable Finance Literacy	Degree of knowledge of Sustainable development, Sustainable finance and ESG factors. Discrete variable with values between 0 and 3.	59_1; 59_2; 59_3
SI Ownership	Ownership of sustainable investment products (i.e. green bonds). Dummy variable, where 1 is "Yes" and 0 is "No".	24b_5
Sustainability Relevance	Relevance given to sustainability profiles in the investment choices. Categorical variable which assumes value from 1 to 5, where 1 is "no relevance" and 5 is "great relevance".	60new_1
SI Interest	Respondents' personal interest towards sustainable investments products. Dummy variable, where 1 is "Yes" and 0 is "No".	52new_7
SI Future Intention	Respondents' future intention to own sustainable investments products. Dummy variable, where 1 is "Yes" and 0 is "No".	24c_5
Financial Literacy	Percentage of correct answers to the financial literacy questions contained in the survey. Continuous variable with value between 0 and 1.	34; 35; 36; 37; 38; 38bis; 39; 40; 41_1; 41_2; 41_3; 41_4; 42new; 43new;43bisnew; 43; 45; 42; 45new
Investment Advisory	Financial advisory received by the respondents to assess their investment decisions. Dummy variable, where 1 is "Yes" and 0 is "No".	57_2
Women	Respondent's gender, male or female	Gender
Age group	Respondents are divided in 3 age groups: 18–44, 45–64, 65+	Age
Education	Educational level: university, high school or lower	Education
Income	High income (+ € 2455), medium income (€ 1265 - € 2454), low income (- € 1265)	8

This table contains the description of the characteristics of the variables that we use in our analysis with related identification number of the survey questions.

We were unable to use the 2023 or previous (2020, 2021) editions of the survey because some of the questions we use to measure our variables were not present in those editions. In particular, in 2020 sustainability issues were not investigated, in 2021 and 2023 questions number 60new_1 (Sustainability relevance) and 52new_7 (SI interest) were missing. For these reasons, we decided to focus only on 2022 edition.

we report the results of the 2SLS regression using the number of POS and ATMs per resident as an instrumental variable. The first-stage results also show a positive and highly significant coefficient (F-test = 29.08). In the second stage, we again estimate the model using the first-stage fitted values for financial literacy, and we obtain a favourable and 5 % significant coefficient. Finally, Panel C reports the results of the 2SLS regression using the inadequate numeracy indicator as an instrumental variable. Even in this case, the results are quite positive. The first stage results show a negative and significant relationship between inadequate numeracy and financial literacy (F-test = 18.17), which is logical for our thesis given that financial literacy is usually positively related with numeracy skills. In the second stage, using the fitted values for financial literacy, we again obtain a positive and significant (10 %) coefficient.[5]

However, even though using instrumental variables seems to confirm the results of the previous regression analyzing the relationship between financial literacy and sustainable finance literacy, we cannot rule out the possibility that omitted variables may still bias our results (Lusardi & Mitchell, 2014; Delavande et al., 2008; Korniotis & Kumar, 2011).

Table 9 reports the results of the estimations of Model 2, where we analyze the relationship between *Sustainable Finance Literacy$_i$* and our SI outcome variables including *Investment Advisory$_i$* as a control variable. We obtain similar findings for all four outcome variables, consistent with Filippini et al. (2024). Even with different magnitudes, we find positive and statistically significant relationships at the 1 % level between the level of sustainable finance literacy and the ownership of SI products, the relevance assigned to sustainability profiles in investment decisions, the personal interest in SI, and the future intention to own SI products. Additionally, in line with Diouf et al. (2016) and Anderson and Robinson (2022), financial advisory for investment decisions positively relates to all our SI outcome variables. Regarding sociodemographic control variables, we find different results depending on the dependent variable. No relevant sociodemographic differences are reported regarding the ownership of sustainable finance products. Instead, we find that

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[5] We thank the anonymous referees for suggesting us to run additional robustness checks. As a further robustness test, focused on the potential problem of reverse causality, we re-estimated Model 1 considering as independent variable the lagged value of financial literacy, measured with the financial literacy questions available in the 2021 edition of the survey (34, 35, 36, 37, 38, 39, 40, 41_1, 41_2, 41_3, 41_4, 42, 43, 45). Results are confirmed, and tables and coefficients are available upon request.

Table 7
Financial Literacy and Sustainable Finance Literacy.

Variables	(1) Sustainable Finance Literacy	(2) Sustainable Finance Literacy
Financial Literacy	1.0937***	0.9446***
	(0.0645)	(0.0697)
Female		−0.1503***
		(0.0272)
45–64		−0.1059***
		(0.2882)
65+		−0.0443
		(0.0411)
University		0.2168***
		(0.0478)
High school		0.0603
		(0.0473)
High income (+€2455)		0.1369***
		(0.0365)
Medium income (€ 1265 - € 2454)		0.0260
		(0.0345)
Constant	1.5181***	1.5548***
	(0.0476)	(0.0650)
Observations	5000	5000
R-squared	0.0719	0.0943

This table presents the regression results of the relationship between the level of financial literacy and sustainable literacy. Data are available from Italian Edufin 2022 survey. Robust standard errors in parentheses. *, **, *** indicate statistical significance at the 10 %, 5 % and 1 % levels, respectively.

Table 8
Instrumental variables.

Panel A	(1) First stage Financial Literacy	(2) Second stage Sustainable Finance Literacy
IV – Geographical financial literacy 2021	0.3295***	
	(0.0610)	
Financial Literacy		2.1275***
		(0.8099)
Constant	0.2491***	1.0038***
	(0.0421)	(0.3825)
F-statistic 1st stage	29.16	
Panel B		
IV – (ATM+POS)/regional resident	2.2664***	
	(0.4203)	
Financial Literacy		1.6049**
		(0.7873)
Constant	0.3500***	1.2472***
	(0.0249)	(0.3720)
F-statistic 1st stage	29.08	
Panel C		
IV – No adequacy in numeracy	−0.0009***	
	(0.0002)	
Financial Literacy		1.8722*
		(1.0078)
Constant	0.5134***	1.1227**
	(0.0170)	(0.4728)
F-statistic 1st stage	18.17	
Observations	5000	5000
Sociodemographic controls	Yes	Yes

This table presents the results of 2SLS regressions. The instrument variables used are geographical level of financial literacy measured with the Big 3 questions for the 2021 respondents who did not participate in the 2022 edition of the survey, the number of POS and ATMs per resident at regional level, and the non-adequate numeracy among high school students at regional level. Coefficients of control variables are available upon request. Robust standard errors in parentheses. *, **, *** indicate statistical significance at the 10 %, 5 % and 1 % levels, respectively.

Table 9

Sustainable Finance Literacy and Sustainable Investment Variables.

Variables	(1) SI Ownership	(2) Sustainability Relevance	(3) SI Interest	(4) SI Future Intention
Sustainable Finance Literacy	0.0151***	0.2522***	0.0415***	0.0421***
	(0.0024)	(0.0175)	(0.0054)	(0.0045)
Investment Advisory	0.0924***	0.1534***	0.0390***	0.0962***
	(0.0101)	(0.0354)	(0.0146)	(0.0144)
Female	0.0073	0.1266***	−0.0057	−0.0099
	(0.0058)	(0.0310)	(0.0112)	(0.0099)
45–64	−0.0072	0.0494	−0.0043	0.0154
	(0.0059)	(0.0324)	(0.0119)	(0.0104)
65+	−0.0124	0.1292***	−0.0155	0.0470***
	(0.0087)	(0.0502)	(0.0182)	(0.0174)
University	0.0072	−0.0608	0.0228	0.0519***
	(0.0084)	(0.0537)	(0.0179)	(0.0147)
High school	0.0027	−0.0653	0.0262	0.0305**
	(0.0075)	(0.0525)	(0.0170)	(0.0137)
High income (+€2455)	0.0085	−0.0524	0.0389***	0.0638***
	(0.0075)	(0.0408)	(0.0148)	(0.0130)
Medium income (€ 1265 - € 2454)	−0.0029	−0.0352	0.0118	0.0196*
	(0.0063)	(0.0381)	(0.0130)	(0.0108)
Constant	−0.0156*	2.7254***	0.0454**	−0.0490***
	(0.0093)	(0.0692)	(0.0220)	(0.0177)
Observations	5000	5000	5000	5000
R-squared	0.0486	0.0551	0.0178	0.0482

This table presents the regression results of the relationship between the level of sustainable literacy and our sustainable investment outcome variables, with investment advisory and sociodemographic variables as controls included. Data are available from Italian Edufin 2022 survey. Robust standard errors in parentheses. *, **, *** indicate statistical significance at the 10 %, 5 % and 1 % levels, respectively.

the relevance given to sustainability profiles in investment choices is higher among women and respondents aged over 65. Finally, we find that the personal interest in SI is stronger for high-income respondents, whereas the future intention to own SI products is higher among respondents with high education, high income, and age over 65.

As a robustness test for this second model, to control for the potential reverse causality, we estimated the same regressions considering as independent variables the lagged values of sustainable financial literacy, measured with the answers to the same questions available in the previous edition of the survey (2021), only considering the panel component of the sample (3339 observations). The results are substantially confirmed.[6]

5. Discussion

To answer the research questions initially posed, our results show that financial literacy has a positive association with households' sustainable finance decisions in Italy, as it is positively related to Italian's perceived knowledge of sustainable finance topics, which significantly influences SI decisions. Financial literacy is, in fact, positively and significantly related to knowledge of sustainable development, sustainable finance and ESG. Then, the level of understanding of these topics has a direct association with SI decisions, in particular with the ownership of SI products, the relevance given to sustainability profiles in investment choices, the personal interest in SI, and the future intention to own SI products, thus promoting the individual propensity toward these decisions. The results also suggest that the importance of financial advisory can be considered in guiding these investment decisions.

Thus, the individual level of financial literacy seems to be a valuable tool for developing awareness about sustainability issues, their different meanings and for pursuing sustainability goals through financial decisions.

Indeed, financial literacy helps people to consider different financial products and investment solutions available, and thus, first of all, they can be more informed about sustainable finance products. Moreover, knowing about these products and the underpinning concepts enhances the chances of making such investment decisions. Additionally, people with higher levels of financial literacy are more likely to be more active in, or at least have a greater interest in, financial products and markets and, therefore, are more exposed to information on sustainable finance investment products.

Furthermore, despite the fact financial literacy and sustainable finance literacy may have different cognitive and cultural bases, these two concepts likely have some attitudes in common, such as an adequate degree of individual responsibility and awareness, which are relevant in financial resource management and are essential in sustainable behaviors and decisions.

We assume that a financially literate individual, familiar with sustainable finance, who gives high importance to sustainability profiles in investment choices, interested in SI, and with the intention of owning SI products is more likely to make SI decisions than individuals who do not have these characteristics. Thus, a higher individual propensity toward sustainable financial decisions could allow a greater diffusion of sustainable behaviors in terms of purchasing sustainable finance products among the population. The

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[6] Tables and coefficients of these robustness tests are available upon request.

results of this paper highlight the positive link between financial literacy and these financial decisions and show how financial advisory can contribute. The paper sheds light on the prominent role that financial literacy and financial advisory can play in increasing the demand for these products, contributing to the sustainable transition of the economy and the society and achieving the related Agenda 2030 SDGs and the National Recovery and Resilience Plans goals already mentioned in the introduction.

The results also provide helpful insights into education and training. The research beneficiaries may be households themselves. Shedding light on matters such as the adoption of sustainable finance decisions and the level of financial literacy could help identify their needs about these matters, to accurately define training programs and related assessment tools to provide the necessary skills and knowledge to make informed financial decisions generally and more specifically about sustainable finance. These findings suggest to regulators and policymakers the need to increase the average financial literacy level of the population and even increase the general awareness and understanding of sustainable finance.

Finally, these results may be helpful for banks, fintech companies, financial consultants and the field of financial services providers, for better-informed behaviors and attitudes of individuals regarding their financial decisions, for developing a more tailored offer to their customers that is close to their needs and characteristics and for showing them the importance of their role in orientating these investment decisions.

However, the relationship between financial literacy and sustainability needs further investigation, since there are some contradictions between different research results. Our study confirms this positive association between financial literacy and sustainability, as various other studies have done. Still, other studies, as already shown in the literature review, show a negative relationship has emerged. Financial literacy has the potential to improve the general propensity toward sustainable behaviors. However, there still may be some difficulties on the practical side, given that financial literacy does not always directly result in ownership of sustainable finance products. It could also happen that people who are financially literate and are interested in these financial products do not invest in sustainable finance, thus generating a gap between perceived interest and actual holding of these products. Additionally, this paper shows that financial literacy has a positive relationship with sustainable finance literacy and that the latter is associated with current and future preferences regarding SI. At the same time, we cannot verify whether, for the same level of knowledge of sustainable finance, having higher or lower financial literacy leads to different SI decisions. Moreover, while we adopt an objective measure of financial literacy, testing the levels of respondents through several financial literacy questions, we adopt subjective measures for sustainable finance literacy and SI variables, using questions where respondents self-assess their knowledge of sustainable finance topics and declare their ownership, relevance, interest and future intention to own sustainable finance products.

Studies about financial literacy often deal with objective and subjective literacy (Lusardi & Mitchell, 2014). Several surveys include questions about individuals' self-assessed knowledge. Some studies report positive relationships between objective and subjective financial literacy (Gignac, 2005; Allgood & Walstad, 2013); however, there may be a mismatch between people's self-assessed and actual knowledge. According to the Dunning-Kruger hypothesis (Kruger & Dunning, 1999), people with relatively low competence in a particular area may be unaware of their lack of competence and, therefore, significantly overestimate their actual competence. For this reason, it may also be essential to include variables that objectively measure households' knowledge and commitment to sustainable finance. On the one hand, objective measures of literacy based on tests are preferred to subjective measures based on respondents' opinions to avoid overestimating literacy levels (Schaffner, 2005).

On the other hand, the debate on measuring literacy, whether in financial or sustainable finance, is broad and characterized by different perspectives (Romagnoli & Trifilidis, 2013; Montanaro & Romagnoli, 2016; Kaiser et al., 2020). Even objective measures have some limitations, such as the limited number of questions or the few alternatives in the answers, which could lead respondents to try to guess at random. It is also possible that individuals who answer the same number of questions correctly have different levels of knowledge, because they may have answered questions with distinct degrees of difficulty. An individual's ability can only be measured by partial indicators. Objective measures have the advantage of simplicity and clarity, but they also have some limitations (D'Alessio et al., 2020). In contrast, subjective measures may have advantages based on questions that ask people to indicate their self-assessed knowledge and expertise. Subjective data may best capture the psychological factors that influence an individual's decision-making process and may, therefore be particularly useful in representing individual behavior and attitudes (Bellofatto et al., 2018). Additionally, the respondent has no reason to respond randomly to subjective questions.

Thus, further research is needed to better understand if financial literacy could be considered among the determinants of sustainable finance decisions, such as conducting similar analyses in other contexts, considering other target groups rather than households, or focusing on specific sustainable finance products, unavailable information from this survey, or including other variables that may affect the sensibility toward sustainability issues and individual SI decisions, such as territorial indicators, social and cultural factors, the spread of proenvironmental and socially responsible behaviors, or investors' psychological and behavioral traits (Escrig-Olmedo et al., 2013; Lucarelli et al., 2020; Gentile et al., 2015).

6. Conclusions

The role of financial literacy has implications for various economic and social issues. This study analyzed the role of financial literacy in increasing individual propensity toward sustainable finance among Italian households, since it is positively and significantly related to knowledge of sustainability topics, which has a positive and significant association with sustainable finance decisions. Thus, financial literacy can potentially have tangible effects on enhancing sustainability. Our results align with other research results; however, at the same time, we recognize there are different views in the existing literature about the relationship between financial literacy and sustainability. An interest in or knowledge of sustainability does not translate directly into a concrete financial investment decision. Even in cases of a positive and significant relationship between financial literacy and sustainable finance, this relationship

still must be defined at a general level, given the different results reported in the literature in various contexts. This paper aims to provide one more piece of information about this definition process in Italy. Further research will be needed to study the determinants of sustainable finance decisions in different contexts and to understand the variables that may affect this relationship.

CRediT authorship contribution statement

Daniele Previati: Validation, Supervision, Project administration, Investigation, Conceptualization. **Edoardo Lanciano:** Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Ornella Ricci:** Writing – review & editing, Supervision, Investigation. **Gianluca Santilli:** Methodology, Investigation, Formal analysis, Data curation.

Appendix 1. Literature on financial literacy and sustainability

Year	Authors	Title	Journal	Findings
2014	Borgers, A. C., & Pownall, R. A.	Attitudes towards socially and environmentally responsible investment	*Journal of Behavioral and Experimental Finance*	Low financially sophisticated households have difficulties making financial decisions while simultaneously taking their non-financial preferences into account
2017	Riedl, A., Smeets, P.	Why do investors hold socially responsible mutual funds?	*The Journal of Finance*	Financially literate people own less sustainable financial products
2018	Brent, D., Ward, M.	Energy efficiency and financial literacy	*Journal of Environmental Economics and Management*	Financial literacy is a statistically significant determinant of investments in energy efficiency
2019	Rossi, M., Sansone, D., Van Soest, A., Torricelli, C.	Household preferences for socially responsible investments	*Journal of Banking and Finance*	Individuals who consider themselves financially literate are less interested in socially responsible investments
2021	Anderson, A., & Robinson, D. T.	Financial Literacy in the Age of Green Investment.	*Review of Finance*	Green financial engagement is stronger where financial literacy is higher
2021	Gutsche, G., Nakai, M., & Arimura, T. H.	Revisiting the determinants of individual sustainable investment—The case of Japan	*Journal of Behavioral and Experimental Finance*	Financial literacy is positively related to the individuals' awareness about sustainable investments
2022	Twumasi, M.A., et al.	Residential renewable energy adoption. Does financial literacy matter?	*Journal of Cleaner Production*	Financial literacy has positive effects on renewable energy adoption
2022	Carlsson Hauff, J.	The impact of knowledge on labeling schemes promoting sustainable investing.	*Business Strategy and the Environment*	Financial literacy, is positively related to the willingness to invest in sustainable products
2022	D'Hondt, C., Merli, M., & Roger, T.	What drives retail portfolio exposure to ESG factors?	*Finance Research Letters*	Negative relationship between financial literacy and the exposure of the stock portfolio to sustainability factors
2022	Lee-Ying, T., Hen-Toong, T., Gek-Siang. T.	Digital financial inclusion: A gateway to sustainable development	*Heliyon*	Financial education has a positive role for a green economy
2022	Meunier, L., & Ohadi, S.	Misconceptions about socially responsible investments.	*Journal of Cleaner Production*	Lower levels of financial literacy are often associated with wrong conceptions about socially responsible investments
2022	Ngo, T. et al..	Examining the bidirectional nexus between financial development and green growth: international evidence through the roles of human capital and education expenditure	*Resources policy*	Financial inclusion has a positive role in promoting a sustainable economic growth
2023	Cucinelli, D., Soana, M.	Investor preferences, financial literacy and intermediary choice towards sustainability	*Research in International Business and Finance*	Investors with high financial literacy prefer socially responsible financial intermediaries
2023	Strauß N., et al.	It's the news, stupid! The relationship between news attention, literacy, trust, greenwashing perceptions, and sustainable finance investment in Switzerland	*Journal of Sustainable Finance & Investment*	Higher sustainable finance literacy is related to a stronger likeliness to invest in sustainable finance among the Swiss population
2024	Filippini, M. et al.	Sustainable finance literacy and the determinants of sustainable investing	*Journal of Banking and Finance*	Knowledge about sustainable finance is a significant factor in the reported ownership of sustainable products

Appendix 2. Financial Literacy questions

Topic	Question number	Question	Answers

(*continued*)

Topic	Question number	Question	Answers
Interest rate	34	Suppose to have €100 on your banking account, with a 2 % annual interest rate. How much will you have in your account in 5 years?	More than €102
Inflation	35	Suppose to have €100 on your banking account, with a 1 % annual interest rate. Suppose also that the inflation rate is 2 %. 1 year later, how much can you by with your amount?	Less than today
Risk diversification	36	Investing €1000 in one company stocks is less risky than investing the same amount in 10 companies' stocks	False
Mortgages	37	A 15-year mortgage usually requires the payment of higher instalments than a 30-year mortgage, but the total interest paid during the total duration of the mortgage is lower.	True
Compound interest	38	Suppose you deposit money in your bank account for 2 years at the hypothetical rate of 5 % per annum with no management fees. The bank:	Will pay you more money the second year than the first
Longevity risk	38bis	If life expectancy increases, the monthly pension amount decreases	True
Insurance	39	An insurance contract which stipulates that when a damage occurs, a part of the damage is to be paid by the insured is more or less expensive than a contract that reimburses the entire damage?	Less expensive
Risk-return relationship	40	Investments with higher revenues tend to be riskier than investments with lower revenues	True
Financial behaviour	41_1	Before purchasing financial instruments and services, I spend attention and time evaluating them	Yes
Financial behaviour	41_2	Before purchasing financial instruments and services, I compare it with other financial instruments/services	Yes
Financial behaviour	41_3	Before purchasing financial instruments and services, I inform myself by consulting a professional	Yes
Financial behaviour	41_4	Before purchasing financial instruments and services, I don't sign it if I don't understand it	Yes
Public pension system	42new	Do you know how the public pension system works in our country?	Yes, very well / sufficiently
Public pension system	43new	Do you know how the pension of a young person newly employed in a company will be calculated?	Yes, under the contributory system
Public pension system	43bisnew	Contributions paid to INPS are revalued on the basis of	To the growth of the Italian economy
Retirement planning	43	In your opinion, in order to obtain a large capital to supplement your pension, you need to:	Start saving as soon as possible, even small amounts
Insurance overdraft	45	What is an uncovered sum in an insurance contract?	The portion of the damage that remains to be paid by the insured
Supplementary pension	42	Are you familiar with supplementary pension instruments (pension fund, individual pension plan)?	Yes, I heard about them/ I know how they work
Supplementary pension	45new	Supplementary pension is:	A system of pensions that collect private savings and provide a pension supplementary to the compulsory one

Appendix 3. Sustainable Finance Literacy questions

Topic	Question number	Question	Answers
Sustainable development	59_1	Indicate your degree of knowledge about this topic	Just heard about it/ Basic knowledge/ Advanced knowledge
Sustainable finance	59_2	Indicate your degree of knowledge about this topic	Just heard about it/ Basic knowledge/ Advanced knowledge
ESG factors	59_3	Indicate your degree of knowledge about this topic	Just heard about it/ Basic knowledge/ Advanced knowledge

Appendix 4. Sustainable Investments questions

Variable	Question number	Question	Answers
SI Ownership	24b_5	Which one of these financial instruments do you own right now?	Sustainable investment products (i.e. green bonds)
SI Future Intention	24c_5	Which one of these financial instruments would you consider owning in the future?	Sustainable investment products (i.e. green bonds)

(*continued*)

Variable	Question number	Question	Answers
SI Interest	52new_7	Among these topics, which 3 do you find most interesting?	Sustainable investment products (i.e. green bonds)
Sustainability Relevance	60new_1	When you choose a financial product or service, how much relevance do you give to the profiles of environmental sustainability and responsible behaviour of the company?	From 1 (no relevance) to 5 (great relevance)

Appendix 5. Financial advisory question

Variable	Question number	Question	Answers
Investment Advisory	57_2	Since the beginning of the pandemic (March 2020), have you and/or your partner approached a financial advisor, bank or other intermediary?	Yes, to assess investments

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