School of Economics and Management

Literature Review: *How to Foster the Role of Households in Financing The Energy Transition*

CentER Honors Research Experience

Supervised by Prof. Dr. Arthur van Soest

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[1]The additional submission of individual findings, supplementing the group project, was made after the program concluded in July 2024. The appendix is not included due to the file size, but can be accessed from Google Drive and GitHub. Please note that the submission was not graded.

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Contents

A review on ESG investing: Investors' expectations, beliefs and perceptions

Aim and Main Findings

According to the study, investors are willing to pay more to hold green assets, which in effect drives prices up, resulting in lower expected returns. This leads to negative CAPM alphas (Kräussl et al., 2024, [1]). Furthermore, the study also discusses ESG investor uncertainty due to ESG ratings divergence, where: "ESG profile of an asset can weaken the negative return predictability of the asset's ESG score, as higher risk due to ESG uncertainty commands a higher risk premium" (Kräussl et al., 2024, p. 478, [1]). In addition, the study mentions negative (exclusionary) vs. positive screening, where the willingness to pay (sacrifice of expected returns) for green assets combined with accelerating ESG asset demand can create a shift in ESG asset concentration (p.483, [1]).

Reference to Literature

Table 1 demonstrates the consensus in the literature on investor preferences for sustainability (p.485, [1]). The main themes of the findings of the nine different listed studies consist of social signaling and social motives being superior to financial motives, the existence of non-pecuniary benefits, the existence of willingness to pay for less returns for sustainable products, and the sensitivity of investor demand to market information for ESG ratings.

In addition, the study highlights the effect of "Warm Glow" where, by definition: "A pleasure derived from doing good, regardless of the actual impact of one's action" (Kräussl et al., 2024, [1]). The discussion refers to a study by Heeb et al. (2023, [2]) where an investor is defined as: "[...] a 'warm glow' optimizer rather than a consequentialist who optimizes the impact of her investment" (p.486, [1]). The study highlights the heterogeneity of investors in ESG demand as an avenue for future research.

Possible Contribution to the Project and Comments

As will be demonstrated in more detail, there is a divergence between institutional investors and retail investors for the demand for ESG products, where retail investors consider the demand to be driven by ethical motives more than the financial background of an asset. In addition, there is a significant overlap in literature on the concept of a "Warm-glow" effect, and hence the mentioned effect can be incorporated into the willingness-to-pay element of demand of investors. The warm glow effect and the time-varying demand for ESG products warrant further investigation to better understand their impact on ESG demand.

Notable Concepts

- Warm glow
- ESG rating uncertainty
- Willingness-to-pay
- Non-pecuniary utility
- Heterogeneous preferences of investors

Altruism and Egoism in Investment Decisions

Aim and Main Findings

The study finds that if the time horizon is not considered, the heuristics cannot explain the heterogeneous differences in ESG demand (Brodback, 2019, [3]). Furthermore, the study demonstrates strong positive relation between non-pecuniary motives and altruistic values. Pecuniary motives are found to be related to egotistic values. The study finds that: "An individual that scores high on the egoism scale only cares about an asset's responsibility if she expects a financial reward" (Brodback, 2019, p.120, [3]). The authors also highlight the limitation of stated preferences due to the possibility of "cheap talk".

The authors base their argumentation and empirical reasoning on the Value-Belief-Norm Theory. They expect that: "Altruistic values, beliefs about the effectiveness of socially responsible investments, and personal norms will be positively related to the relative importance of social responsibility in investment decisions" (p.119, [3]).

The authors find that there is a positive link between altruistic values and social responsibility. They find that: "For an increase in altruism from the 25th to the 75th percentile, the relative importance of social responsibility increases by 10.31 percentage points. This effect is even stronger when individuals feel morally obliged to invest responsibly and believe they can make a positive social or environmental impact with their investments" (p.119, [3]).

Furthermore, if altruistic individuals associate responsible investments with higher returns, there is a significant reduction in demand for SRI. This result is demonstrated by: "For individuals at the 90th percentile of altruism, a one-unit increase in SRI return perception leads to a 2.13 percentage points lower

relative importance of social responsibility" (p.119, [3]).

The authors further examine the influence of egotistic values on preferences for sustainable investments. They find that as egoism increases from the 25th to the 75th percentile, the relative significance of social responsibility declines by 4.9 percentage points. However, egoism only enhances the importance of social responsibility when individuals anticipate higher returns from socially responsible investments. Specifically, a one-unit increase in the perceived returns of such assets increases the relative importance of social responsibility by 9.71 percentage points for individuals at the 75th percentile of the egoism scale (p.119, [3]).

The authors conclude that investors characterized by higher preferences for higher returns for SRI are characterized by ego-driven investors with low beliefs and moral obligations to engage in SRI. Interestingly, the authors find that self-reported investment knowledge is significantly lower compared to return-focused investors for altruistic investors (p.119, [3]). This result might indicate the presence of overconfidence in high scores of self-reported financial literacy.

Reference to Literature

During the discussion of results, the authors upon their findings of less motivation per higher return for highly altruistic individuals, they highlight previous studies for the effect: Andreoni and Payne, 2011, [4]; Ariely, Bracha, and Meier, 2009, [5]; Frey and Jegen, 2001, [6]; Gneezy, Meier, and Rey-Biel, [7], 2011.

The authors mention Value-Belief-Norm Theory and its link to pro-environmental behavior. They further discuss the impact of altruism, beliefs, and norms on pro-environmental behavior, mentioning studies: "Beliefs and norms enhance the effect of altruism on pro-environmental behavior" (Stern et al., 1999, [8]). The effect of altruistic values on willingness (motivation) to reduce negative climate policies is positive (Nillson et al., 2004, [9]). Steg et al. (2005, [10]) provides evidence for mediating the effect of norms and beliefs in accordance with the Value-Norm-Belief Theory for pro-environmental behavior in sustainable consumption.

Furthermore, the authors discuss a potential crowding-out effect of extrinsic (financial) motivation reducing intrinsic motivation to participate in SRI, such as: "[...] a financial compensation will lower individuals' willingness to donate blood [...]" (Brodback, 2019, p.122, [3]). The main body of the literature discusses the concept as follows:

Financial incentives crowd out intrinsic motivation and socially acceptable behavior when social norms and behavior are considered (Ariely et al., 2009, [5]; Frey and Oberholzer-Gee, 1997, [11]; Gneezy and Rustichini, 2000a,b, [12], [13]). Financial incentives may diminish intrinsic motivations for responsible investing (Døskeland and Petersen, 2013, [14]).

Possible Contribution to the Project and Comments

Incorporating altruism into the WTP element of the demand for ESG products is significant. Incorporating predictive variables to the survey design such as sustainable lifestyle, and history of charitable giving may increase robustness. The lower demand for SRI due to the presence of higher returns can be incorporated into our research design. The study also highlights the low robustness of self-reported financial literacy. The study does not contribute to the differentiation of product/demand and investor heterogeneity in our project, but provides an outline of investor motivation.

The motivations behind sustainable investment and exploring how different psychological, behavioral, and heuristics (time horizon, status quo bias) can contribute to differentiated demand for ESG factors under "Value-Norm-Belief" theory warrant further research.

Notable Concepts

- Alturism and WTP
- Altruism vs. egotistic values
- Stated preferences, cheap talk
- Value-norm-belief theory (VBN)

ESG investing: Does one score fit all investors' preferences?

Aim and Main Findings

The study uses the Theory of Planned Behavior (Ajzen, 1991, [15]) as a framework for their analysis. The study argues that attitudes toward ESG might be heterogeneous. The study uses data from individual French investors recruited from a crowd-sourcing platform. Twenty criteria commonly used to calculate ESG scores are surveyed and factor analysis is performed (Assaf, 2024, [16]). In particular, within the framework of the Planned Behavior model, the study defines intention as: "[...] investors' willingness to

pay to invest in firms with a high ESG score" and defines behavior as: "[...] whether they hold ESG products" (p.1, [16]).

The results indicate that investors rate the ESG criteria based on five categories of attitudes labeled as, which has a notable contribution to the analysis of ESG demand in our project (p.1, [16]):

1) Anti-discrimination
2) Green for the planet
3) Anti-fraud
4) Day-to-day green
5) Economic development

Assaf (2024) finds that from the five categories mentioned, three categories rely on social criteria (Anti-discrimination, Anti-fraud, Economic development), one category addresses governance and two categories address environmental (Green for the planet, Day-to-day green) criteria (p.1, [16]). The study finds that the identified attitudes categories do not match three predefined ESG pillars (p.1, [16]).

The study finds that the average rating of the S (4.03) items is higher than the E (3.72) items, and the G items rank the lowest (3.48) (Assaf, 2024, p.4, [16]). This implies a relationship of S > E > G as relevant to investor preferences. Response characteristics under the mentioned five themes are the following (p.5):

- Green for the Planet: Women show less affinity for this attitude.
- Anti-fraud: Women and a high debt-to-wealth ratio have less affinity.
- Day-to-day Green: Mostly influenced by gender, women are more likely to exhibit this behavior.
- Economic Development: Socioeconomic variables are more influential on behavior, wealth has a positive impact on affinity.

Furthermore, Assaf (2024, [16]) identifies several factors with statistically significant impact on the likelihood of holding ESG assets. Table 6 shows the respective results per factor. The dependent variable is the willingness to pay per criterion. The results for each factor are as follows:

- Anti-discrimination: Strongly significant WTP for high ESG scores. The G subcategory is dominant over others. Preferences linked to anti-discrimination domain follow a preference order of: G > S > E.
- Green for the Planet: Significant WTP for high scores, but less compared to Anti-discrimination. The order of ranked preferences is: E > S ≥ G.
- Anti-fraud: The influence on WTP is the least compared with Anti-discrimination and Green for the planet, only interested in S. No willingness to pay for E and G.

According to the study, investors are more interested in the social pillar of sustainable investments on average (p.8, [16]). The social pillar (S) is represented by, in the study, by Anti-fraud, Anti-discrimination, and Economic Development themes. Out of three pillars, anti-fraud and anti-discrimination efforts are linked (statistically significant) to the share invested in ESG funds and ESG stock picking.

Reference to Literature

The authors investigate elements that influence the demand for ESG, including the impact of intention and attitudes. They also discuss the salience of ESG scores as a potential driver of ESG demand. The literature analysis of the authors on this notion is as follows:

- Investors are very sensitive to the salience of ESG scores and sustainability labels. This might be due to convenience of information and ease of information processing needed for ESG products: Ceccarelli et al., 2024, [17]; Hartzmark and Sussman, 2019, [18].
- Attitudes are a critical driver of ESG investing: Adam and Shauki, 2014, [19]; Palacios-Gonzales and Chamorro-Mera, 2018, [20].

Regarding the salience of the ESG scores, the discussion is as follows:

- Having a low sustainability rating by *Morningstar* in 2016 resulted in outflows of $12 billion, while firms with high scores experienced net inflows of $24 billion (Hartzmark and Sussman, 2019, [18]). A similar response was observed in 2018 with the introduction of a climate-focused label by *Morningstar* for mutual funds (Ceccarelli et al., 2024, [17]).

Furthermore, during the discussion of their findings, the authors also highlight the concern of investors while investing sustainably from the literature:

- An important determinant of the investment in ESG could be investor financial concerns, and a potential negative attitude could exist due to

perceived profitability of ESG investments (Pilaj, 2017, [21]).

An interesting finding of Huang et al. (2023,[22]) is discussed further where the subcategories of environmental and social criteria are found to be significant for the long-term performance of a merger (p.3, [16]).

Furthermore, the literature on investors' sacrifice of return on SRI and having less pronounced financial motives to engage in SRI is discussed, as follows:

- Investors with socially responsible tastes earn a lower alpha when picking assets according to their preferences (Fama and French, 2007, [23]).
- The correlation between fund flows and past fund performance is weak for ESG funds compared to conventional funds, suggesting less sensitivity to the financial dimension for ESG investors (Bollen, 2007, [24]; Renneboog et al., 2011, [25]).
- Riedl and Smeets (2017) demonstrate that prosocial behavior (in an experimental setting) can increase the likelihood of holding SR funds. Furthermore, they find that ESG fund holders are more likely to donate to charities. ESG investors' willingness to pay is also demonstrated from their survey (Assaf, 2024, p.3, [16]; Riedl and Smeets, 2017, [26]).

Possible Contribution to the Project and Comments

The authors highlight how ESG attitudes are composed of five sub-dimensions and how under the framework of Theory of Planned Behavior, five mentioned subcategories can influence intentions to invest into sustainable investment products. Their framework can be used to augment future surveys to detect heterogeneous preferences toward ESG products more effectively. The authors suggest taking advantage of the framework for further research.

Notable Concepts

- Theory of planned behavior: Intention and behavior
- Attitudes and Intentions, under the theory of planned behavior
- Salience of ESG scores
- Impact of ESG attitudes on investment
- Heterogeneous ESG attitudes (Heterogeneity might not be identical to intentions, verifying the design of revealed preferences vs. stated).

Attitudes Towards Socially and Environmentally Responsible Investment

Aim and Main Findings

The study aims to investigate whether Dutch pension beneficiaries want their funds invested according to their social preferences. The study also aims to investigate to what extent pension beneficiaries can translate their stated preferences into financial decisions (p.28, [27]). The study aims to isolate (and disentangle from preferences) the non-pecuniary utility of investors. The study hypotheses are the following:

- Beneficiaries have heterogeneous attitudes towards socially responsible pension investments.
- Beneficiaries are willing to give up pension income to better align their pension investments with their social attitudes.
- Beneficiaries are unable to make consistent financial decisions while simultaneously taking their non-financial preferences into account.
- Beneficiaries with low levels of financial literacy are less capable of making financial decisions while simultaneously taking their non-financial preferences into account.

According to Borgers (2014): "Majority of beneficiaries derive positive utility from environmental and social pension investment screens and that expressing a positive attitude towards screened pension investments is the most important driver of this effect" (p.27, [27]). Furthermore, the authors validated that the daily behavior of the respondents was consistent with their self-assessed attitudes. Borgers (2014) find that the WTP is lower for men, increases in education, income, having a positive attitude for social and environmental screening. Having a positive attitude for social and environmental screening leads to an increase in 40% willingness to sacrifice pension income (p.28-29, [27]).

Thematically, the findings can be categorized as the following:

1) Social Responsibility and Exclusionary Strategy preferences: Human rights offenders and weapon industry were ranked the most important, where alcohol is considered least important (p.31, [27]). Table 1, showcases the complete analysis of attitudes (p.32, [27]). Human rights criteria have the lowest SD, showcasing a population consensus. Interestingly, 17.5% of respondents indicate they want to invest less in the socially screened portfolio (where risk

and return is identical to a conventional option). With respect to this group, unreported analyses indicate lower financial literacy, where the authors argue the correlation between lower financial literacy and inconsistent financial behavior (p.31, [27]).

2) Notable indifference: Results from Panel A indicate a significant portion (34.13%) of the sample are indifferent between two portfolios (conventional vs. screened), which might suggest the presence of risk aversion. The authors mention that the change in utility to switch to screened portfolios might not yield large enough utility to switch to a slightly riskier portfolio (p.33, [27]).
3) Preference with equal risk and return portfolios: The authors find that 55% of respondents prefer screened portfolio when risk and return characteristics of portfolios presented equal. Although this result indicates that there is a significant demand for sustainable products, there is a significant portion of investors not considering screened portfolios even under a hypothetical setting where risk and return characteristics are identical between two portfolios. The authors highlight a behavioral discrepancy upon these findings, under the section 4.2.2.
4) Inconsistent/irrational behavior and financial literacy: Considerable portion of the sample is inconsistent according to the authors' consistency criteria: "Positive utility gained from expected returns, negative utility from risk, neutral/positive/negative utility from exposure to the social and environmental attributes of the portfolio" (p.34, [27]). The empirical analysis authors have conducted is extensively discussed under the Section 4.3 and Table D.1, for further reference. To analyze whether inconsistencies can be explained by levels of financial literacy, the authors use the expanded literacy questions from Lusardi and Mitchell (2008, [28]). Table 3 summarizes the results, where financial literacy variables have negative and significant coefficients for inconsistency variables. In summary, the authors show that over third of the beneficiaries are not able to incorporate their preferences into their financial decisions – consistent with rational behavior.
5) Preferences for best practices: Employee relations (social dimension) is the most important, while charity is the least important. The authors further assess the possibility that investors may prefer to engage in charitable giving individually. They also suggest that charity and sustainable products could potentially crowd out each other due to investors' aversion to charity with returns. In addition, women value all screening criteria significantly higher than men. Female beneficiaries are found to have a fixed positive effect towards social and environmental screening. Table 4 summarizes authors' findings.
6) Willingness to pay: According to Table 5, roughly 40% of respondents are willing to give up to 5% of their income (p.37, [27]). 70% of respondents have positive WTP, confirming authors' second hypothesis.
7) Determinants of WTP: Dummy variable that takes on the value 1 if there is any alignment for preferences and WTP is present, which is a notable approach. The study finds increased likelihood of higher WTP when screening is rated more important. The authors added a dummy (in Table 6) "[...] that takes on the value of one if the respondent scores at least one screen higher than four out of seven" (p.38, [27]). Higher education, and higher income categories have more WTP for personalized social screening. The authors highlight the most significant finding regarding WTP as: "individuals who have a positive stated preference towards at least one of the social screens are 40 percent more likely to sacrifice pension income" (p.37, [27]). Gender differences are also highlighted, female beneficiaries have stronger preferences towards social screening. Older people rate screens higher on average. Risk tolerance and smoking indicates less likelihood to prefer social screening.

Reference to Literature

Willingness to pay and non-pecuniary utility in decision making: According to Borgers (2014, [27]), when individual investors view investments as consumption goods rather than as investment products (Keloharju et al., 2012, [29]), non-financial attributes can play a role in their decision to invest or not (p.29, [27]).

Regarding non-pecuniary utility, Borgers (2014, [27]) mentions the following literature:

- Mutual fund investors gain non-pecuniary benefits from investing in SRI (Bollen, 2007, [24]; Nillson, 2009, [30]). Also, for socially responsible

(SR) banking clients (Bauer and Smeets, 2016, [31]).
- Investors with non-pecuniary utility in their preferences consider past return performance of funds less (Renneboog et al., 2011, [25]).
- Socially conscious buyers are observed in previous research, such as Auger et al. (2008, [32]) where 40% of the study sample is classified as socially conscious consumers of soap bars and athletic shoes. De Pelsmacker et al. (2005, [33]) also report that with their sample, 50% of consumers attribute fair trade of coffee as important.

Regarding willingness to pay/sacrificing returns, the literature in the study is as follows:

- WTP for environmental products (Laroche et al., 2001, [34]) and ethical products (Auger et al., 2003, [35], 2008, [32]) are notable findings.
- In an experimental setting, Andreoni and Miller (2002, [36]) note that 75% of their sample give up income for non-pecuniary utility, where 25% are pure money maximizers.

Financial Literacy and Decision making: The authors discuss financial literacy and its impact on investor sophistication and behavior. Higher literacy individuals are more prone to plan their retirement (Van Els et al., 2004, [37]; Lusardi and Mitchell, 2007a, [38],b, [39]; Van Rooij et al., 2011a, [40]), have higher levels of savings (Bernheim et al., 2001, [41]; Bernheim and Garrett, 2003, [42]) and are more likely to participate in the stock market (Van Rooij et al., 2011b, [43]). These themes of literature suggest that it is crucial to integrate financial literacy variables into a survey, but, as noted by previous studies, augmented by the consideration of overconfidence.

Possible Contribution to the Project and Comments

The study measures preferences by asking respondents whether they prefer bonds or stocks (bonds classified as low risk, moderate return, and stocks as high risk and higher return) so that the authors tried to measure whether investors make consistent decisions. This concept can be further extended into the measure of self-reported financial literacy, the decision between a well-defined characteristic of a portfolio, and a decision between stocks and bonds that are equivalent to well-defined characteristics. With this method, the impact of financial literacy on willingness to pay can be disentangled.

With certain preferences, the authors supplement their findings with a low standard deviation in a choice setting as a "population consensus", which the approach is recommended to revisit.

Inconsistency measurement and empirical design of this study is notable, inconsistency design can be adapted to future surveys. Their design is highly recommended.

Dummy variable that takes on the value 1 if there is any alignment for preferences and WTP is present, which the approach is recommended to revisit.

Financial literacy PCA, Table C.1.

Notable Concepts

- Financial literacy and investor inconsistency
- Willingness to pay and its determinants
- Attitudes and intentions

Can information provision and preference elicitation promote ESG investments? Evidence from a large, incentivized online experiment

Aim and Main Findings

Seifert (2024, [44]) aims to investigate whether information about financial return and ESG impacts can impact investors' decision to invest sustainably, individually and jointly. Furthermore, the study also incorporates empirical analysis of the impact of ESG components on an investor's decision to invest and whether the investor differentiates the amount of investment when exposed to different components of ESG criteria (Seifert, 2024, [44]).

The study tries to elicit participant satisfaction with a post-experiment questionnaire and aims to analyze the heterogeneous effects of financial return and ESG impact information treatments, where information provision is treatment.

Hypotheses of the study (p.3, [44]):

1) Hypothesis 1.1: "Both information on financial return and information on ESG impact increase ESG investments compared to a treatment with only basic, legally required information about ESG."
2) Hypothesis 1.2: "The combination of financial return information and ESG impact information increases ESG investments more than either does on its own."

3) Hypothesis 1.3: "Both information on financial return and information on ESG impact increase investor satisfaction with the information received compared to a treatment with only basic, legally required information about ESG."
4) Hypothesis 1.4: "The combination of financial return information and ESG impact information increases investor satisfaction with the information received more than either does on its own."
5) Hypothesis 2: "The elicitation of ESG preferences itself impacts ESG investments and satisfaction."
6) Hypothesis 3: "Investors who care more about biospheric and altruistic values and who have greater household income and financial literacy invest more sustainably."

During the experiment, participants were asked to imagine seeking advice from a bank about investing 600 euros (p.4, [44]). The authors aimed to elicit information from liquidity, returns, risk, and ESG variables. Participants were randomly assigned to one of four treatments:

1) Basic information treatment: Basic information on ESG.
2) Financial return information treatment: Basic information on ESG and financial returns.
3) ESG Impact Information Treatment: Basic ESG information and ESG impact.
4) Combined information treatment: Basic ESG and financial returns and ESG impact information.

After the information treatment, participants were asked about their sustainability preferences:

- General Sustainability Preference Elicitation: The minimum percentage of investment should meet ESG criteria.
- Specific Sustainability Preference Elicitation: Either products avoid significant negative impacts on ESG products or products that invest in sustainable activities.

Figure 1 demonstrates the characteristics of the funds used for the experiment (p.4, [44]).

Outcome variables:

- Sustainable ESG investments: Percentage of the 600 euros invested.
- Satisfaction with information on ESG investments.
- Stability of investment decisions: Hypothetical scenario, if conventional funds perform better (worse) 5% than sustainable, do investors want to change allocation? The variable is binary, where a value of 1 indicates stability.
- Deviation from the recommendation = Total amount invested – recommendation.

Explanatory variables: Biospheric and altruistic value orientation, based on (De Groot and Steg, 2007, [45], 2008, [46]). Biospheric variable constructed from four variables as: Preventing pollution, respecting the earth, unity with nature, protecting the environment. Altruistic variable as: Equality, a world at peace, social justice, and helpfulness (p.5, [44]). Financial literacy based on Lusardi and Mitchell (2008, [28]).

Control variables: Gender, age, education, risk preference, experience in investing, trust in ESG products, trust in information, and perceived relevance of incentives are control variables.

Results:

Participants invest 65.73%, SD 27.94% of the funds (p.6, [44]). Compared to the naive diversification strategy, the level of investment is 94.93 euros higher and statistically significant ($p < 0.001$). ESG investments are higher in retail investors than in the population sample. Fund D preferred the most (active investment rather than screening).

Financial return and ESG impact information: According to the authors' findings: "the average investment in sustainable ESG products amounts to 362.90 euros (SD = 172.69) in the basic information treatment. This number increases to 395.80 euros (SD = 160.57) in the financial return information and to 411.90 euros (SD = 167.25) in the ESG impact information treatments. Finally, the average investment amounts to 406.60 euros (SD = 165.93) in the combined information treatment" (Seifart, 2024, p.6, [44]). Providing both types of information has a negative interaction coefficient, suggesting financial return information and ESG impact information are substitutes.

Differences in personal values, income, and financial literacy as determinants for ESG investments: The authors' results show that caring more about biospheric values, greater household income, financial literacy, greater trust in ESG, higher education have positive effect on the amount of ESG investments.

Altruism has no impact. Greater preferences for risk taking have a negative impact (p.8, [44]).

ESG sustainability preferences: Table 5 shows that both financial return and ESG impact information positively influence the indicated sustainability preferences. Combined information treatment reduces the probability of selecting a lower amount of sustainable investment (7.5 percentage points).

Stability of investment decisions: Important finding. Information treatment has no impact. But when if conventional funds had outperformed sustainable funds by 5 percentage points, 67. 30% of the participants would maintain, 17. 84% would increase their investments, and only 14. 86% would decrease their investments. This might indicate the presence of willingness-to-pay.

Participants actively seek to invest sustainably rather than diversify, and the combination of financial returns and ESG impact information does not affect the allocation of ESG investment more than each of the variables alone. The authors mention "motivational crowding out" (Frey and Jegen, 2001, [6]). They also highlight that investors might lose their intrinsic desire when financial return information is highlighted, which is consistent with the general literature.

The authors' findings also suggest that additional ESG information has a greater impact on the general population than on experienced investors.

Furthermore, it is important to note that: "Without sufficient information, many (potential) investors who prefer sustainable options may not be aware of the available sustainable investment choices (Gutsche and Zwergel, 2020, [47]; Wins & Zwergel, 2016, [48]), potentially contributing to the value action gap seen in certain investment decisions" (Brunen & Laubach, 2022, [49]; Kollmuss & Agyeman, 2002, [50]).

Reference to Literature

The study refers to literature studying the financial, environmental, social, or moral information in isolation that impacts green investments or SRI: Barreda-Tarrazona et al., 2011, [51]; Doskeland and Pedersen, 2016, [52],2021, [53]; Heeb et al., 2023, [2]; Lagerkvist et al., 2020, [54]; Siemroth and Hornuf, 2023, [55].

Investors consider financial and non-financial aspects of sustainable investments: Degryse et al., 2023, [56] ; Gutsche et al., 2023, [57]; Riedl and Smeets, 2017, [26].

Both financial and ESG impact information are potentially important for sustainable investments: Gutsche and Ziegler, 2019, [58]; Hartzmark and Sussman, 2019, [18]; Hong and Kostovetsky, 2012, [59]; Riedl and Smeets, 2017, [26].

Greater regard for biospheric and social values correlates positively with SRI: Bassen et al., 2019, [60]; Bauer et al., 2021, [61]; Gutsche et al., 2023, [57].

Higher household income correlates positively with the amount of SRI: Cheah et al., 2011, [62]; Escrig-Olmedo et al., 2013, [63]; Gutsche et al., 2023, [57].

Higher financial literacy and higher SRI: Bauer and Smeets, 2015, [31]; Gutsche et al., 2021, [64], 2023, [57]; Riedl and Smeets, 2017, [26].

Financial considerations are a more important driver of sustainable investments than other considerations, but the authors challenge that: Døskeland and Pedersen, 2016, [52], 2021, [53].

The authors instead confirm that both aspects of return and ESG impact are important, or other aspects are not negligible on their own: Døskeland and Pedersen, 2016, [52], 2021, [53]; Barreda-Tarrazona et al., 2011, [51]; Bassen et al., 2019, [60]; Heeb et al., 2023, [2]; Siemroth and Hornuf, 2023, [55].

Trust is an ESG determinant, according to the authors' results and the literature: Gutsche et al., 2023, [57]; Gutsche and Zwergel, 2020, [47]; Nilsson, 2008, [65].

The authors highlight the possibility of sustainable investments being perceived as less risky: Scholtens and van't Klooster, 2019, [66]; Verheyden et al., 2016, [67].

During the discussion of limitations, the authors discuss "windfall gains" inflating results: Hoffmann et al., 2019, [68]. The authors also mention no control groups for no information as a potential limitation.

Higher willingness to pay for sustainable products mentioned in the literature: Engler et al., 2023, [69]; Heeb et al., 2023, [2]; Riedl and Smeets, 2017, [26].

Possible Contribution to the Project and Comments

The study's heterogeneity of information treatment impact is notable. In addition, randomization with information treatment can be modified for future survey design (as demonstrated in Figure 2). Financial

return and ESG impact information are noted as potential substitutes; this could yield further disentanglement of these elements for a future survey design. Investors prefer more of the fund with a legal definition of sustainability. This could be correlated with the impact of trust on SRI, which is important to consider for future analysis. Reduced uncertainty in ESG information and information redundancy can yield more SRI investments.

Notable Concepts

- Motivational crowd-out
- Value-action gap
- Investment stability
- Financial return and ESG impact information as substitutes
- More trust in legal definition of sustainability
- Trust in information
- Green-washing

Do Investors Care about Impact?

Aim and Main Findings

The study explores how the WTP of investors for SRI responds to the social impact of these investments. The main finding of the study is that investors do not pay significantly more for more impact, suggesting that investors consider investing sustainably as categorical rather than quantifying their decisions with impact. The authors also suggest an emotional component to sustainable investment decisions.

The study conducts a framed field experiment with experienced investors, where investors choose between a “sustainable investment with a quantified impact and a financially equivalent investment with zero impact” (Heeb, 2023, p.1738, [2]).

The WTP of investors does not differ significantly even when an investment with a ten-fold magnitude of impact is introduced to a base-level option. In the study, this is measured by an investment option saving 0.5 tons of CO2 and 5 tons of CO2, where the differences between WTP for each are statistically insignificant (p.1739, [2]). The authors perform a robustness measure where they make sure each investor is well informed about the magnitude of the impact change, and its quantified implications.

The authors extend their WTP analysis by introducing the past financial performance of investments instead of the impact and find a significant WTP sensitivity to the variation in financial returns. Their findings are robust after conducting an identical experiment with a different sample (Amazon Mechanical Turk, n =1000) and a sample from a Dutch university students (n = 554). The authors report no trend change before and after COVID and replicable findings from the additional sample.

A ten-fold increase in impact results in 28% higher WTP, although a higher impact of 900% (p.1739, [2]). Furthermore, the authors find that a third of investors are completely insensitive to the magnitude of the impact.

The authors find that emotional experience levels during investment decision correlate with WTP of investors. They show in a regression analysis that: “Investor WTP per ton of CO2 is strongly correlated with this level of positive emotions, but not with investors’ individual estimates of what it costs to save one ton of CO2” (p.1740, [2]). Based on these findings, the authors emphasize that an investor is more accurately described as a "warm-glow optimizer" rather than a "consequentialist."

According to Heeb (2023), the results also indicate that the valuation of sustainable investments is more akin to charitable giving than to financial optimization (p.1740, [2]). This fact might bolster the previous findings of studies suggesting “motivational crowding out” where financial return information can reduce the amount of SRI allocated.

WTP and the scale of impact are presented in Figures 3 and 4, and it is recommended to revisit these findings.

Investors WTP reacts to some extent to differences in impact.

Table 8 indicates the significance of positive emotions on WTP (p.1768, [2]). The authors further discuss the warm-glow effect. Cost estimation has little significance on WTP, bolstering the argument in favor of warm glow/emotional investing.

Reference to Literature

Prosocial preferences affect investment decisions: Riedl and Smeets, 2017, [26]. These preferences result in fund glows towards sustainable investments: Hartzmark and Sussman, 2019, [18]. Some investors show an explicit WTP for investments with social impact: Barber, Morse, and Yasuda, 2021, [70].

The authors mention standard decision theory and its prediction that investors are consequentialists.

Consequentalist investors' utility from sustainable investments should be proportional to the impact of those investments, yet scope insensitivity: investors insensitive attitude to the magnitude of the investments' impact are highlighted by the study.

The authors also discuss altruistic models, where these models also assume investors to be consequentialists, in the sense that they assign utility to a public good more than the benefit they derive from the good: Becker, 1974, [71]; Eckel and Grossman, 1996, [72]; Andreoni and Miller, 2002, [36]. However, the authors argue that their findings of non-linearity with WTP as impact of investments increase might suggest investors are not in accordance with a pure altruism decision model (p.1785, [2]).

Furthermore, the authors highlight that the evaluation of the characteristics of a good is based on emotional perception rather than a calculative "appraisal", which produces a step function of the WTP. Hsee and Rotternstreich's (2004, [73]) study is mentioned, where: "that the willingness to donate money to save pandas depends on the emotional importance of pandas in general, not on the number of pandas that will be saved" (p.1766, [2]). This argument is applied to a financial setting under a study conducted by Hartzmark and Sussman (2019, [18]) where investors neglect more quantitative sustainability indicators, rather causing stronger market-wide flows due to label salience (p.1770, [2]).

The authors also highlight scope-insensitivity in the literature: Null, 2011, [74]; Karlan and Wood, 2017, [75]; Metzger and Günther, 2019, [76]; Hsee and Rottenstreich, 2004, [73]; Desvousges et al., 1992, [77]; Kahneman and Knetsch, 1992, [78].

Role of emotions in financial decision making: Finucane et al. 2000, [79]; Slovic et al. 2007, [80]; Kuhnen and Knutson 2011, [81]. Affective decision making explaining various puzzles in financial markets, such as home bias: Huberman, 2001, [82]; Coval and Moskowitz, 1999, [83]; Strong and Xu, 2003, [84], MacGregor et al., 2000, [85]. The authors repeatedly highlight the consideration of emotions in financial decision making, from the literature as well as from their results (p.1741, [2]). The authors also note the significant risk of green-washing of financial assets.

Possible Contribution to the Project and Comments

An alternative approach could involve measuring the subcategories of ESG that evoke emotional responses during the decision-making process, as this may serve as a robust predictor of investor heterogeneity.

The study design is noteworthy. It is recommended to review Figures 1, 2, 7, and 8 for further consideration.

Failing to consider investment impact magnitude, rather emotional driven investment style of investors might explain why social and environmental factors are consistently superior to governance criteria. It may be possible that the governance criteria are more difficult for investors to relate to.

Notable Concepts

- Warm glow optimization
- Warm glow optimizing investor
- Information salience
- Scope insensitivity
- Consequentialist investor
- Becker-DeGroot-Marschak [71] mechanism for judgment and decision-making
- WTP as a step function
- Bisection method for WTP calculation, see e.g., Abdellaoui, 2000 [86]; van de Kuilen and Wakker 2011, [87].

Do Sustainable consumers prefer socially responsible investments? A study among the users of robo advisors

Aim and main findings

The study aims to elicit the preferences of the participants for socially responsible investments. Braun (2022, [49]) acknowledges the shortcoming of using surveys to measure WTP of investors, due to the concept of cheap talk, where in a more realistic scenario an investor might deviate from their stated preferences. Due to the difficulty in measuring the revealed preferences, the study also aims to explore whether sustainable consumption is a good predictor of the revealed preferences when combined with the stated preferences.

Brunen (2022) find that sustainable consumption is a suitable measure to identify preferences for SRI. Sustainable consumers are more likely to choose a robo-advisor that invests sustainably (p.2, [49]). The authors also performed a test on reverse causality of consumption and preferences and found a positive spillover effect, as in line with the literature: Lacasse, 2016, [88]; Truelove et al., 2014, [89]; Whitmarsh and O'Neill, 2010, [90].

Brunen (2022, [49]) also highlights the importance of using financially incentivized measures instead of reported behavior, according to their findings.

Importantly, Brunen (2022, [49]) finds that participants whose talk is considered "cheap" prioritize financial returns and are less likely to sacrifice returns for SRI. This discrepancy with self-reporting and WTP can be used to isolate participants with consistent responses.

In their design, the authors also report that consumer scales for sustainable consumption are biased towards the environmental criteria and neglect issues of social responsibility, discussing the literature: Kim et al., 2012, [91]; Larson et al., 2015, [92]; Markle, 2013, [93]. They use the consumer scale proposed by Sudbury-Rile and Kohlbacher, 2016, [94].

Regarding the impact of consumption patterns on the preference criteria for sustainable robo advisors, Brunen (2022) finds that, with statistical significance: “Revealed sustainable consumers are predicted to be 239% more likely than mainstream consumers to be client of the green robo advisor” (p.8, [49]).

The authors report a negative spillover effect of monetary incentives, from the regression results in Table 8. The effect is in line with the literature: Steinhorst et al., 2015, [95]; Thogersen and Crompton, 2009, [96]; Xu et al., 2018, [97].

The authors also report the effect of self-identification on SRI, which is significantly positive: “A revealed sustainable consumer who scores one point higher on the identification scale is an estimated 9.89 percentage points more likely to invest a substantial portfolio share in a sustainable manner” (p.18, [49]).

The study shows that social preferences have little to no significant effect on sustainable investing when warm glow or identification is considered, with warm glow emerging as the stronger driver of pro-environmental actions, consistent with prior research: Hartmann et al., 2019, [18] (p.18, [49]).

Table A.7 shows that identification, warm glow, trust, and perceived impact are crucial drivers of social investments (p.15, [49]).

Reference to Literature

The study mentions the warm-glow effect, where investors substitute utility from sacrificed returns by a non-pecuniary type of utility as compensation, which might explain the existence of WTP: Gutsche and Ziegler, 2019, [58]; Brodback et al., 2019, [3]. The authors further highlight the existence of personal identification with SRI: Bauer and Smeets, 2015, [31]. Previous literature on element of trust affecting investor preferences of retail investors is also mentioned: Wins and Zwergel, 2016, [48].

The study also mentions the findings of Brodback et al. (2019, [3]), regarding egoistic characteristics and high affinity for higher returns.

The study, justifying the measure from the literature, incorporates the detection of cheap talk into their design, and discuss the implications of the concept (p.4, [49]): Boulstridge and Carrigan, 2000, [98]; FeldmanHall et al., 2012, [99]; List and Gallet, 2001, [100], Park and Lin, 2020, [101]; Carrington et al., 2014, [102]; Carrington et al., 2010, [103]; Chatzidakis et al., 2007, [104]; Vermeir and Verbeke, 2006, [105].

The study finds that gender and education are significant for SRI preferences, which is in line with the literature according to the authors: Rossi et al. (2019, [106]), which could be due to women being less selfish: Eckel and Grossman, 1998, [72]; and more concerned with sustainability in general: McCright and Xiao, 2014, [107]. (p.14, [49]).

The study finds a statistically significant relationship between SRI and identification, warm glow, trust, and perceived impact; which is in line with previous literature on social retail investors, according to the authors: Bauer and Smeets, 2015, [31]; Brodback et al., 2019, [3]; Gutsche and Ziegler, 2019, [58]; Riedl and Smeets, 2017, [26]; Wins and Zwergel, 2016, [48].

Possible Contribution to the Project and Comments

Brunen’s (2022, [49]) findings further bolster the need of using revealed preferences as the main predictor for further empirical analysis. The discrepancy between stated preferences and revealed preferences combined with WTP analysis can be a very efficient tool to detect inconsistent behavior, and can be used to enhance precision. The authors’ approach is as follows: “However, this time, we also add into the regression a dummy variable for consumers with an attitude-behavior gap. ’Honest’ mainstream consumers serve as our omitted reference group” (Brunen, 2022,p.16, [49]).

Identification, trust, and warm glow are a recurring theme in their study as well as in the literature they cover.

Notable Concepts

- Moral licensing
- Warm glow
- Identification
- Trust
- Distance to the product
- Inconsistency
- Cheap talk
- Spillover effects
- Sustainable consumption

A three-level analysis of values related to socially responsible retirement investments (SRRI)

Aim and main findings

Hypotheses:

- Self-transcendent motivational domains and values are positively associated with SRRI.
- Self-enhancement motivational domains and values are negatively associated with SRRI.

The results displayed in Table 2 demonstrate the differences between SRR (Socially Responsible Retirement) and non-SRR investors. The significant larger component is the cluster of Self-transcendent values, where Universalism and Equality being the most significant determinants of an SRR investor. Gender (percentage of women) is also significant.

Roos (2024, [108]) finds that the choice of SRRI is associated with broad self-transcendent values, supporting previous research linking self-transcendence with socially responsible consumption (Grunert and Juhl, 1995, [109]; Ladhari and Tchetgna, 2015, [110]), SRI (Hancock, 2005, [111]) and SRRI (Jansson et al., 2014, [112]). However, there is no relationship between the choice of SRRI and benevolence, nor between protecting the environment and the choice of SRRI, which could indicate a limited time horizon or distrust from investors.

The self-enhancement values do not show a negative association with the choice of SRRI. A negative association is found between wealth and SRRI choice, consistent with Grunert and Juhl (1995, [109]). These findings are inconsistent with Schwartz's value theory (Schwartz and Bielsky, 1987, [113]; Schwartz, 1992, [114]), as the results suggest that SRRI is more closely tied to high levels of self-transcendent values and moderately associated with self-enhancement. The small sample size (68 out of 1005 respondents) and the dependence on self-reported measures are reported as key limitations.

Reference to Literature

The authors discuss the motives of socially responsible investors from the literature. According to Beal, Goyen and Phillips (2005, [115]); there are three main motives for SR investors, namely: superior financial return, non-wealth return, and contributions to social change. The authors highlight that the literature applying Schwartz's theory of universal values to investor preferences is scarce, except for: Jansson et al., 2014, [112] where SRI preferences are associated with self-transcendent values and long-term financial benefits.

Figure 1 and Table 1 summarize three levels of values.

Value Orientation Dimension: Grunert and Juhl (1995, [109]) found that both universalism and benevolence impact socially responsible consumption. Ladhari and Tchetgna (2015, [110]) found that only universalism has an effect on socially responsible consumption.

Motivational Domain: For universalism, values such as environmental protection and social justice (Grunert and Juhl, 1995, [109]) and equality and social justice (Ladhari and Tchetgna, 2015, [110]) were influential. For benevolence, forgiveness was a key value influencing socially responsible consumption (Grunert and Juhl, 1995, [109]).

Subordinate Values: Social justice, equality, and environmental protection were positively associated with socially responsible consumption under universalism (Grunert and Juhl, 1995, [109]; Ladhari and Tchetgna, 2015, [110]). Power and its related value, social recognition, negatively influenced socially responsible consumption (Ladhari and Tchetgna, 2015, [110]).

Possible Contribution to the Project and Comments

An analysis of values structured similarly to ESG subdomains could help explain the intrinsic motivations of investors, thereby contributing to the heterogeneity of investor preference. It is recommended that this analysis be revisited to optimize the design

of future surveys. The authors' analysis also can explain why investors tend to sacrifice returns and discouraged by high returns in SRI. Furthermore, the significant variables for the choice of SRI: Self-transcendent values such as universalism (equality, protecting the environment, and social justice) are reported, which might explain why the social and environment domains of ESG are superior to governance. According to Roos (2024, [108]), their results are not aligned with Schwartz's theory of universal values, which consists of a bipolar construct with self-enhancement and self-transcendence at opposite ends of the spectrum. The authors' results indicate that selfless (self-transcendence) and selfish (self-enhancement) can be jointly significant variables determining investment choice, self-transcendent values being the most significant factors. Investors with a self-enhancing motive should be considered for future surveys that incorporate altruism and egoism components into an experiment design.

Notable Concepts

- Schwartz's theory of universal values, explained under the section 1.2 – theory
- Self-transcendence and self-enhancement domains

Examining pension beneficiaries' willingness to pay for a socially responsible and impact investment portfolio: A case study in the Dutch healthcare sector

Aim and main findings

Dijk (2016) aims to examine the "psychological distance effect" on the WTP of pension beneficiaries to invest in an SRI portfolio (p.27, [116]). Furthermore, the components of the analysis are attitudes towards impact, WTP for SRI, and the influence of involvement on WTP.

Hypotheses:

1) The WTP of pension beneficiaries for a socially responsible investment portfolio is positively related to a higher level of social concerns.
2) The WTP of pension beneficiaries for a socially responsible investment portfolio is positively related to a greater positive attitude toward impact and SRI investment criteria.
3) The WTP of pension beneficiaries for a socially responsible investment portfolio is significantly related to psychological distance from the SRI portfolio.
4) WTP for a socially responsible investment portfolio is positively related to product involvement.

Psychological distance measure: Dijk (2016) measured the psychological distance in three dimensions—temporal, social, and spatial—using a 7-point scale (p.31, [116]). Participants evaluated the personal distance from socially responsible and conventional portfolios based on their perceived effects on themselves, others, and the timing and location of these effects. The items were adapted from van Dam and van Trijp (2011, [117]). Later, Dijk (2016, [116]) divided respondents to high and low groups based on their psychological distance (distance from conventional portfolio) scores (K-median cluster). On average, 20% of the respondents were characterized by low psychological distance and 80% with a high psychological distance. This measure was incorporated into the analysis of the authors.

Table 1, panel B shows that people with low psychological distance from SRI criteria prefer the SRI portfolio, while Table 1, Panel C shows that those with high psychological distance from conventional investments are more willing to pay the increased cost of the SRI portfolio compared to those with low psychological distance. Regarding SRI screenings, on average positive criteria such as employee relationships and sustainability were considered the most important. For negative screenings, avoiding human rights violations and not investing in the weapons industry were the top priorities. These results might verify the suitability of psychological distance model to determine WTP for different components of an SRI, with respect to ESG subdomains.

Table 7 presents descriptive statistics related to WTP (p. 35, [116]). The authors find that financial criteria are considered more important than impact and SRI criteria, and that individuals are more concerned with social issues than pension issues (p. 33, [116]). In addition, people with greater involvement with sustainable products show a higher WTP for sustainable investments. The authors also suggest that those with lower sustainability product involvement may exhibit greater risk tolerance and higher psychological distance from SRI products.

Table 10 (p. 38, [116]) presents the influential components of WTP, based on binary logistic regressions:

- Model 1, only demographic and socioeconomic

variables in the model where the level of education and marital status is significant in WTP.
- Model 2, importance and involvement variables included: Financial factors have a negative impact on WTP, with an average marginal effect (AME) of -0.097. Product involvement has a positive and significant influence on WTP.
- Model 3, where risk aversion has a significant positive effect on WTP.
- Model 4, psychological distance has no significant effect on WTP.

Table 11 demonstrates how product involvement interacts with other WTP variables. Unlike Table 10, Model 4's results show that financial attitude and psychological distance toward the SRI portfolio are statistically significant for WTP, along with education level and income, but only for individuals with high product involvement. These findings may indicate the importance of incorporating product involvement measures in surveys, especially for surveys related to sustainable lifestyle or consumption.

Reference to Literature

The authors mention streams of literature discussing underlying motives that might promote ethical behavior: De Pelsmacker et al., 2005, [33]; Ha-Brookshire and Norum, 2011, [118].

- General consumer attitudes SRI products: De Pelsmacker et al., 2005, [33]; Ha-brookshire and Norum, 2011, [118]; Olesen et al., 2010, [119]; van Doorn and Verhoef, 2011, [120]; Ku and Yoo, 2010, [121].
- Regarding WTP for sustainable products or socially responsible product consumption: Borgers and Pownall, 2014, [27]; Cai and Aguilar, 2013, [122]; Kaenzig et al., 2013, [123]; Kang et al., 2012, [124]; Michelsen and Madlener, 2012, [125].

Importantly, the authors mention the fact that on average, 77% of EU27 is willing to pay more for environmentally friendly products, where the Dutch WTP is 81% (p.28, [116]).

The stream of literature that differentiates socially responsible behavior from regular investing behavior: Glac, 2009, [126]; Lewis and Mackenzie, 2000, [127]; MacKenzie and Lewis, 1999, [128]; Rosen et al., 1991, [129]; Webley et al., 2001, [130].

Behavioral gap due to behavioral control and situational context factors: Carrington et al., 2010, [103].

Figure 1 summarizes the conceptual framework for predicting WTP for an SRI portfolio (p.29, [116]).

The authors discuss the presence of an inconsistency in people's pro-environmental behavior, as well as in sustainable consumption: Pichert and Katsikopoulos, 2008, [131]; Moraes et al., 2012, [132]; Tung et al., 2012, [133], Vermeir and Verbeke, 2006, [105]. Furthermore, inconsistency with pension products with the presence of time horizon is also mentioned: Borgers and Pownall, 2014, [27]; van Rooij et al., 2007, [134]. The theory of psychological distance is employed in this study to interpret inconsistencies in decision making when choosing SRI products: Trope and Liberman, 2010, [135].

According to Dijk (2016, [116]), under the theory of planned behavior, attitudes are key determinants of behavioral intention and can thus explain WTP, making them a useful determinant for both WTP and investor heterogeneity (Eija Pouta, 2001, [136]; Spash et al., 2009, [137]).

Figure 2 summarizes portfolio preferences and psychological distance under construal-level theory (p.30, [116]). The figure is consistent with the findings of Roos (2024, [108]).

Psychological distance and retirement (Bar-Anan et al., 2006, [138]) and environmental concerns with psychological distance (Spence et al., 2012, [139]) is discussed.

Involvement in consumer choices and its influence on WTP: Drescher et al., 2014, [140].

Possible Contribution to the Project and Comments

The study and related literature recommend diversifying the "sustainable lifestyle component" to incorporate subcategories for social and environmental products. This approach could improve precision.

The temporal distance, as explained by "Construal-Level Theory" (CLT), can account for investor heterogeneity for ESG choices. Environmental and Social criteria may be perceived as more relatable (with less temporal distance to sustainable criteria and more to conventional ones), which could help explain the neglect investors place on governance criteria.

Notable Concepts

- Theory of planned behavior
- Product involvement
- Psychological distance

- Financial-first investors vs. impact-first investors
- WTP model, Figure 1
- Temporal distance, Figure 2
- Behavioral intention gap
- Construal-level theory (CLT)

What drives retail portfolio exposure to ESG factors?

Aim and main findings

The authors investigate the impact of financial literacy and risk tolerance on the exposure of the stock portfolio to ESG factors (separately). They find significant heterogeneity within investors with respect to ESG criteria and highlight their findings of a lower exposure to ESG factors during crisis periods. This effect may indicate that investing in ESG is a luxury good for investors (p.1, [141]).

Table 4 reports the findings for the 2005-2011 period, with separated E,S and G factors. According to the authors' findings:

1) Age is positively correlated with ESG scores, and older investors invest more in SRI.
2) Education has an opposite relationship; higher education results in less investment in SRI.
3) French-speaking investors exhibit higher portfolio ESG scores. The authors discuss home-bias with investment and discuss heterogeneous investment ratings of different countries where French stocks are higher in environmental criteria and Dutch stocks are higher in social and governance criteria. They highlight the possibility of cultural differences driving ESG preference heterogeneity, linked with home bias.
4) Gender is significant for governance criteria. Environmental and Social criteria are not affected by gender.
5) Investors with higher self-reported financial literacy have less exposure to Environmental and Social factors. The governance factor has a positive relationship.
6) The study highlights the possibility of risk-tolerant investors picking environmental and social factors but neglecting governance factors.
7) According to Panel C of Table 4, investors who trade more and have larger portfolios have less exposure to ESG factors (p.7, [141]). The size of the portfolio is significant and positive for the governance score.

Reference to Literature

Regarding ESG preference heterogeneity, the study evaluates several research works that employ different methodologies:

- Capturing ESG preferences through fund inflows: Hartzmark and Sussman, 2019, [18].
- Market participation: Brière and Ramelli, 2021, [142].
- Reactions to ESG disclosures: Moss et al., 2020, [143].
- Field experiments and questionnaires: Riedl and Smeets, 2017, [26]; Bauer et al., 2021, [61]; Heeb et al., 2021, [2].
- Laboratory experiments: Cheng et al., 2015, [144]; Martin and Moser, 2016, [145].
- Reduced interest in environmental and social factors during the COVID-19 crisis: Döttling and Kim, 2021, [146]; Glossner et al., 2021, [147].

In addition, the impact of financial literacy and risk tolerance on the behavior of retail investors: Dorn and Huberman, 2005, [148]; Graham et al., 2009, [149]; van Rooij et al., 2011, [40]; Balloch et al., 2014, [150]; Hoffman et al., 2015, [151]; Bellofatto et al. 2018, [152].

Possible Contribution to the Project and Comments

A survey conducted within a multicultural and multilingual country like Belgium with a balanced sample from different backgrounds can help isolate home bias and the resulting heterogeneity. The authors identify the presence of this heterogeneity and attempt to pinpoint its causes through a combined survey design and portfolio characteristics. Incorporating portfolio and trading history would enhance the measurement of revealed preferences and better capture deviations from stated preferences.

Notable Concepts

- ESG products as luxury good
- Financial literacy
- Language, culture and impact on ESG demand

Social identification and investment decisions

Aim and main findings

The study aims to investigate the role of social identification in investment decisions. According to the authors' findings, investors with strong social identification invest more in banks with SRI portfolios, both

in absolute and percentage terms. More importantly, the study finds that social identification is influential on investors' perception of expected returns on SRI (p.121, [31]).

The social identification scale in the survey is a validated scale from: Mael and Ashfort, 1992, [153]; Homburg et al., 2009, [154]. The authors report their scale is reliable. Control variables as: Self-rated investment knowledge, education, risk preferences, gender, age, wealth, and income. The authors justify self-reported investment knowledge as a good predictor of investor behavior, citing other studies: Dorn and Huberman, 2005, [148]; Graham et al., 2009, [149]; van Rooij et al., 2011, [40]. Risk preference measure validated by: Dorn and Huberman, 2005, [148]; Dohmen et al., 2011, [155].

The study reports a high mean value of the social identification scale, 5.83 with an SD of 1.02 (Likert scale). Furthermore, the authors report that: "clients of purely socially responsible banks are more optimistic about the returns of SRI funds than clients at conventional providers" (Bauer, 2016, p.127, [31]). According to the authors, perceived risk is lower than that of conventional funds for approximately 60% of investors. The correlation results of the authors in Table A1 suggest that a correlation between higher expected returns and lower perceived risk (0.167) warrants further investigation, where investors are either too optimistic (higher return and lower risk) or point to a poor understanding of return and risk (p.127, [31]).

Table A1 shows that social identification is positively correlated with higher expected returns in SRI (0.198), lower expected risk in SRI funds (0.203), and lower expected returns (-0.129) (p.127, [31]).

The authors highlight the potential that social identification can mitigate the influence of return expectations and risk perceptions on investment decisions (such as allocations to banks in this case). They find that the effect of social identification is greater than that of return expectations and risk perceptions (Table 5, p. 129, [31]). The authors further explore the mediating effect of social identity on risk perceptions and return expectations in Figure 4.

Bauer (2016, [31]) found that social identification partially mediated the impact of return expectations on investment decisions at the bank. Overall, a one-point increase in the scale in return expectations led to a 2.90 percentage point increase in investment at the socially responsible bank, of which 1.77 percentage points resulted directly from higher expected returns and 1.13 percentage points from higher social identification.

Table A3 incorporates the variable "Talk about SRI" to test whether social signaling has an effect on investment decisions, where no significant effect was found.

Table 7 summarizes the characteristics related to social identification. The findings indicate that having a university degree and being female are positively associated with social identification, while older investors tend to identify less with SRI funds. The authors report that low wealth and low income are positively correlated with social identification, noting that: "This finding points toward identity as a socially responsible investor not being a luxury good for rich investors" (p. 132, [31]).

Reference to Literature

The authors discuss stream of literature about non-financial considerations for SRI: Glac, 2009 [126]; Barreda-Tarrazona et al., 2011, [51]. Importance of social factors in investments: Webley et al., 2001, [130]; Nilsson, 2008, [65]; Heimann et al., 2011, [156]. Political and / or social preferences that influence investment decisions: Bollen, 2007, [24]; Riedl and Smeets, 2014, [26]; Hood et al., 2014, [157]; Di Giuli and Kostovetsky, 2014, [158].

The authors introduce the concept of social identity and how investors may derive utility from investments that align with their social identity. The non-pecuniary benefits associated with such investments, along with the relationship to willingness to pay (WTP) for lower returns, as discussed in the literature, may reflect the concept of social identity alignment. The authors refer to the model of Akerlof and Kranton (2000, [159]), where identification is integrated into the utility function.

Possible Contribution to the Project and Comments

The significance of social identity in SRI choices—shaped by cultural and language elements as well as sociodemographic factors (which are typically significant in the literature)—can help explain investor demand heterogeneity for ESG factors. The authors' integration of social identity into the experimental design is highly recommended for further revision.

Notable Concepts

- Social identity theory
- Significance of social identity in SRI choice
- The authors' mediation analysis for social identification, as demonstrated by Figure 4

Sustainable Finance Literacy and the Determinants of Sustainable Investing

Aim and main findings

Filippini (2024, [160]) aims to measure sustainable finance literacy/awareness among investors and investigate their impact on ownership of SRI.

Filippini's (2024) approach offers a complementary perspective: "Instead of measuring investor characteristics for finance and sustainability separately and analyzing their overlap, we directly measure the intersection of the two areas with SFL and how it correlates with decision-making" (p. 2, [160]).

The authors report a limitation due to the self-reported measure of sustainable finance product ownership, where self-reported data is a significant limitation in most of the literature. The study uses controls for risk preferences, time preferences, altruism, and trust variables.

The authors justify their methodology by highlighting the decision process of sustainable investing where an investor: "Must be aware, must be able identify a product, and must be able to assess a product" (p.4, [160]). A notable point is quoted as follows: "For example, suppose an investor strongly values social issues such as inequality but assumes that sustainable finance products only prioritize environmental concerns. In that case, they may not consider sustainable financial products when deciding on financial investments. A high level of awareness may also imply engagement or active interest in sustainable financial products" (p. 4, [160]). Therefore, sustainable finance awareness, combined with sustainable finance literacy, can help isolate active interest in SRI. This approach could potentially be extended to subcategories of ESG.

Table 3 summarizes the text frequency analysis of responses from participants who were asked to describe the difference between a conventional and sustainable product. According to the authors' findings, half of the respondents associate the difference with the word "environment," 26% with "social," and 5.8% with "governance" (p. 6, [160]). This result may suggest that the neglect of the governance factor, in line with our project's findings, could stem from sustainable finance awareness rather than a preference for the respective factor. Hence, it is highly recommended to revisit this possibility.

Table 4 presents the determinants of financial literacy, sustainable finance literacy, and sustainable finance awareness. A significant negative relationship was found for women, which influences sustainability literacy. The authors highlight consistent findings in the literature for the effect: Lusardi and Mitchell, 2014, [161]; Blasch et al., 2021, [162]. However, sustainable financial awareness displays an opposite relationship, significantly positive for women. The mentioned results (the discrepancy between knowledge and awareness) combined with the stream of literature showcasing higher altruistic traits for women can be interpreted as a significant barrier to reaching maximum potential in demand for SRI products.

Table 5 highlights notable findings on the determinants of sustainable investments, therefore highly recommended to revisit. The significant variables are as follows from Model 3: Sustainable finance literacy (positive), sustainable finance awareness (positive), university education (positive), wealth (positive), risk preference (positive-which means that risk-takers hold more SRI). The authors identify the main determinants as wealth, followed by previous donations and university education.

Reference to Literature

The authors mention streams of literature regarding demand for sustainable finance products, and highlight the consensus that environmental preferences are the main driver for sustainable investments:

- Observation of real-time investments: Døskeland and Pedersen, 2016, [52]; Gutsche et al., 2021, [64]; Riedl and Smeets, 2017, [26]; Bauer et al., 2021, [61].
- Barreda-Tarrazona et al., 2011, [51]; Gutsche et al., 2020, [47]; Heeb et al., 2023, [2].

The authors also mention previous studies regarding assessment of sustainable finance awareness: Egami et al., 2022, [163]; Stantcheva, 2020, [164]; Wekhof and Houde, 2023, [165]; Ferrario and Stantcheva, 2022, [166].

Possible Contribution to the Project and Comments

The study distinguishes between financial literacy, sustainable finance literacy, and sustainable finance

awareness. This differentiation may yield a clearer understanding of investor heterogeneity than using financial literacy as a single variable.

Importantly, the authors report high average financial literacy among investors, but low scores on sustainable finance literacy measures. They find that "knowledge about sustainable finance is a significant factor in the reported ownership of sustainable products" (p. 1, [160]). Hence, incorporating "sustainable finance" literacy into survey design can improve the accuracy of the results. This highlights the need to incorporate "sustainable finance" literacy into survey design to potentially improve accuracy.

Notable Concepts

- Financial literacy vs. sustainable financial literacy
- Sustainable finance awareness
- Gender gap: Lower sustainable finance literacy vs. higher sustainable finance awareness compared to males for women.

Why Do Investors Hold Socially Responsible Mutual Funds?

Aim and main findings

The study incorporates an analysis of administrative investor data, social preferences (experimental setting), and its effect on SRI (survey setting). The authors highlight a significant impact of social preferences, as mentioned in the previous literature, as well as according to their findings. Furthermore, the authors highlight that investors' social preferences, along with social signaling to a lesser degree, are key factors that influence the likelihood of investing in SRI equity funds. Furthermore, socially responsible investors are found to expect SRI funds to earn lower returns than conventional funds. Willingness to sacrifice returns, as the discussed literature consistently highlights, is reported (p.2533, [26]). The authors report a significant effect of financial motivation.

The experimental design is a controlled, anonymous one-shot trust game experiment. Followed from: Berg, Dickhaut and McCabe, [167], 1995. The experimental design is based on a trust game, where the first player (investor) transfers money to the second player (trustee), which is tripled by the experimenter. The second player can then return some or all of the money to the first player. While the traditional game measures trust, this design focuses on social preferences by examining the second player's behavior. If the second player returns money, it indicates social preferences like fairness or reciprocity, while returning none aligns with self-interested behavior. This setup, inspired by Karlan (2005, [168]) and Falk et al. (2013, [169]), uses the second mover's actions to measure intrinsic social preferences rather than trust. This setting could potentially allow for the simultaneous measurement of trust and reciprocity, thereby eliminating two self-reported survey responses and improving accuracy.

The authors report social preferences as an important determinant for SRI choice where: "an investor who equally shares the money in the experiment is 14 percentage points more likely to hold an SRI equity fund compared to a selfish investor who keeps all the money" (p.2507, [26]). In addition, socially responsible investors donate 41% more to charity compared to conventional investors (charity might be a good predictor of SRI, should be included as in our case). Importantly, the authors report the implication that SRI is not a substitute for charity donations according to their findings (p.2507, [26]). The role of socioeconomic characteristics in their specification is not significant.

An interesting finding on page 2508 of [26] is:

- The authors find that among investors who already hold an SRI equity fund, there is no significant relationship between their social preferences and the percentage invested in SRI funds. This suggests that strong social preferences may be necessary to buy an SRI fund initially but are less relevant when deciding how much of the portfolio. Furthermore, the authors find that investors with weak social preferences who use SRI funds to signal their behavior tend to hold smaller shares in SRI. This indicates that relatively selfish investors minimize their SRI holdings when using them for signaling purposes (important). Furthermore, the authors find that financial motives influence the fraction invested in SRI funds, with investors who have larger portfolios typically investing a smaller proportion in SRI funds, likely to diversify their portfolio.

Tables 3, 4, and 5 provide a detailed summary of SRI preferences and their determinants, with findings discussed earlier.

Table 7 summarizes the authors' analysis of charitable giving and SRI preferences, with findings dis-

cussed earlier.

Reference to Literature

The authors mention streams of literature regarding different topics, concepts, methodologies they followed, and effects. Streams of literature are mentioned as follows:

- Investors willing to pay a premium to invest in socially responsible countries: Heinkel, Kraus, and Zechner, 2001, [170]; Gollier and Pouget, 2014, [171].
- The authors elicited risk preferences in accordance with incentivized multiple price list lotteries: Dohmen et al., 2011, [155]; Holt and Laury, 2002, [172].
- Self-assessed investment knowledge: Dorn and Huberman, 2005, [148]; Graham, Harvey and Huang, 2009, [149]; van Rooij, Lusardi, and Alessie, 2011, [40].
- Social preferences in finance and economics: Andreoni, 1990, [173]; Rabin, 1993, [174]; Fehr and Schmidt, 1999, [175]; Bolton and Ockenfels, 2000, [176]; Heinkel, Kraus and Zechner, 2001, [170]; Gollier and Pouget, 2014, [171].
- Social signaling theory: Glazer and Konrad, 1996, [177]; Bénabou and Tirole, 2006, [178]; Ellingsen and Johannesson, 2008, [179].
- Charity and SRI as substitutes: Graff, Zivin, and Small, 2005, [180]. The authors find contradicting evidence (SRI and charity are not substitutes).
- Whether socially responsible investors are more altruistic than conventional investors: Fehr and Fischbacher, 2003, [181]. Whether investors receive more "warm-glow" from doing good: Andreoni, 1990, [173].

Possible Contribution to the Project and Comments

The authors suggest future research gaps, where more determinants of the relationship between social preferences and SRI choice can be investigated, such as the effect of culture, economic development, religion, and socioeconomic factors (p.2534, [26]). Mentioned suggestions are similar suggestions to improve survey design as in previously discussed literature.

Their experimental design, which measures social preferences rather than relying on self-reported answers (such as for altruism), is noteworthy and recommended for further revision. This experiment can assess both social preferences and trust, thus eliminating two self-reported measures that are often considered vulnerable in the literature.

The fact that investors were unaware the authors had matched survey data with experimental results helps eliminate experimenter demand effects, which the authors highlight as a significant advantage of their design. A similar approach could be adopted in future research.

Notable Concepts

- Intrinsic social preferences
- Social signaling
- Charity vs. SRI
- Trust
- Trust game
- Reciprocity

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