

Article

Sustainable Investment Preferences among Robo-Advisor Clients

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Abstract: The increasing role of individual investors in supporting the achievement of sustainable development goals through sustainable investment has gained growing interest from financial authorities and the research community. Digitalization in the financial sector, e.g., robo-advisors, enables lay-investors to make sustainable investments in a simple and convenient way. This study investigates whether investment-related attitudes and demographic profiles are related to robo-advisor clients' sustainable investment choices. This paper describes an empirical study that uses a logistic regression model to investigate sustainable investment preferences at the individual investor level. Cross-sectional data consisting of 27,771 individual investors in Sweden, Norway, and Finland, who purchased investment products through a robo-advisor application, are used in this study. The results suggest that, concerning investment-related attitudes, robo-advisor clients with low-risk tolerance and a short investment horizon are more likely to choose to become sustainable investors. Furthermore, sustainable investments are preferred by robo-advisor clients who are less wealthy, female, and older.

Keywords: sustainable investment; robo-advisor; digital wealth management; risk–return preference; investment horizon; sociodemographic factors



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1. Introduction

The Sustainable Development Goals (SDGs) as part of the United Nations (UN) 2030 agenda have been set as the main priority by UN member states since it was launched in 2015. Initiatives to achieve the SDGs require a substantial amount of financial resources and investments [1]. Therefore, the role of the financial sector in mobilizing capital toward more sustainable investments is increasingly important. Sustainable investment, as part of sustainable finance initiatives, has gained more recognition by financial industry stakeholders and scholars [2]. It is defined as an investment practice that not only focuses on financial concerns as a single investment objective, but also aims to contribute to sustainable development by incorporating environmental, social, and governance (ESG) aspects into the investment criteria [3]. Considering the pivotal role of sustainable investment to accelerate progress toward the SDGs agenda, scholars have undertaken studies to get a better understanding of its concepts and practices [4]. Within this line of research, scholars have investigated the performance comparison of sustainability-related funds and regular mutual funds [5,6], the ethical aspects of sustainable investment [7,8], and the influence of sustainability considerations on investment decision-making [9,10], among others.

Maximizing the role of the financial sector to support sustainable development has been of great concern at the European Union (EU) level in the past few years. As part of the implementation of the 2018 sustainable action plan, the EU established the April 2021 Package [11]. The Commission Delegated Regulation (EU) 2021/1257 of 21 April 2021 [12] requires all firms subject to the Markets in Financial Instruments Directive (MiFID), including financial firms and advisors, to discuss the client's sustainability preferences

when conducting an investment suitability assessment. Moreover, the EU also launched the Strategy for Financing the Transition to a Sustainable Economy in July 2021 [13]. One of the formulated strategies is to utilize digital technologies to accelerate the transition of citizens, investors, and SMEs to sustainability. Nevertheless, one of the biggest challenges in implementing this policy is the accessibility of retail investors to sustainable investment products. The lack of availability and limited information prevent a sizable number of interested retail investors from making sustainable investments [14].

Digitalization in the financial industry enables broadened access to financial services by reducing transaction costs, increasing transaction speeds, and providing more tailored services [15]. With the introduction of robo-advisors, financial advisory services are no exception. Unlike human financial advisors, robo-advisors require little or no human intervention in constructing investment proposals. Instead, robo-advisors utilize mathematical algorithms to automate the portfolio construction process based on the client's financial information, investment goals, and degree of risk aversion [16]. Robo-advisors were developed to serve early investors with a limited budget [17] and little knowledge of financial market investment [18]. The asset allocation process is designed to be very simple and easy to understand, due to the characteristics of the mass target market [18]. A digital application requires users to enter their personal financial information and answer a questionnaire regarding their risk profile. These data are used as the basis of robo-advisor algorithms to find the most suitable investment product for users.

Many robo-advisory services also offer sustainable investment as an alternative to conventional investment products. Robo-advisors can, therefore, potentially be a major solution to broaden the participation of retail investors in sustainable initiatives. Due to their wider outreach and market segment, robo-advisors can help to raise awareness of sustainable investment, particularly among the inexperienced and uninformed investors. Robo-advisors also make it easier for lay-investors to engage in sustainable investment by reducing the procedural complexity of making investment decisions. The integration of digital technologies into financial advisory services through robo-advisors plays a significant role in promoting sustainable investment, particularly for retail investors. Thus, it is important to understand the characteristics of robo-advisor clients who are engaged in sustainable investments to assist robo-advisory service providers in formulating marketing strategies to promote their sustainable investment products. It would also be beneficial for authorities to know which group of retail investors should be targeted for education or campaigns on the importance of sustainable investment.

One of the fast-developing research streams in sustainable finance focuses on explaining the factors that determine individual decisions on sustainable investment. However, the literature regarding sustainable investment decision making in the robo-advisory context is still very limited. The robo-advisor setting becomes relevant because digital advisory services have a unique market segment, lay-investors. An international survey of adult financial literacy [19] found only 41% of the sample from OECD countries purchased financial products or services in the past year. This result shows that the majority of individuals had limited experience in deciding on financial products or services. Lay investors tend to have unwarranted beliefs in the expertise of professional investors such as banks or other financial institutions [20]. To promote sustainable investment, [21] suggests that support be provided through internet platforms, among others, to help investors to choose investment products that suit their sustainability preferences. Considering the role of digital advisory services in promoting sustainable investment and the special characteristics of robo-advisor users, this study aims to fill a gap in sustainable investment research by investigating the sustainable investment preferences among robo-advisor clients.

A recent publication [22] investigated the impact of sustainable behavior on investment decisions among robo-advisor clients. The study used questionnaires to investigate whether clients with sustainable lifestyles show a higher interest in choosing sustainable investments through robo-advisory services. The results revealed that customers with sustainable consumption lifestyles are more likely to choose portfolios with a sustainable investment

strategy. The analysis was based on hypothetical questions about their willingness to invest in sustainable products, but not based on clients' actual investment decisions. Our study bridges this gap by analyzing sustainable investment preferences based on actual data. While research methods with hypothetical investment opportunities illustrate investors' attitudes, our research explains investors' behavior toward sustainable investment.

This study aimed to investigate whether investment-related attitudes and demographic profiles are related to robo-advisor clients' sustainable investment choices. The contribution of this paper is twofold. First, it contributes to the literature on sustainable investor behavior in digital finance settings. Second, it provides analysis based on actual data where clients reveal their investment preferences through real investment decisions. To the best of our knowledge, no previous works have used real investment data in their studies to examine investors' behavior toward sustainable financial products, particularly in the digital advisory context. The analysis was performed using logistic regression estimation and showed that risk preference, investment horizon, and demographic profile are significant in determining clients' sustainable investment choices. The results indicated that clients with low-risk acceptance and short investment horizons are more likely to choose sustainable investments. Furthermore, robo-advisor clients who decide to be sustainable investors are typically less wealthy, female, and older.

The remaining part of this paper is organized as follows. The literature review is contained in Section 2. An overview of the data and research method is provided in Section 3. Section 4 presents the results and discussion, and Section 5 concludes the paper.

2. Literature Review

The classical theories in economics and finance [23,24] are based on the notion that investors maximize their utilities by allocating their portfolio based on their preferred combination of risk and return over a given time horizon. In making sustainable investments, however, researchers found that investors consider other factors such as social or environmental motives, in addition to the traditional factors [25,26]. A strand of literature in sustainable finance uses empirical research to identify sustainable investors' profiles. Using a German-speaking investor dataset, [27] concluded that risk, return, and liquidity preferences influence investors' decisions in allocating in a socially-responsible way. Sociodemographic factors such as gender, age, religion, and political affiliations, were found to be the determinant factors of socially responsible investment choices [28].

2.1. Behavioral Finance in the Robo-Advisory Setting

This study investigated sustainable investment preferences in the context of robo-advisory services. The growing importance of robo-advisors has attracted increasing attention from scholars, particularly within the field of behavioral finance. Previous literature by [29] compared the performance of investment schemes conducted by robo-advisors and passive investment by individual investors. The findings showed that investors with lower income and lower education levels gain the most from robo-advisors' investment strategies. A similar argument was proposed by [30]. The study concluded that the simplicity and automation of robo-advisors assists investors, particularly less-experienced ones, to reduce the role of emotion in investment decisions. From the risk perspective, a qualitative study by [31], focusing on financial experts' point of view, argued that robo-advisory services have to provide a robust risk profiling model to minimize the behavioral biases, such as decision inertia, of their clients. More specific to sustainable decision making, Ref. [22] found that digital financial advisors' clients, who claim to have sustainable consumption behavior, are more likely to choose sustainable investment proposals instead of conventional ones.

2.2. Risk–Return Preference

Risk–return preference is one of the most significant considerations when individuals make investment decisions. Following traditional financial concepts, individuals place their money in sustainable investments if the investments offer at least a similar risk–return

trade-off as conventional investments. However, with the rising concerns from investors to be engaged in more impactful investments, the pecuniary motive is no longer the only consideration when making investment decisions. In general, impact investors are classified into two groups: financial-first investors and impact-first investors [32]. The main goal of financial-first investors is to optimize investment returns, but they are also concerned about the social impact; meanwhile, impact-first investors' primary objective is to optimize social impact, but they are also concerned about financial returns. Impact investment introduced the concept of "blended value creation" that allows investors to generate both financial returns and social impact [33]. The classification of these two types of investors is based on their expectations regarding risk, return, and impact. Those who classify themselves as impact-first investors view their investment as a value creation strategy instead of a philanthropy action [34]. Financial-first investors can switch to impact-first investors when they change their strategy from generating market-competitive returns from investment with social or environmental impact to maximizing social or environmental returns while achieving the minimum required financial gains [35].

Investors are committed to investing in ethical funds as part of a mixed portfolio when the funds are making reasonable returns, but investors lose their interest in ethical investments when the fund's performance is poor. The findings show that ethical investment decisions are highly elastic to financial returns [8,32]. Ethical investors generally invest in a mixed portfolio instead of solely putting their money exclusively in ethical investments to balance financial and ethical objectives [8]. Unlike investment institutions and institutional investors, private investors do not believe that socially responsible investments outperform conventional investments in the long run [36]. As stated in [37], ethical investors consistently pledge their money to ethical funds even when the funds are underperformed, which implies that these investors derive their utility from both pecuniary and non-pecuniary motives.

Risk motive is considered an important factor when making a sustainable decision only when it involves risky products, such as equities [38]. A study by [39] found that risk-tolerant investors are concerned more about the financial return of the fund instead of its environmental aspect. On the contrary, ref. [40] suggested that investors are willing to receive lower financial returns as long as the investment matches their social preferences. Moreover, the study also found that investors are willing to pay higher management fees for socially responsible investments. Ref. [41] analyzed the household preferences for socially responsible investments (SRIs) and found that investors are willing to pay more to be SRI investors, and nudges such as gifts or vouchers are not needed. Ref. [25] stated that investors with higher risk tolerance make smaller investments in socially responsible banks. Sustainability is closely associated with the environmental and social risks that could occur in the distant future. Individuals with lower risk tolerance are less willing to accept this type of uncertainty compared with those with higher risk tolerance. Investing their money into a sustainable investment might be one of their ways to minimize the uncertainty. Additionally, risk-averse investors perceived sustainable investment as a less risky investment [42]. Therefore, this study posits that investors with lower risk tolerance have a higher likelihood of making more sustainable investments. The hypothesis in this study was formulated as follows:

Hypothesis 1 (H₁). *Risk-averse investors are more likely to choose sustainable investments.*

2.3. Investment Horizon

In addition to risk-return preference, the investment horizon is one of the main considerations before an individual investor or financial advisor selects the most suitable investment product. The investment horizon corresponds to how long an investor wants to place their money in a particular investment or portfolio. A study by [43] concluded that the investment horizon is an important factor in determining investors' portfolio allocations. The investment horizon also defines the attractiveness of the investment strategies of

individual investors [44]. In addition, investors' horizons significantly affect the proportion of equities in their portfolio, and with a longer horizon, the likelihood of investing more in equities is decreased by a factor of ten [45].

Ref. [46] examined the relationship between the investment behavior of UK institutional investors and corporate social responsibility-related activities. The findings showed that long-term investors avoid investing their funds in companies with low corporate social responsibility (CSR) performance. SRI investors are less sensitive to the financial performance of funds and tend to invest for longer than conventional investors [47]. One possible explanation is that the availability of alternative investment products that meet their social preferences is limited. Ref. [48] reported that since the 2014 heatwave in Sweden, investors have been reallocating to greener investments and expect these investments to outperform conventional ones in the long run. The sustainability concept is often associated with a long-term or even intergenerational vision. Climate change risk, for instance, is traditionally seen as something that will occur in the distant future and distant locations. Construal Level Theory [49] explains how four dimensions of psychological distance namely spatial, temporal, social, and uncertainty, can influence an individual's preference, prediction, and action. People are more likely to make risky decisions if the consequences of that action occurs in the distant future. It could be argued that investors with long-term investment horizons have a stronger preference for sustainable investments because they generally have a shorter temporal distance from the future. The hypothesis in this study was formulated as follows:

Hypothesis 2 (H₂). *Long-term investors are more likely to choose sustainable investments.*

2.4. Sociodemographic Characteristics

A large amount of literature provides empirical evidence for the relationship between sociodemographic characteristics and sustainable investment choices of retail investors. Sociodemographic factors such as level of income, gender, and age are considered determinants of sustainable investment decisions. Initial studies about the characteristics of socially responsible consumers by [50,51] revealed that female, young, highly educated, and medium-to-high-income consumers are more likely to be socially conscious. Ref. [52] found that consumers who are female, married, and have at least one child have a higher willingness to pay for environmentally friendly products.

Regarding sustainable investment, female consumers have been found to be more environmentally conscious compared with their male counterparts [53]. Similar findings by [54] also mentioned that women tend to hold a larger proportion of socially responsible shares in their portfolios. A more recent publication by [28] showed that female investors prefer to invest in stocks with women-friendly labor policies, whereas younger investors place more emphasis on environmentally friendly stocks. When it comes to age, other studies by [55,56] revealed that socially responsible investments are more likely to be chosen by older investors. Investors who are categorized into the "socially responsible saver and conventional saver based on availability" are dominated by older people compared with younger people [57]. Furthermore, Ref. [58] surveyed well-informed individual investors in the U.S. and revealed that female, younger, and less-wealthy investors are more likely to invest in socially responsible investments. Similarly, Ref. [25] showed that younger, better educated, and low-wealth investors have more interest in SRI products. Investors with lower income levels are more exposed to the risk that arises from social and environmental issues because they have lower financial buffers than their more wealthy counterparts. This makes them care more about sustainability aspects when making investment decisions. Wealthy investors, on the contrary, are more willing to sacrifice social considerations to maximize their financial gains [59]. In regards to gender issues, males and females are believed to have different cognitive abilities, risk attitudes, and decision-making styles, which leads to differing moral intensity perceptions [60,61]. Female investors perceived social consciousness and social action as important factors that determine the success

of a company [62]. ESG is considered to be relatively new, with the result that younger generations have a better understanding of the importance of sustainability aspects in their daily life. The younger generations are concerned more about sustainability when making purchase decisions [63]. Thus, in this study, the following hypotheses were proposed:

Hypothesis 3 (H₃). *Less-wealthy investors are more likely to choose sustainable investments.*

Hypothesis 4 (H₄). *Female investors are more likely to choose sustainable investments.*

Hypothesis 5 (H₅). *Younger investors are more likely to choose sustainable investments.*

2.5. Variable Operationalization

Based on the literature review and hypotheses development, Table 1 summarizes the variables included in the analysis.

Table 1. The variables included in the analysis.

Variable	Description	Symbol
Dependent variable		
Sustainable investment choice	0 = No 1 = Yes	sustainable
Independent variable		
Risk–return preference	1 = Client accepts a low risk of loss in exchange for a low expected return 2 = Client accepts a moderate risk of loss in exchange for a moderate expected return 3 = Client accepts a high risk of loss in exchange for a high expected return	risk
Investment horizon	1 = 3–6 years 2 = 6–10 years 3 = 10–15 years 4 = More than 15 years	horizon
Income	Natural logarithm of the client’s monthly income in Euros	lnincome
Gender	0 = Female 1 = Male	gender
Age	Natural logarithm of the client’s age	lnage

3. Materials and Methods

3.1. Data and Estimation Methods

This study used a large data set generated by Nora, a robo-advisory service by Nordea. Nordea is the largest Nordic retail banking group, present in 20 countries with main loan portfolios spread across four Nordic countries (Denmark, Finland, Norway, and Sweden). It currently serves approximately 10 million customers, both private and corporate. The target group for Nora as a digital advisory service is lay-investors with low-to-moderate experience in financial investments. Before starting their investment, Nora clients are required to provide sociodemographic information, investment-related attitudes such as risk preference and investment horizon, and sustainable investment preferences. The sampling method was a total population sampling consisting of 27,771 observations of all Nora clients who registered between December 2017 and June 2021. The data used in this study covered Sweden, Norway, and Finland. We chose Nordic countries as our sample because these countries are the top performers in achieving the SDGs target by 2030 [64].

Analysis of the data was carried out using Stata version 13 software. The data were analyzed using a logistic regression model or logit. The logit model is an estimation method that can be used to estimate a model where the dependent variable has dichotomous outcomes [65]. In this study, the outcomes of the dependent variables took the value of 1 if

the client chose to buy sustainable investment products and 0 if the client decided not to buy. The independent variables used to explain the dependent variables were risk appetite, investment horizon, income, gender, age, and country. The probability (P_i) that a client decided to engage in sustainable investment was estimated by Model 1 as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \quad (1)$$

where:

$$Y_i = \begin{cases} 1, & \text{if chose sustainable investment} \\ 0, & \text{if did not choose sustainable investment} \end{cases}$$

$$X_1 = \text{risk} - \text{return preference}$$

$$X_2 = \text{investment horizon}$$

$$X_3 = \ln \text{income}$$

$$X_4 = \text{gender}$$

$$X_5 = \ln \text{age}$$

In the logistic regression model, the probability of choosing sustainable investments was estimated using a logistic cumulative distributive function of the standard normal distribution, P , given by:

$$P = \left(Y = \frac{1}{X} \right) = \frac{e^y}{1 + e^y} \quad (2)$$

$$P = \left(Y = \frac{1}{X} \right) = \frac{e^y}{1 + e^y} \quad (3)$$

The predicted sustainable investment logit model is specified as:

$$Y = \ln \left(\frac{P}{1 - P} \right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon \quad (4)$$

3.2. Descriptive Statistics

To assist clients in selecting a suitable investment product, the robo-advisor asked clients to classify their risk tolerance into one of three categories. As shown in Table 2, the majority of the clients considered themselves as investors with moderate risk–return preference (65.94%), where the clients accept a moderate risk of loss in exchange for a moderate expected return. Concerning investment horizons, most clients preferred short-term (3–6 years) and low-medium-term investments (6–10 years). More than half of clients earned between EUR 2001 and EUR 4000. The second-largest percentage (39.29%) fell into the group of clients who earn less than EUR 2000. Most of the clients were male, accounting for 54.67% of the total sample. The robo-advisory service was designed for the younger and tech-savvy generation, as shown in Table 2, where clients aged between 26 and 40 years old dominated the total population. Based on country of residence, 40.86% of the total population were from Finland, 38.21% from Sweden, and 20.92% from Norway. In the last stage before providing an investment recommendation, the robo-advisor asked about the client's preference for a sustainable investment product. In total, 33.69% of the robo-advisor clients chose to invest sustainably, and the rest stated that they were not interested in sustainable investment.

Table 2. Basic sample characteristics.

	Number of Sample	%
Risk–return preference		
Low risk	1874	6.75
Moderate risk	18,311	65.94
High risk	7586	27.32
Total	27,771	
Investment horizon		
3–6 years	9741	35.08
6–10 years	8382	30.18
10–15 years	5152	18.55
More than 15 years	4496	16.19
Total	27,771	
Income		
EUR 2000 or less	10,911	39.29
EUR 2001–4000	15,161	54.59
EUR 4001–6000	1329	4.79
More than EUR 6001	370	1.33
Total	27,771	
Gender		
Female	12,588	45.33
Male	15,183	54.67
Total	27,771	
Age		
25 years or less	5173	18.63
26–40 years	12,415	44.70
41–55 years	6888	24.80
More than 55 years	3295	11.86
Total	27,771	
Country		
Sweden	10,612	38.21
Norway	5811	20.92
Finland	11,348	40.86
Total	27,771	
Sustainable investment choice		
No	18,414	66.31
Yes	9357	33.69
Total	27,771	

Table 3 reports the cross-tabulation statistics of each of the independent variables and the clients' preference for sustainable investment. Among all the risk profile categories, the clients in the low-risk group had the highest participation rate in sustainable investment. The moderate-risk group came second with 35.59% of all clients in the group, and the lowest percentage comprised clients with a high-risk profile. The percentage of clients in the four different types of investment horizon choices who preferred sustainable investment was quite similar, ranging from 31.83% to 35.96%. The sustainable investment was preferred mostly by clients within the low- and middle-low-income group, who earned less than EUR 4000 per month. In line with the findings from previous literature about sustainability or sustainable investment, the percentage of female clients who chose to invest sustainably was higher than their male counterparts. Moreover, it was shown that sustainable investment becomes a preferable option for elderly clients aged more than 55 years old. The second highest percentage was the group of clients aged 26–40 years old. The statistics also indicated that Sweden was the country with the largest percentage of clients preferring sustainable investment (39.13%), compared with Finland (38.66%) and Norway (14.06%).

Table 3. Sustainable investment preference descriptive statistics.

	Number Out of the Total Number			
	SI		Non-SI	Total
	<i>n</i>	(%)	<i>n</i>	<i>n</i>
Risk–return preference				
Low risk	759	40.50	1115	1874
Moderate risk	6516	35.59	11,795	18,311
High risk	2082	27.45	5504	7586
Total	9357		18,414	27,771
Investment horizon				
3–6 years	3503	35.96	6238	9741
6–10 years	2773	33.08	5609	8382
10–15 years	1640	31.83	3512	5152
More than 15 years	1441	32.05	3055	4496
Total	9357		18,414	27,771
Income				
EUR 2000 or less	4187	38.37	6724	10,911
EUR 2001–4000	4737	31.24	10,424	15,161
EUR 4001–6000	323	24.30	1006	1329
More than EUR 6001	110	29.73	260	370
Total	9357		18,414	27,771
Gender				
Female	5069	40.19	7529	12,588
Male	4298	28.31	10,885	15,183
Total	9357		18,414	27,771
Age				
25 years or less	1598	30.89	3575	5173
26–40 years	4269	34.39	8146	12,415
41–55 years	2299	33.38	4589	6888
More than 55 years	1191	36.15	1191	3295
Total	9357		18,414	27,771
Country				
Sweden	4153	39.13	6459	10,612
Norway	817	14.06	4994	5811
Finland	4387	38.66	6961	11,348
Total	9357		18,414	27,771

4. Results and Discussion

Two logistic regression models were run to test the relationship between investment-related attitudes and sociodemographic attributes in the sustainable investment choices of robo-advisor clients. Table 4 presents the results of both Model 1, which excluded the country differences variable, and Model 2, which considered the country effect. The logit estimation provided a regression coefficient and odds ratio for each independent variable. The odds ratio showed the likelihood of clients choosing sustainable investment as the predictor increased. When the odds ratio is less than 1, this indicates that clients are less likely to invest sustainably as the value of the independent variable increases. An odds ratio of more than 1 shows that sustainable investment is more likely to be chosen as the predictor increases.

The risk–return preference was significant at the 1% significance level in both models. Therefore, we rejected H_0 and found that there was a correlation between the risk profile and sustainable investment preference. In Models 1 and 2, the coefficients of moderate- and high-risk profiles were negative and the odds ratios were less than 1. In comparison with risk-averse investors, investors with moderate- and high-risk tolerance were less likely to choose sustainable investments. Model 1 demonstrated that the moderate-risk investors had 0.858 times the odds of the low-risk investors choosing sustainable investments. Meanwhile, the risk-lover group had 35% lower odds of purchasing sustainable investments than the risk-averse clients. The odds ratios for the moderate- and high-risk

groups of the clients in Models 1 and 2 were 0.845 and 0.666, respectively. The results support the hypothesis that clients with low-risk and return preferences have a higher chance of choosing sustainable investments. As reported by [38,66,67], sustainable investment was positively valued by the investors and seen as a less-risky investment. This explains the finding that sustainable investment was preferred by investors with lower risk tolerance. Further supporting empirical evidence by [25] indicated that risk-tolerant investors have less interest in depositing their savings in socially responsible banks.

Table 4. Logistic regression estimate results.

	Sustainable Investment Choice			
	No Country Effect		With Country Effect	
	Coefficient	Odds Ratio	Coefficient	Odds Ratio
Risk–return preference (Low risk = 1)				
Moderate risk	−0.153 *** (0.050)	0.858	−0.169 *** (0.051)	0.845
High risk	−0.432 *** (0.055)	0.649	−0.406 *** (0.056)	0.666
Investment horizon (3–6 years = 1)				
6–10 years	−0.115 *** (0.032)	0.892	−0.085 *** (0.033)	0.918
10–15 years	−0.137 *** (0.038)	0.872	−0.106 *** (0.038)	0.899
More than 15 years	−0.087 ** (0.039)	0.917	−0.055 (0.040)	0.947
Income	−0.346 *** (0.030)	0.707	−0.136 *** (0.032)	0.873
Gender (Male = 1)	−0.455 *** (0.026)	0.634	−0.511 *** (0.027)	0.599
Age	0.334 *** (0.041)	1.397	0.188 *** (0.042)	1.207
Country (Sweden = 1)				
Finland			−1.332 *** (0.044)	0.264
Norway			−0.013 (0.028)	0.988
Pseudo R–squared				
McFadden R–squared		0.0209		0.0566
Model fitting information				
Chi-square		742.76		2008.83

The values in parentheses are standard errors; ** and *** denote significant coefficients at the 5% and 1% levels, respectively.

Moreover, the results confirmed that the investment horizon was statistically significant in explaining the clients' sustainable investment choices. Only in Model 2 was the result found to be non-significant for the long-term investment horizon category. Clients with investment horizons ranging from three to six years were more likely to become sustainable investors compared with the other categories. This result was quite surprising because sustainability is a concept associated with a long-term focus. A study by [36] concluded that the intention of private investors to make socially responsible investments is positively influenced by their beliefs about the long-term returns of said investments. Many studies in the literature [46,47] have also concluded that sustainable investments are preferred by investors with long-term investment horizons. Nevertheless, in this robo-advisory context, the descriptive statistics show that the short-term investment horizon was identified as the group with the highest percentage of clients choosing a sustainable investment.

Interestingly, the client's income level was negatively associated with the likelihood of becoming a sustainable investor. The robo-advisor clients that chose sustainable investment tended to be in a lower-income bracket than those who did not. The descriptive statistics also indicate that there is a higher percentage of lower-income clients purchasing sustainable investments through robo-advisors. This finding is supported by previous

literature [25], which found that investors with a lower wealth status have higher odds of choosing a socially responsible investment. However, the result is in contrast to [40], who found that investors with a higher level of income have higher odds of choosing socially responsible investments.

As predicted, female robo-advisor clients were more likely to be sustainable investors. This result confirms the results of [58], which analyzed the demographics of socially responsible investors in the United States. One possible explanation is that women are more concerned about the environment than men, as mentioned in [3]. Consistent with the results found by [2], the sustainable investor segment was made up of older people. It was also shown in the descriptive statistics that among all age groups, clients aged more than 55 years old had the highest percentage of group members choosing sustainable investments. This is in line with [55,56], who revealed that socially responsible investors are older.

Lastly, we also considered the country effect in Model 2 to see if there is any difference in the sustainable investment behavior in the three countries. Only Finland was found to be statistically significant, with a negative coefficient and odds ratio of less than one. Meanwhile, Norway was found to be insignificant. This indicates that the Finnish clients were less likely to choose sustainable investment than the Swedish clients.

The goodness of fit of the models is shown by the McFadden pseudo *R*-squared values [68]. The pseudo *R*-squared values for both models were quite low, 2% for Model 1 and 5.7% for Model 2. However, we also ran a classification test on Stata to check if the models were correctly specified. The results indicate that Model 1 succeeded to produce accurately 66.20% of the true outcomes and Model 2 was correctly specified at the 66.27% level.

The summary of the hypothesis test results is presented in Table 5. The conclusion is drawn based on the *p*-value and the odds ratio.

Table 5. Summary of hypothesis results.

Hypothesis	Independent Variable	Sig. (<i>p</i> -Value)	Result
H₁: Risk-averse investors are more likely to choose sustainable investments.	Risk–return preference (Low risk = 1)		Supported
	Moderate risk	0.002	
	High risk	0.000	
H₂: Long-term investors are more likely to choose sustainable investment	Investment horizon (3–6 years = 1)		Not supported
	6–10 years	0.000	
	10–15 years	0.000	
	More than 15 years	0.003	
H₃: Less-wealthy investors are more likely to choose sustainable investments.	Income	0.000	Supported
H₄: Female investors are more likely to choose sustainable investments.	Gender (Male = 1)	0.000	Supported
H₅: Younger investors are more likely to choose sustainable investments.	Age	0.000	Not supported

The robustness test was performed by doing simulations of the four different models. The results of the robustness test are displayed in Table 6. Model 1 included all of the independent variables in the regression equation. Meanwhile, model 2 included risk–return preference and sociodemographic variables, and model 3 consisted of investment horizon and sociodemographic variables. Model 4 only included sociodemographic variables to test its impact on sustainable investment choice. Changing the independent variables in each model still provided consistent results. The independent variables in models 1, 2, 3, and 4 were statistically significant in explaining the sustainable investment choice. The intercept in all models also showed positive signs with slightly different values. Consistency also can be found in the McFadden *R*-squared values in four models. The consistent results in four different simulation models show that our estimation model is robust.

Table 6. Robustness test.

	Sustainable Investment Choice			
	Model 1 (All)	Model 2 (Risk)	Model 3 (Horizon)	Model 4 (Control)
Risk—return preference (Low risk = 1)				
Moderate risk	−0.153 *** (0.050)	−0.171 *** (0.050)		
High risk	−0.432 *** (0.055)	−0.456 *** (0.054)		
Investment horizon (3–6 years = 1)				
6–10 years	−0.115 *** (0.032)		−0.126 *** (0.031)	
10–15 years	−0.137 *** (0.038)		−0.165 *** (0.037)	
More than 15 years	−0.087 ** (0.039)		−0.132 *** (0.039)	
Income	−0.346 *** (0.030)	−0.359 *** (0.031)	−0.370 *** (0.031)	−0.389 *** (0.030)
Gender (Male = 1)	−0.455 *** (0.026)	−0.451 *** (0.026)	−0.490 *** (0.026)	−0.485 *** (0.026)
Age	0.334 *** (0.041)	0.326 *** (0.040)	0.321 *** (0.041)	0.315 *** (0.040)
Intercept	1.316 *** (0.228)	1.389 *** (0.227)	1.362 *** (0.224)	1.444 *** (0.223)
Mcfadden R-Squared	0.020	0.020	0.018	0.017

The values in parentheses are standard errors; ** and *** denote significant coefficients at the 5% and 1% levels, respectively.

5. Conclusions

Defining the right target market is crucial for financial institutions to develop an effective marketing strategy for their sustainable investment products for retail investors. Additionally, it is also important for the government and financial authorities to understand the market segment of sustainable investment products to raise awareness of sustainable investment for the untouched segments. Lay-investors are more prone to make inappropriate investment decisions because of their lack of knowledge about finance and sustainable investment. Financial authorities can design educational campaigns targeted to each market segment as a means to provide customer protection to lay-investors. Better knowledge about sustainable investment can help to minimize the barriers to lay-investors who are interested in sustainable investment but have difficulties in choosing the right products. This study fills a gap by providing empirical evidence of the determinants of sustainable investment decisions in digital financial advisory settings. Using a large dataset from three Nordic countries, this study explored the sustainable investment preferences of robo-advisor clients. A logistic regression model was used to examine the relationship between investment-related attitudes and sociodemographic characteristics.

The findings of this study showed that clients with a low-risk appetite and short-term investment horizon were more likely to engage in sustainable investment. This strengthens the propositions of [27,39] that highlighted the importance of risk, return, and liquidity preferences in determining socially responsible investment choices. In terms of socio-demographic profiles, sustainable investments were preferred by less-wealthy, female, and older clients. We also included country effects in the second model, and the results indicated that Swedish clients were more engaged in sustainable investment than clients from neighboring countries. In relation to gender, our result was in line with previous studies that reported evidence that women are more engaged in social and environmental aspects [10,66]. Nevertheless, our study results contradicted to [14] which found that age and income were positively correlated to the amounts allocated to sustainable investments.

Our findings have several important implications both for policymakers and practitioners. First, our study provides identified investor profiles and their relationship to sustainability preferences. Policymakers and financial authorities should prioritize educational campaigns to foster knowledge among investors with lower engagement in

sustainable investment. Our results provide information relevant to policymakers to mobilize investors to sustainable investment through digital financial services. Second, from the practitioners' point of view, this study assists financial institutions to unlock retail investment potential by providing the characteristics of investors with a higher likelihood of choosing a sustainable investment.

This study is not without limitations. First, this study was conducted only in the Nordic context, limiting the author's capacity to analyze the behavior of investors from different backgrounds. Nordic countries are known to be leaders in sustainability movements [69], whereas many other countries still lag. Second, it is important to note that the sample used in this study was dominated by younger people, as robo-advisors were designed for the younger and tech-savvy generation. This leads to a possible bias in the analysis. Lastly, due to the unavailability of data, this study did not include other variables that might be relevant, such as financial literacy, digital literacy, and prior knowledge in investment, in the analysis. Despite of these limitations, this study provides initial findings about the determinants of sustainable investment behavior among robo-advisor clients. This study can be extended to a cross-cultural study to investigate where there is any difference in sustainable investment preference in countries with different levels of sustainability awareness. It would also be interesting to include financial literacy, prior knowledge in investment, and digital literacy as additional variables. Since robo-advisors combine digital and financial products, it is recommended to analyze investors' preferences from both perspectives.

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References

1. The Determinants of Business Contribution to the 2030 Agenda: Introducing the SDG Reporting Score—Pizzi—2021—Business Strategy and the Environment—Wiley Online Library. Available online: <https://onlinelibrary.wiley.com/doi/full/10.1002/bse.2628> (accessed on 9 September 2022).
2. From 'Why' to 'Why Not': Sustainable Investing as the New Normal | McKinsey. Available online: <https://www.mckinsey.com/industries/private-equity-and-principal-investors/our-insights/from-why-to-why-not-sustainable-investing-as-the-new-normal> (accessed on 25 May 2022).
3. Busch, T.; Bauer, R.; Orlitzky, M. Sustainable Development and Financial Markets: Old Paths and New Avenues. *Bus. Soc.* **2016**, *55*, 303–329. [CrossRef]
4. Past, Present, and Future of Sustainable Finance: Insights from Big Data Analytics through Machine Learning of Scholarly Research | SpringerLink. Available online: <https://link.springer.com/article/10.1007/s10479-021-04410-8> (accessed on 9 September 2022).
5. Fu, Y.; Wright, D.; Blazenko, G. Ethical Investing Has No Portfolio Performance Cost. *Res. Int. Bus. Financ.* **2020**, *52*, 101117. [CrossRef]
6. Jafri, J. When Billions Meet Trillions: Impact Investing and Shadow Banking in Pakistan. *Rev. Int. Polit. Econ.* **2019**, *26*, 520–544. [CrossRef]
7. Knoll, M.S. Ethical Screening in Modern Financial Markets: The Conflicting Claims Underlying Socially Responsible Investment. *Bus. Lawyer* **2002**, *57*, 681–726.
8. Lewis, A.; Mackenzie, C. Morals, Money, Ethical Investing and Economic Psychology. *Hum. Relat.* **2000**, *53*, 179–191. [CrossRef]
9. Gariet, W.S.C.; Robert, B.D.; SzeKee, K. Are Ethical Investments Good? 2014. Available online: <https://journals.sagepub.com/doi/full/10.1177/0312896213516327> (accessed on 9 September 2022).

10. Camilleri, M.A. The Market for Socially Responsible Investing: A Review of the Developments. *Soc. Responsib. J.* **2020**, *17*, 412–428. [CrossRef]
11. Sustainable Finance Package. Available online: https://ec.europa.eu/info/publications/210421-sustainable-finance-communication_en (accessed on 25 May 2022).
12. European Commission. Commission Delegated Regulation (EU) 2021/1257 of 21 April 2021. In *Amending Delegated Regulations (EU) 2017/2358 and (EU) 2017/2359 as Regards the Integration of Sustainability Factors, Risks and Preferences into the Product Oversight and Governance Requirements for Insurance Undertakings and Insurance Distributors and into the Rules on Conduct of Business and Investment Advice for Insurance-Based Investment Products (Text with EEA Relevance)*; European Commission: Brussels, Belgium, 2021; Volume 277.
13. Strategy for Financing the Transition to a Sustainable Economy. Available online: https://ec.europa.eu/info/publications/210706-sustainable-finance-strategy_en (accessed on 23 June 2022).
14. Gutsche, G.; Wetzel, H.; Ziegler, A. *Determinants of Individual Sustainable Investment Behavior—A Framed Field Experiment*; MAGKS Papers on Economics; Philipps-Universität Marburg, Faculty of Business Administration and Economics, Department of Economics (Volkswirtschaftliche Abteilung): Marburg, Germany, 2020.
15. Dorfleitner, G.; Braun, D. Fintech, Digitalization and Blockchain: Possible Applications for Green Finance. In *The Rise of Green Finance in Europe: Opportunities and Challenges for Issuers, Investors and Marketplaces*; Migliorelli, M., Dessertine, P., Eds.; Palgrave Studies in Impact Finance; Springer International Publishing: Cham, Switzerland, 2019; pp. 207–237. ISBN 9783030225100.
16. Gomber, P.; Kauffman, R.J.; Parker, C.; Weber, B.W. On the Fintech Revolution: Interpreting the Forces of Innovation, Disruption, and Transformation in Financial Services. *J. Manag. Inf. Syst.* **2018**, *35*, 220–265. [CrossRef]
17. Jung, D.; Dorner, V.; Weinhardt, C.; Pusmaz, H. Designing a Robo-Advisor for Risk-Averse, Low-Budget Consumers. *Electron. Mark.* **2018**, *28*, 367–380. [CrossRef]
18. Fisch, J.E.; Labouré, M.; Turner, J.A. The Emergence of the Robo-Advisor. In *The Disruptive Impact of FinTech on Retirement Systems*; Oxford University Press: Oxford, UK, 2019; ISBN 9780198845553.
19. Kiril, K. *OECD/INFE 2020 International Survey of Adult Financial Literacy*; OECD: Paris, France, 2020; p. 78.
20. Peterson, D.; Carlander, A.; Gamble, A.; Gärling, T.; Holmen, M. Lay People Beliefs in Professional and Naïve Stock Investors' Proneness to Judgmental Biases. *J. Behav. Exp. Financ.* **2015**, *5*, 27–34. [CrossRef]
21. Zwergel, B.; Winns, A.; Klein, C. Individual Investment Advice Is Key for Sustainable Investment Behaviour. Available online: <https://blogs.lse.ac.uk/businessreview/2019/12/18/individual-investment-advice-is-key-for-sustainable-investment-behaviour/> (accessed on 12 September 2022).
22. Brunen, A.-C.; Laubach, O. Do Sustainable Consumers Prefer Socially Responsible Investments? A Study among the Users of Robo Advisors. *J. Bank. Financ.* **2022**, *136*, 106314. [CrossRef]
23. Markowitz, H. Portfolio Selection. *J. Financ.* **1952**, *7*, 77–91. [CrossRef]
24. Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk*—Sharpe—1964—The Journal of Finance—Wiley Online Library. Available online: <https://onlinelibrary.wiley.com/doi/10.1111/j.1540-6261.1964.tb02865.x> (accessed on 11 September 2022).
25. Bauer, R.; Smeets, P. Social Identification and Investment Decisions. *J. Econ. Behav. Organ.* **2015**, *117*, 121–134. [CrossRef]
26. Adam, A.A.; Shauki, E.R. Socially Responsible Investment in Malaysia: Behavioral Framework in Evaluating Investors' Decision Making Process. *J. Clean. Prod.* **2014**, *80*, 224–240. [CrossRef]
27. Dorfleitner, G.; Utz, S. Profiling German-Speaking Socially Responsible Investors. *Qual. Res. Financ. Mark.* **2014**, *6*, 118–156. [CrossRef]
28. Hood, M.; Nofsinger, J.R.; Varma, A. Conservation, Discrimination, and Salvation: Investors' Social Concerns in the Stock Market. *J. Financ. Serv. Res.* **2014**, *45*, 5–37. [CrossRef]
29. D'Hondt, C.; De Winne, R.; Ghysels, E.; Raymond, S. Artificial Intelligence Alter Egos: Who Might Benefit from Robo-Investing? *J. Empir. Financ.* **2020**, *59*, 278–299. [CrossRef]
30. Shanmuganathan, M. Behavioural Finance in an Era of Artificial Intelligence: Longitudinal Case Study of Robo-Advisors in Investment Decisions. *J. Behav. Exp. Financ.* **2020**, *27*, 100297. [CrossRef]
31. Bhatia, A.; Chandani, A.; Chhateja, J. Robo Advisory and Its Potential in Addressing the Behavioral Biases of Investors—A Qualitative Study in Indian Context. *J. Behav. Exp. Financ.* **2020**, *25*, 100281. [CrossRef]
32. Höchstätter, A.K.; Scheck, B. What's in a Name: An Analysis of Impact Investing Understandings by Academics and Practitioners. *J. Bus. Ethics* **2015**, *132*, 449–475. [CrossRef]
33. Nicholls, A. The Institutionalization of Social Investment: The Interplay of Investment Logics and Investor Rationalities. *J. Soc. Entrep.* **2010**, *1*, 70–100. [CrossRef]
34. Ormiston, J.; Charlton, K.; Donald, M.S.; Seymour, R.G. Overcoming the Challenges of Impact Investing: Insights from Leading Investors. *J. Soc. Entrep.* **2015**, *6*, 352–378. [CrossRef]
35. E.T Jackson and Associates Ltd. Accelerating Impact Achievements, Challenges and What's Next in Building the Impact Investing Industry. Available online: <https://www.rockefellerfoundation.org/report/accelerating-impact-achievements/> (accessed on 12 September 2022).
36. Jansson, M.; Biel, A. Motives to Engage in Sustainable Investment: A Comparison between Institutional and Private Investors. *Sustain. Dev.* **2011**, *19*, 135–142. [CrossRef]

37. Webley, P.; Lewis, A.; Mackenzie, C. Commitment among Ethical Investors: An Experimental Approach. *J. Econ. Psychol.* **2001**, *22*, 27–42. [CrossRef]
38. Gutsche, G.; Ziegler, A. Which Private Investors Are Willing to Pay for Sustainable Investments? Empirical Evidence from Stated Choice Experiments. *J. Bank. Financ.* **2019**, *102*, 193–214. [CrossRef]
39. Bassen, A.; Gödker, K.; Lüdeke-Freund, F.; Oll, J. Climate Information in Retail Investors' Decision-Making: Evidence From a Choice Experiment. *Organ. Environ.* **2019**, *32*, 62–82. [CrossRef]
40. Riedl, A.; Smeets, P. Why Do Investors Hold Socially Responsible Mutual Funds? *J. Financ.* **2017**, *72*, 2505–2550. [CrossRef]
41. Rossi, M.; Sansone, D.; van Soest, A.; Torricelli, C. Household Preferences for Socially Responsible Investments. *J. Bank. Financ.* **2019**, *105*, 107–120. [CrossRef]
42. Fernandez-Perez, A.; Garel, A.; Indriawan, I. Is Sadness Good for Sustainable Investing? Available online: <https://www.corporateknight.com/responsible-investing/in-the-mood-for-sustainable-funds/> (accessed on 12 September 2022).
43. Veld-Merkoulova, Y.V. Investment Horizon and Portfolio Choice of Private Investors. *Int. Rev. Financ. Anal.* **2011**, *20*, 68–75. [CrossRef]
44. Dierkes, M.; Erner, C.; Zeisberger, S. Investment Horizon and the Attractiveness of Investment Strategies: A Behavioral Approach. *J. Bank. Financ.* **2010**, *34*, 1032–1046. [CrossRef]
45. Choi, J.J.; Robertson, A.Z. What Matters to Individual Investors? Evidence from the Horse's Mouth. *J. Financ.* **2020**, *75*, 1965–2020. [CrossRef]
46. Cox, P.; Brammer, S.; Millington, A. An Empirical Examination of Institutional Investor Preferences for Corporate Social Performance. *J. Bus. Ethics* **2004**, *52*, 27–43. [CrossRef]
47. Benson, K.L.; Humphrey, J.E. Socially Responsible Investment Funds: Investor Reaction to Current and Past Returns. *J. Bank. Finance* **2008**, *32*, 1850–1859. [CrossRef]
48. Anderson, A.; Robinson, D.T. *Climate Fears and the Demand for Green Investment*; Social Science Research Network: Rochester, NY, USA, 2019.
49. Trope, Y.; Liberman, N. Construal-Level Theory of Psychological Distance. *Psychol. Rev.* **2010**, *117*, 440–463. [CrossRef] [PubMed]
50. Berkowitz, L.; Lutterman, K.G. The Traditional Socially Responsible Personality. *Public Opin. Q.* **1968**, *32*, 169–185. [CrossRef]
51. Anderson, W.T.; Cunningham, W.H. The Socially Conscious Consumer. *J. Mark.* **1972**, *36*, 23–31. [CrossRef]
52. Laroche, M.; Bergeron, J.; Barbaro-Forleo, G. Targeting Consumers Who Are Willing to Pay More for Environmentally Friendly Products. *J. Consum. Mark.* **2001**, *18*, 503–520. [CrossRef]
53. Diamantopoulos, A.; Schlegelmilch, B.B.; Sinkovics, R.R.; Bohlen, G.M. Can Socio-Demographics Still Play a Role in Profiling Green Consumers? A Review of the Evidence and an Empirical Investigation. *J. Bus. Res.* **2003**, *56*, 465–480. [CrossRef]
54. Nilsson, J. Investment with a Conscience: Examining the Impact of Pro-Social Attitudes and Perceived Financial Performance on Socially Responsible Investment Behavior. *J. Bus. Ethics* **2008**, *83*, 307–325. [CrossRef]
55. Escrig-Olmedo, E.; Muñoz-Torres, M.J.; Fernández-Izquierdo, M.Á. Sustainable Development and the Financial System: Society's Perceptions About Socially Responsible Investing. *Bus. Strategy Environ.* **2013**, *22*, 410–428. [CrossRef]
56. McLachlan, J.; Gardner, J. A Comparison of Socially Responsible and Conventional Investors. *J. Bus. Ethics* **2004**, *52*, 11–25. [CrossRef]
57. Chamorro-Mera, A.; Palacios-González, M.M. Socially Responsible Investment: An Analysis of the Structure of Preferences of Savers. *Corp. Soc. Responsib. Environ. Manag.* **2019**, *26*, 1423–1434. [CrossRef]
58. Junkus, J.C.; Berry, T.C. The Demographic Profile of Socially Responsible Investors. *Manag. Financ.* **2010**, *36*, 474–481. [CrossRef]
59. Risi, D.; Paetzold, F.; Kellers, A. Wealthy Private Investors and Socially Responsible Investing: The Influence of Reference Groups. *Sustainability* **2021**, *13*, 12931. [CrossRef]
60. Male and Female Betting Behaviour: New Perspectives | SpringerLink. Available online: <https://link.springer.com/article/10.1007/BF02109939> (accessed on 11 September 2022).
61. Decision Making, Risk and Gender: Are Managers Different?—Johnson—1994—British Journal of Management—Wiley Online Library. Available online: <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-8551.1994.tb00073.x> (accessed on 11 September 2022).
62. Corporate Social Responsibility and Socially Responsible Investing: A Global Perspective | SpringerLink. Available online: <https://link.springer.com/article/10.1007/s10551-006-9103-8> (accessed on 11 September 2022).
63. Gen Z Cares about Sustainability More than Anyone Else—And Is Starting to Make Others Feel the Same Way. Available online: <https://www.weforum.org/agenda/2022/03/generation-z-sustainability-lifestyle-buying-decisions/> (accessed on 11 September 2022).
64. Which Countries Are Achieving the UN Sustainable Development Goals Fastest? Available online: <https://www.weforum.org/agenda/2017/03/countries-achieving-un-sustainable-development-goals-fastest/> (accessed on 9 September 2022).
65. Stoltzfus, J.C. Logistic Regression: A Brief Primer. *Acad. Emerg. Med.* **2011**, *18*, 1099–1104. [CrossRef] [PubMed]
66. Wins, A.; Zwergel, B. Comparing Those Who Do, Might and Will Not Invest in Sustainable Funds: A Survey among German Retail Fund Investors. *Bus. Res.* **2016**, *9*, 51–99. [CrossRef]
67. Hartzmark, S.M.; Sussman, A.B. *Do Investors Value Sustainability? A Natural Experiment Examining Ranking and Fund Flows*; Social Science Research Network: Rochester, NY, USA, 2019.

-
68. Veall, M.R.; Zimmermann, K.F. Pseudo-R2 Measures for Some Common Limited Dependent Variable Models. *J. Econ. Surv.* **1996**, *10*, 241–259. [[CrossRef](#)]
 69. What Puts Nordic Countries at the Top of the Sustainability Rankings? Available online: <https://www.activesustainability.com/sustainable-development/nordic-countries-top-sustainability-rankings/> (accessed on 23 June 2022).