Impact of Green Financial Literacy on Sustainable Investment Intentions among Young Adults

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Abstract

Green finance has emerged as a key element to support the shift towards a low-carbon economy, however, it is important to educate consumers about the concept of green investment products and encourage them to purchase them. This study aims to investigate the extent of awareness, willingness to invest, and environmental preference of 95 survey participants and to determine the differences in these scores based on the demographic and experience characteristics of the respondents. A structure questionnaire of 20 five-point Likert items (1–20) and four profile questions was administered and the items form three reliable scales of Awareness (11 items, $\alpha = .88$), Investment Intention (6 items, $\alpha = .86$) and Environmental Preference (3 items, $\alpha = .80$). The statistical processing of data was performed in MS Excel with the application of the chi-square test of independence, one way ANOVA and ordinary least squares regression. These results indicated moderate awareness level ($M = 3.28$, $SD = 0.67$) and moderately favourable intention ($M = 3.58$, $SD = 0.73$). Prior investment experience and age group were not significantly associated with awareness or intention levels using chi-square tests (both $p > .12$), and one-way ANOVAs revealed no significant difference in awareness or intention across the age group, education or current status (all $p \geq .056$). In contrast, the full model of regression found that awareness was a strong predictor of intention ($b = 0.74$, $\beta = .67$, $p < .001$, $R^2 = .45$); a fuller model, with the inclusion of environmental preference and prior investment experience, explained 65% of the variance in intention ($b = 0.74$, $\beta = .67$, $p < .001$, $R^2 = .65$). The results indicate that knowledge and values are more important than the identity of the investor and that financial education and the provision of information about the products are the more direct drivers to increase participation in green investment.

Main keywords: green investment, financial awareness, intention to invest, environmental preference, Chi square, ANOVA, regression.

1. Introduction

1.1 Background

Sustainability is no longer a fringe topic for public policy; it is a central topic in financial decision making today as a result of climate change and environmental degradation. In order to achieve the objectives of the Paris Agreement, significantly more funds are needed to be mobilized in the private sector for renewable energy, energy efficiency and other low-carbon projects (UNFCCC, 2015). There has been a variety of these instruments in response from the financial markets, such as green bonds, sustainable funds and ESG-labelled funds, as well as investments in renewable projects. There is evidence indicating that corporate green bonds can be linked to tangible environmental benefits and positive investor responses (Tang & Zhang, 2020; Flammer, 2021).

But it's not all about the supply of green products. Retailers and young investors are increasingly driving the flow of savings and will be responsible for a large portion of household savings in coming decades. It may be that they spend some of that money on green products, or it may not because they don't know what green products are, don't understand their risk and return, or simply don't care enough to do anything about them. There is evidence that suggests that financial

literacy is a key factor in people's participation in financial markets and the quality of financial decisions (Lusardi & Mitchell, 2014), and it is logical to assume this would apply to green products.

1.2 Problem statement

While green investment products are now well promoted, it is not known if there is a general understanding about green investment products among potential investors and whether awareness of these products leads to their intent to invest. It is not known if awareness and intention are specific to specific groups (age, education or occupation) or specific to prior investing experience, requiring targeted rather than general outreach efforts.

1.3 Objectives

To assess the Green investment awareness, Investment intention and Environmental preference of the respondents.

To determine if there is a relationship between awareness and intention levels and prior investment experience and age group (chi-square).

To determine if there are mean differences among age groups, education level and current status (ANOVA).

To measure the influence of awareness (and other variables) on the intentions to invest in green products (linear regression).

1.4 Hypotheses

H1: Investment experience is correlated to the level of green investment awareness.

H2: The level of green investment intention is related to the investment experience of investors.

H3: Green investment awareness varies among the age groups.

H4: Age group relates to the degree of intention of green investment.

The mean awareness is different across (a) age groups, (b) education level groups and (c) current status groups.

The hypothesis that mean investment intention varies between (a) age groups, (b) education level and (c) current status groups is tested.

H7: There is a positive and significant relationship between awareness and intention to invest.

Prior investment experience and environmental preference are both positively and significantly related to investment intention, after controlling for awareness.

The results of literature review and conceptual framework are presented.

2.Literature Review and Conceptual Framework

2.1 Green finance and investor participation

Green finance refers to financial products and services that channel capital to projects with environmental benefits. Green bonds, the best-known instrument, raise money for dedicated environmental projects, and studies of the market report positive stock-market reactions at announcement and improvements in firms' environmental performance after issuance (Flammer, 2021; Tang & Zhang, 2020). Individual investors can access the same theme through sustainable

funds and renewable-energy investments. Participation by individuals, however, remains limited where products are unfamiliar or hard to evaluate.

2.2 Awareness, knowledge and financial decisions

A consistent finding in household finance is that people with greater financial knowledge participate more in markets and manage risk better (Lusardi & Mitchell, 2014). Applied to green investing, awareness has several layers: knowing that green products exist, being able to identify them, knowing where to find reliable information, and understanding how their risks and returns compare with conventional investments. This study operationalises these layers in an 11-item Awareness scale (Q1–Q11).

2.3 Intention and the theory of planned behaviour

The theory of planned behaviour holds that behaviour is best predicted by intention, and that intention in turn reflects attitudes, perceived social norms and perceived behavioural control (Ajzen, 1991). In the present study, awareness and understanding are treated as determinants of perceived control (knowing how and where to invest), while environmental preference captures the attitudinal component. Intention is measured with six items on willingness, consideration and likelihood of investing in green products (Q12–Q17).

2.4 Demographics and experience

Prior work on sustainable investing often reports differences by age, education and investing experience, but results are mixed, and many studies are drawn from specialised or older samples. Younger respondents are frequently described as more environmentally motivated, while experienced investors may be better placed to evaluate new products. Because the evidence is inconsistent, this study tests these relationships directly instead of assuming a direction.

2.5 Conceptual framework

Demographic and experience factors (age, education, current status, prior investing) → Awareness; Awareness + Environmental preference + Prior investing → Investment intention. Chi-square and ANOVA test the first set of links; regression tests the second.

3. Research Methodology

3.1 Research design

The study employs quantitative, descriptive and explanatory survey method with cross sectional design. An online questionnaire (a web-form) was used to gather primary data from 25 September to 6 October 2026.

3.2 Sample

Convenience sampling was used and 95 complete responses were obtained (no missing data). The sample was younger and predominantly composed of college or university students (Table 1): 75.8% were 18 to 24; 72.6% were college or university students; and two-thirds (66.3%) had or were enrolled in a bachelor's degree. Forty-two respondents (44.2%) had made personal financial investments before. If it is necessary based on your institution, specify the survey location / country and distribution channel.

Table 1

Profile of respondents (N = 95)

Characteristic	Category	n	%
Age	Under 18	6	6.3
	18–24	72	75.8
	25–30	6	6.3
	31–35	4	4.2
	Above 35	7	7.4
Current status	College/University student	69	72.6
	Working professional	15	15.8
	Both (working student)	10	10.5
	Other	1	1.1
Education	High school / secondary	12	12.6

	Bachelor's degree	63	66.3
	Master's degree or higher	14	14.7
	Professional certification / other	6	6.3
Prior investing	Yes	42	44.2
	No	53	55.8

3.3 Instrument and measures

This questionnaire comprised four profile questions (age group, current status, education and prior investing) and 20 statements with a five-point Likert scale (1 = strongly disagree; 5 = strongly agree; 1932). The products were categorized into 3 constructs:

Knowledge and understanding of green products, green bonds and funds, ability to recognise them, purpose, where to find information, risk and return of green products, Green Investment Awareness (Q1–Q11).

Investment Intention (Q12-Q17): willingness to invest, consider when they see an opportunity to invest, want to know more about green investments, plan to invest in the future, include in future investment portfolio, and likely to choose a green option.

Environmental Preference (Q18 – Q20): preferences for investing in companies that make contributions to sustainability, preference for the environmentally responsible choice of financial characteristics, and importance of environmental impact in investing decisions.

The scores for each scale are composed of the mean of the items. The entire item wording can be found in the Appendix. The reliability of the scales was tested using Cronbach's (1951) alpha reliability coefficient, with .70 or higher being generally acceptable (Nunnally, 1978).

3.4 Analytical procedures

All analyses were carried out in Microsoft Excel (COUNTIFS, AVERAGEIFS, CHISQ.TEST, CHISQ.DIST.All calculations are live and displayed in the companion workbook.All calculations are live (as in RT, F.DIST.RT, T.DIST.2T and LINEST), and the companion workbook contains all of them. The results were also compared to an independent calculation in Python, and compared to the reported precision.

Chi-square test of independence (Pearson, 1900). Awareness and intention scores were defined as High (composite mean ≥ 3.5) or Low/Moderate (< 3.5). Age was recoded as ≤ 24 versus 25+ as all cells had an expected count of > 5, the lowest being 5.73. Cramér's V is the effect size.

One-way ANOVA (Fisher, 1925) was used to compare composite scores among age (five groups), education (four groups) and current status (three groups; the one respondent with "Other" was excluded because a variance cannot be calculated from n = 1). Eta-squared (η^2) is the effect size. No serious violation of equal variances was found with Levene's tests (all $p > .10$).

Linear regression (ordinary least squares). Model 1 regresses Intention on Awareness. Model 2 extends the previous models by including the two additional factors Environmental Preference and prior investing (1 = yes, 0 = no). Variance inflation factors (VIF) were used to check for multicollinearity.

Throughout the significance level was $\alpha = .05$.

4. Results and Analysis

The use of descriptive statistics and reliability

The results for the constructs are provided in Table 2. The scales had acceptable to good reliability ($\alpha = .80 – .88$; $\alpha = .93$ for all 20 items). The mean scores for intention (M = 3.58) and environmental preference (M = 3.52) are higher than the score for awareness (M = 3.28) and mean scores are between "neutral" and "agree", indicating that willingness follows awareness (Figure 1). When analysing the answers at the item level, the lowest scores were for being aware of financial products that support sustainability (Q1, M = 3.08) and knowledge of green bonds (Q2, M = 3.08); the highest scores were for willingness to learn more before investing (Q14, M = 3.79). With the cut-off 3.5, 33.7% of the respondents were highly aware and 57.9% highly intended.

Table 2

Descriptive statistics and reliability of the scales (N = 95)

Scale	Items	M	SD	Min	Max	Cronbach's α
Awareness (Q1–Q11)	11	3.28	0.67	1.09	5.00	.88
Intention (Q12–Q17)	6	3.58	0.73	1.00	5.00	.86
Environmental preference (Q18–Q20)	3	3.52	0.83	1.00	5.00	.80
All items (Q1–Q20)	20	–	–	–	–	.93

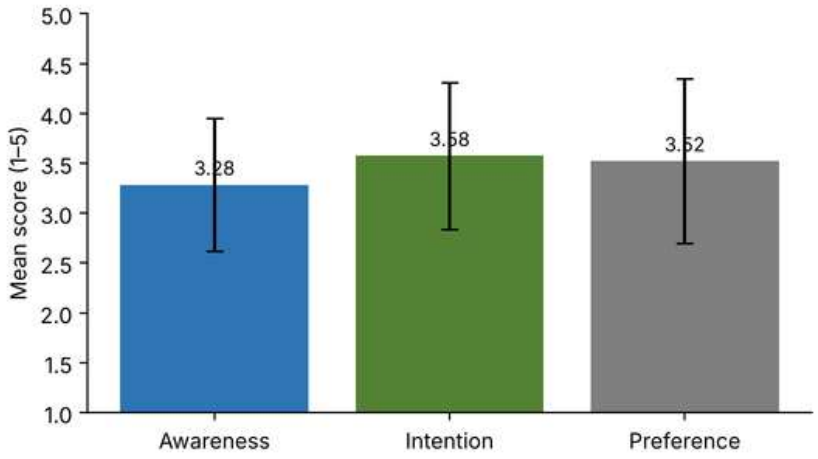


Figure 1. *Mean scores of the three scales (error bars show ±1 SD).*

The correlations among the scales were strong and positive: Awareness–Intention r = .67, Awareness–Preference r = .64 and Intention–Preference r = .76 (all p < .001). Prior investing was essentially uncorrelated with awareness (r = −.001) and only weakly correlated with intention (r = .09).

We consider .2 Chi-square tests of independence (H1-H4).

The 4 tests are summarised in Table 3. None was significant. The respondents who were and were not investors were equally high in awareness (35.7% versus 32.1%; $\chi^2(1) = 0.14$, p = .709, V = .04). The difference between the intention to invest and the high intention to invest was about 16 percentage points with investors more likely to report high intention than non-investors (66.7% vs. 50.9%) but was not significant ($\chi^2(1) = 2.38$, p = .123, V = .16, a small effect). Age group (≤ 24 versus 25+) was unrelated to both awareness (p = .877) and intention (p = .648). H1, H2, H3 and H4 are not available.

Table 3

Chi-square tests of independence (df = 1 for all tests)

Test	**Group**	**Low/Mod, n**	**High, n**	**% High**	**χ^2**	**p**	**V**
H1 Investing × Awareness	Invested	27	15	35.7	0.139	.709	.038
	Not invested	36	17	32.1			

H2 Investing × Intention	Invested	14	28	66.7	2.376	.123	.158
	Not invested	26	27	50.9			
H3 Age × Awareness	≤ 24	52	26	33.3	0.024	.877	.016
	25+	11	6	35.3			
H4 Age × Intention	≤ 24	32	46	59.0	0.208	.648	.047
	25+	8	9	52.9			

Note. High = scale mean ≥ 3.5. Minimum expected count (across tests) = 5.73. Critical $\chi^2(1, \alpha = .05) = 3.841$. V = Cramér's V.

4.3 One-way ANOVA (H5–H6)

The means of the groups are presented in Table 4 and the ANOVA results in Table 5. No factor produced a significant difference in mean awareness: age $F(4, 90) = 0.55$, $p = .699$; education $F(3, 91) = 0.39$, $p = .761$; current status $F(2, 91) = 1.60$, $p = .207$. The same was true for intention across age, $F(4, 90) = 1.00$, $p = .414$, and current status, $F(2, 91) = 0.87$, $p = .422$. For intention, the best result was for education, $F(3, 91) = 2.61$, $p = .056$, $\eta^2 = .079$ (a medium effect according to Cohen, 1988), where those with a master's degree or higher indicated the lowest intention (M = 3.10), followed by bachelor's degree holders (M = 3.68). This pattern was not significant at the .05 level and thus was not followed up with post-hoc analyses and should be interpreted as a hint for future research not as an established finding. H5 and H6 are not recognized.

Table 4

Mean (SD) of Awareness and Intention by group

Factor	**Group**	**n**	**Awareness M (SD)**	**Intention M (SD)**
Age	Under 18	6	3.18 (0.71)	3.44 (0.59)

	18–24	72	3.30 (0.64)	3.62 (0.72)
	25–30	6	3.08 (1.08)	3.06 (1.17)
	31–35	4	3.05 (0.41)	3.46 (0.42)
	Above 35	7	3.53 (0.71)	3.76 (0.65)
Education	High school / secondary	12	3.33 (0.76)	3.53 (0.79)
	Bachelor's degree	63	3.30 (0.64)	3.68 (0.64)
	Master's or higher	14	3.12 (0.82)	3.10 (0.93)
	Professional cert. / other	6	3.41 (0.40)	3.69 (0.78)
Current status	College/University student	69	3.32 (0.64)	3.62 (0.65)
	Working professional	15	3.45 (0.72)	3.71 (0.67)
	Working student	10	3.00 (0.32)	3.35 (0.95)

Table 5

One-way ANOVA results

Dependent variable	Factor	F	df	p	η^2	Decision
Awareness	Age group	0.550	4, 90	.699	.024	Not significant
Awareness	Education	0.389	3, 91	.761	.013	Not significant
Awareness	Current status	1.601	2, 91	.207	.034	Not significant
Intention	Age group	0.997	4, 90	.414	.042	Not significant
Intention	Education	2.614	3, 91	.056	.079	Not significant
Intention	Current status	0.870	2, 91	.422	.019	Not significant

Note. Critical F at $\alpha = .05$: $F(4,90) = 2.47$; $F(3,91) = 2.70$; $F(2,91) = 3.10$. Current status excludes one "Other" respondent ($n = 94$). Several age groups have fewer than 8 respondents, so the age results have low power in these age results.

4.4 Linear regression (H7–H8)

Model 1, which was simple regression of intention on awareness, was highly significant, $F(1, 93) = 76.19$, $p < .001$. The variance in intention (adjusted $R^2 = .444$) was explained by awareness. Each one-point increase in awareness was associated with a 0.74-point increase in intention ($b = 0.739$, $SE = 0.085$, $t = 8.73$, $p < .001$; $\beta = .671$). H7 is endorsed (Figure 2).

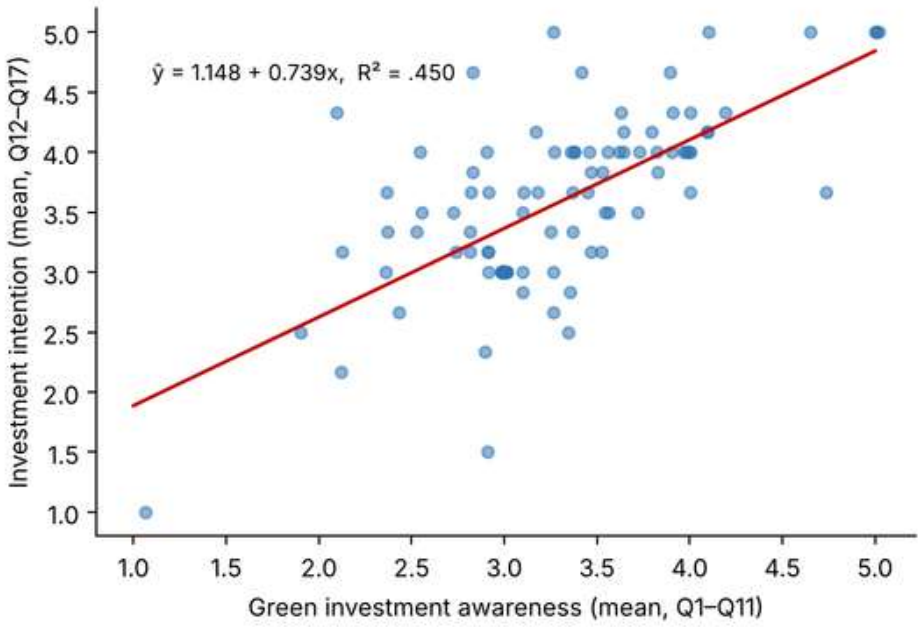


Figure 2. The scatter plot of intention versus awareness with the fitted regression line (points slightly jittered).

Model 2: Environmental preference and prior investing were included. It explained 65.3% of the variance in intention (adjusted $R^2 = .642$), $F(3, 91) = 57.13$, $p < .001$, a substantial improvement on Model 1. Each of the three predictors was significant. When they controlled for the variables of awareness and preference, the variable of prior investing was the next strongest predictor of intention ($b = 0.222$, $\beta = .151$, $p = .017$), with investors scoring approximately 0.22 points higher on intention than non-investors. Multicollinearity is not an issue as the values of VIFs are below the usual threshold of 5 to 10 (Hair et al., 2019), with VIFs of 1.70 (awareness), 1.72 (preference) and 1.02 (investing). H8 is supported.

Predictor	**B**	**SE**	**β**	**t**	**p**	**VIF**
Model 1						
Intercept	1.148	0.284		4.05	< .001	
Awareness	0.739	0.085	.671	8.73	< .001	
Model 2						

Intercept	0.578	0.242		2.39	.019	
Awareness	0.332	0.089	.301	3.74	< .001	1.70
Environmental preference	0.514	0.072	.578	7.14	< .001	1.72
Prior investing (1 = yes)	0.222	0.092	.151	2.42	.017	1.02
Model 1 fit	R^2 = .450	Adj. R^2 = .444	F(1, 93) = 76.19	p < .001		
Model 2 fit	R^2 = .653	Adj. R^2 = .642	F(3, 91) = 57.13	p < .001		

Note. B = unstandardised coefficient; β = standardised coefficient; VIF = variance inflation factor.

4.5 Robustness checks

To check if the regression results are influenced by data quality issues, two checks were conducted. A common pattern observed among the first 18 respondents (18.9%) was that they answered the same item across all the 20 items (12 respondents answered "3" on all items). However, when they were removed (n = 77), there was still a strong relationship between awareness and intention (b = 0.686, p < .001, R^2 = .355), and in the full model, awareness (p = .005) and preference (p < .001) were significant, while prior investing was only marginally significant (b = 0.220, p = .054). Second, residuals for Model 2 were slightly non-normal, as are reflected in the Shapiro–Wilk W = .963 (p = .009) with 95 observations, and the large values of t for awareness and preference did not alter the main findings. The impact of previous investments should thus be taken with the least of caution.

5. Discussion

Three themes emerge. First, the respondents were fairly positive about green investment, but not as well informed as they were enthusiastic: the average scores on intention and preference were around 3.5, whereas the average scores on the awareness were around 3.3, with the lowest scores being in relation to familiarity with specific products, like green bonds. The most important will be willingness to learn more before investing, indicating that the audience will be receptive to learning.

Secondly, demographic data did not provide much information. In the chi-square tests, neither age, education nor current status was significantly related to awareness or intention, and previous investing was not significantly related to either of these in the tests. This suggests that there is no obvious targeting of green investment awareness in a specific segment of the sample and interventions should not be limited to one segment. The fact that the near-significant education result ($p = .056$) is one that warrants further testing in a larger sample – if it holds true it may be because more educated investors are more skeptical of the returns – but that is not known because of this study.

Third, and most important, was that psychological factors proved much better predictors than demographic factors. For awareness, the link with participation was confirmed and accounted for 45% of the variance in intention, as was the link between perceived control and intention in the theory of planned behaviour (TPB) (Ajzen, 1991) and in financial literacy research (Lusardi & Mitchell, 2014). The standardised effect of environment preference was even larger, suggesting attitudes are important in addition to knowledge. A small, more volatile addition came from prior investing, likely due to greater belief among seasoned investors that they can follow through on their investments. It should be noted however that preference and intention are conceptually closely related ($r = .76$), and therefore model 2 is to be interpreted as intention being related to environmental values, rather than as a one-way causal chain.

5.1 Implications

For teachers and regulators: integrate green-finance information (green bond, sustainable funds, risk and return comparisons) into financial-literacy curricula, as awareness is an important and modifiable determinant of intent.

For financial institutions and fund houses: offer product information that is easy to understand, offer a way to compare this product to traditional products, and offer clear references to trusted information; lower scores were achieved for knowledge of where to get information (Q8, $M = 3.14$).

For policy makers: The awareness and intention levels do not vary significantly between demographic groups in this case, so broadcasting messages could be as effective as targeted messages and the credibility of a label/disclosure can dampen the perceived risk of green products.

Finally, this study highlights the limitations and further research needed to address each of the issues.

5.2 Limitations and future research

Limitations of sample: 95 respondents, who were sampled with convenience sampling method, were all aged between 18 and 24 (representing 75 percent) and predominantly students, and thus the results may not be generalised to the population of all investors. A few age groups have fewer than 8 people reducing the power of the age comparisons.

Design: Cross sectional - association, not causation, intention is not investment behaviour.

Social-desirability bias (18.9% of responses were straight-lined) is a problem with self-reported attitudes. The three constructs were assigned from item content; a confirmatory factor analysis was not run.

Analysis: dichotomising scale scores for the chi square tests resulted in the loss of data (the 3.5 cut-off is a convention) and multiple tests increase the likelihood of a false positive, although most results were not significant.

Further exploration of these areas should be conducted by larger, probability-based samples and include variables such as income, risk tolerance, perceived returns and social norms, and longitudinal studies of actual purchasing behavior, such as structural equation modeling.

6. Conclusion

The study of this research involved two chi-square tests, one-way ANOVA and regression in Excel with the survey respondents of 95. Awareness was moderately good, and intention moderately positive. There was no significant difference between the characteristics of the respondents (demographic and experience attributes), but awareness and environmental preference were significant predictors of the intention to purchase (along with prior investing, $R^2 = .65$). The take-home point is that raising awareness, and showing people the environmental value of products are the most direct ways to turn goodwill into investment. These results should be validated within larger and more representative samples, taking into account the small, young and convenience-based sample size.

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Appendix: Questionnaire items

Demographic Questions: Age group; Current status; Highest education level attained or currently being worked towards; Have you ever made personal financial investments? (Yes/No). The ratings 1 (strongly disagree) to 5 (strongly agree) were applied to all statements.

Table A1

Questionnaire items and scale assignment

Item	Statement	Scale
Q1	I am aware of financial products that support environmental sustainability.	Awareness
Q2	I am familiar with green bonds.	Awareness
Q3	I am aware of sustainable or environmentally responsible investment funds.	Awareness
Q4	I can identify financial products that are considered green investments.	Awareness
Q5	I understand the meaning of green investment.	Awareness
Q6	I understand how investments can contribute to environmental sustainability.	Awareness
Q7	I am aware of investment opportunities in renewable energy and sustainable projects.	Awareness
Q8	I know where to find reliable information about green investment opportunities.	Awareness
Q9	I understand that green investments can involve financial risks.	Awareness
Q10	I understand the potential returns associated with green investments.	Awareness

Q11	I can compare the risks and returns of green investments with conventional investments.	Awareness
Q12	I am willing to invest in environmentally sustainable financial products.	Intention
Q13	I would consider investing in green investment products when suitable opportunities are available.	Intention
Q14	I am willing to learn more about green investments before investing.	Intention
Q15	I intend to invest in green financial products in the future.	Intention
Q16	I would consider green investments as part of my future investment portfolio.	Intention
Q17	I am likely to choose a green investment when making future investment decisions.	Intention
Q18	I prefer investments that contribute to environmental sustainability.	Preference
Q19	When two investments have similar financial characteristics, I would prefer the environmentally responsible option.	Preference
Q20	Environmental impact is an important factor in my investment decisions.	Preference