The role of households in financing the move towards a sustainable economy: results from a survey in the Netherlands[1]

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Abstract

What sustainable financial products do private households prefer? Do they care only for the low carbon feature or are they becoming aware that sustainability means ESG and not only E? What is the "willingness to pay" (WTP) for that? Can households be stimulated in their financial decisions to support financial sustainability by using nudges)? To answer these questions, this paper uses recently collected survey data on the preferences, attitudes, expectations, and other characteristics of a representative sample of the Dutch adult population. Main results from the analyses can be summarized as follows. First, while the ownership of SR assets has risen from 8.5% to 14.7% between 2016 and 2024, stated preferences for Socially Responsible investments (SR) show much less of an increase yet they highlight E is more popular than ESG combined, S or G only, and the size of this difference is substantial: the estimated Willingness-To-Pay for changing from G to E: 1.7%-points difference in expected annual return. Second, the econometric analyses of plausible associations with respondent characteristics shows that the interest in ESG is positively related with a sustainable lifestyle, donating to charity, and doing work as a volunteer and some remarkable level differences depending on how the question is phrased. Third, when results are compared with Belgium, Spain and Italy based on analogous SHARE questions, Dutch household appear less interested in the socially responsible assets than in the other countries.

Keywords: Sustainable finance; household financial choices, willingness to pay

JEL: D14; G11; M30

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1. Introduction

Increased awareness of the need for the energy transition and the necessary investments has pushed the markets to offer new financial products. Most attention has so far been devoted to the role that firms and institutional investors can play in the transition to a less carbon intensive economy, also fostered by an increasing regulation in that direction in the banking, insurance, pension fund, and asset managers industries.

The role of household savings and their allocation into Socially Responsible Investments (SRI) has been increasingly investigated since the early 2000s, with focus on several aspects: i) households' motivations and the underlying theoretical framework (e.g. Beal et al. 2005, Bollen, 2007, Aryeli et al., 2009); ii) the comparison of returns on SRI with returns on conventional assets and the existence of a premium, with contrasting empirical results (e.g. Bauer et al., 2005, Renneboog et al., 2008, Hong and Kacperczyk, 2009, Bertelli et al., 2021); iii) the SRI household profiling in terms of socio-demographic and economic features (e.g. Bauer & Smeets, 2015, Rossi et al., 2019).

Since about 2015 (cf. Paris Agreement 2015), the awareness of environmental issues and the need for a financing transition has been growing particularly fast, involving governments, institutions, firms, markets, and all investors, including private households. Furthermore, the 17th Sustainable Development Goals (SDG), set up by the United Nations in 2015 and included in the 2030 Agenda (United Nations, 2015), established three dimensions of sustainability: economic growth, social inclusion and environmental protection. In other words, sustainability cannot be achieved by exclusively considering the environmental dimension.

Responsible and sustainable investments, along with the integration of Environmental, Social, and Governance (ESG) dimensions into investment decisions, have been gaining increasing attention especially after the introduction of the Principles for Responsible Investment (PRI, 2017) by the United Nations (Widyawati, 2020).

On the supply side, it is important to notice that the universe of available assets has greatly expanded with different types of assets that may finance the energy transition with or without attention for other dimensions of sustainability beside the environmental one, i.e. the social and governance dimensions. Debt products now range from the most widespread Green Bonds considering the Environmental issue only and Social Bonds focused on social objectives to Sustainable bonds characterized by a combination of ESG objectives, and the so-called second-generation Sustainability linked bonds, whose return is linked to objectives in several dimensions. It should also be noted that the Covid-19 pandemic has fostered the issuance of Social Bonds, which are simple fixed-income securities whose proceeds are allocated to social initiatives (e.g. Torricelli and Pellati, 2023). As for capital products, they can be in the form of stocks or equity funds with E(SG) rating up to the most recent Net zero funds. Several important open issues from the supply side remain, which also impact the investors' choices including: a) the need of a refinement in the taxonomy, which is mainly there in the form of guidelines (e.g. for bonds see International Capital Market Association, ICMA), yet not regulation, and b) the risk of green/social/sustainability washing due to the problems in ESG rating assignment and possible divergence in ratings (Berg et al., 2022).

Furthermore, from a regulatory viewpoint, the new requirement that came into effect in August 2022, obliges advisers to ask their clients about their sustainability preferences as part of the existing MiFID II suitability assessment, whereby MiFID II has been amended through two delegated regulations (2021/1253 and 2021/1269) as part of a broad Sustainable Finance Action Plan (SFAP) developed by the European Commission (EC).

The role of households in financing the energy transition needs to be revisited because of: i) the relevant changes in the sustainable asset universe (described above), and ii) the change in households'

attitudes towards this type of assets in their portfolio. As for the latter, several developments are relevant. First, there is an increasing awareness of the importance of financing a sustainable economy with attention to the energy transition but also to social needs and governance commitment. In fact, on the one hand the growing number of environmental disasters related to global warming is nowadays apparent to everyone, and on the other hand the recent Covid-19 pandemic put to the forefront the need for funds to support the economic and health recovery of society with attention to both firms and households.

Second, there are changes in socio-demographic characteristics of households in many countries, such as the ageing of the population, changes in household composition, and changes in the composition of household wealth, cognitive abilities and financial knowledge. This requires rethinking how the supply of financial products can better accommodate demand. For example, should mutual funds of ESG assets be offered and if so, should separate products be offered for the three dimensions E, S and G?

Against this background, the present paper addresses several research questions: What products do private households prefer? Do they care only for the low carbon feature or are they becoming aware that sustainability means ESG and not only E? Do they think they have to sacrifice return by ESG investing? If so, what is the "willingness to pay" (WTP) for that, i.e. how much are they willing to pay in terms of reduced returns to foster sustainability via their financial investments? Or do they think they can "do well while doing good"? Can households be stimulated in their financial decisions to support financial sustainability by using nudges)? If so, what kind of nudge is more effective?

To this end, this paper uses recently collected survey data on the preferences, attitudes, expectations, and other characteristics of a representative sample of the Dutch adult population. Part of the data collection and analysis provides an update to a previous paper (Rossi, Sansone, van Soest and Torricelli 2019) that analyzed household preferences for SRI based on similar survey data conducted in 2016. In the light of the changes both in the sustainable asset universe and in the household attitude towards sustainable investments, we elicit changes in the population attitude compared to 2016. Moreover, while the earlier study considered ESG as a whole, the current paper also asks questions about preferences for assets that exclusively focus on either E, S or G.

The remainder of this paper is organized as follows. Section 2 provides an overview of the relevant literature. Section 3 describes the survey questions used and the data collected. Section 4 presents an econometric analysis of the results obtained. Section 5 concludes.

2. Literature Review

The literature on SRI has been growing at a very quick pace since the early 2000s. Focusing on the personal finance perspective, the academic literature addresses a few related questions: why do households invest in SRI? How do SRI assets perform in comparison to conventional ones? What is the typical profile of an SR investor? [2]

Several studies aim to answer the question "why to invest socially" and look at motivations for SR investments. The answers rest on a theoretical framework where the individual's utility function depends on both wealth and non-wealth returns, the latter capturing the socially responsible dimensions of the decision. For example, Bollen (2007) tests whether differences in behavior exist between investors in SR mutual funds and investors in conventional funds. Results on the dynamics

[2] Other studies take the firms' viewpoint and look at advantages/disadvantages of adopting corporate social responsibility in terms of cost of capital (El Ghoul et al., 2011), cost of debt (Goss and Roberts, 2011), shareholders' wealth (Krüger, 2015). Bénabou and Tirole (2010) provide instead a first attempt to give an economic framework on individual and corporate social responsibility.

of cash flows in SR mutual funds are consistent with a multi-attribute utility function, with investors not only looking at the risk-return trade-off, but also getting direct utility from the socially responsible attributes of the funds, the so-called intrinsic motivation, the value of giving *per se* (Ariely et al., 2009).

Similarly, Beal et al. (2005) provide three non-exhaustive and non-exclusive motivations for ethical investments: superior financial returns (consistently with traditional finance theory), non-wealth returns, and social change. Glac (2009) uses lab experiments to underscore that the decision frame influences the likelihood of engagement in SRI. In the same spirit, Døskeland and Pedersen (2016), based upon the theoretical model of utility of wealth and morality by Levitt and List (2007), use a natural field experiment to show that wealth framing is more effective than moral framing in inducing investors to engage in SRI. Pasewark and Riley (2010) utilize an experimental approach to determine the effects of values on an investment decision: they ask individuals to choose between bonds issued by a tobacco company or by a firm outside the tobacco industry. They conclude that personal values of the investor affect investment decisions.

A related question concerns the historical performance of SRI compared to conventional funds, and hence the potential existence of an "ethical penalty". In fact, in the real market some policymakers and academics argue that there is no trade-off between doing well and doing good whereas others have previously found that social responsibility does have implications for the expected returns (e.g. Hong and Kacperczyk, 2009). For example, Renneboog et al. (2008) find that SRI funds in European, North-American and Asia-Pacific countries underperform compared to conventional ones and conclude from this that the SRI investors pay a price for their socially responsible choice. In contrast, Bauer et al. (2005), using a database of German, UK and US ethical mutual funds, do not find significant differences in risk-adjusted returns between ethical and conventional funds. Gil-Bazo et al. (2010) even find that US SRI funds outperformed conventional ones in the period 1997-2005.

Renneboog et al. (2008) review the literature on SRI and emphasize that existing studies hint at but do not univocally prove the willingness of agents to accept a lower return in exchange for social or ethical goals. Benson and Humphrey (2008) analyze the investors' behavior and find that SRI fund flows are less sensitive to returns than conventional funds, and more persistent, thus pointing out the difficulty faced by SRI investors in finding alternative investments that meet their non-financial goals. Riedl and Smeets (2017) highlight social preferences as the main driver of investing in SRI, despite expecting a lower return, suggesting that there is a long run effect on asset prices.

A third strand of the literature aims to identify the SRI investor's profile empirically. Bauer and Smeets (2015) use survey data from retail clients of the only two banks in the Netherlands that exclusively offer SRI and find high levels of social identification among young, highly-educated and low-wealth investors, thus supporting the profiling of socially responsible investors by Junkus and Berry (2010). The roles of gender and education are also highlighted in Nilsson (2008), who further shows that social investors are not only driven by altruistic motives, but also by the idea that ethical mutual funds have an average or better than average performance. Hood et al. (2014) have recently looked at heterogeneities among socially conscious investors, emphasizing the different preferences for social investments across gender, age, religion and groups with different political affiliation.[3]

Rossi et al. (2019) analyze revealed and stated household preferences for socially responsible investments (SRI). Using a questionnaire specifically designed for this purpose and administered to a Dutch representative household panel in 2016, they investigate the actual and latent demand for SRI products. Results show that social investors are willing to pay a price to be socially responsible rather than needing a little nudge, such as a gift (a book or a voucher). Highly educated individuals have a

[3] For less recent papers on the issue, see, among others, Rosen et al. (1991), McLachlan and Gardner (2004), Williams (2007).

substantial latent demand that is currently unexploited. Keeping education constant, individuals who consider themselves financially literate are less interested in SR products than others. Particularly at the intensive margin, the stated demand for SRI funds is sensitive to the return penalty.

3. Data

We designed a specific survey for this purpose, building on the questions analyzed by Rossi et al. (2019) but also adding a number of new questions. The sample is a combination of the Dutch CentERpanel and a random subsample of the LISS panel, both administered by Centerdata, a data collection and research institute affiliated with Tilburg University.

The choice of Dutch households is made for two main reasons. First, the Centerpanel and the LISS panel have a high response rate (usually above 70%) and is representative of the Dutch population. Participating household members aged 16 or more are invited to complete short questionnaires on a biweekly or monthly basis, although some questionnaires focus only on certain individuals such as the household head or the financially most knowledgeable household member. Annually, panel members provide core information supplying researchers with a rich set of background information on many domains of the respondents' lives (DNB Household Survey for Centerpanel, core questionnaires for LISS). These data contain information on individual characteristics, employment, pensions, living conditions, household financial and housing wealth, mortgages, income, assets, loans, health, and economic and psychological concepts, and thus lend themselves to subsequent econometric investigation.

The survey was fielded in February 2024. 3151 panel members were invited to participate, and the response rate (among those who already agreed to be in the Center- or LISS-panel) was 76.7%. The dataset thus has 2532 observations in total; 114 respondents started but did not finish completing the questionnaire. Out of the 2532 observations, 1142 are from Centerpanel, the remaining 1390 are a random subsample of the LISS panel. Centerpanel was used because this sample overlaps with the sample used to collect the data analyzed in Rossi et al. (2019) so that part of the data is a panel with two observations for each respondent. This feature of the data is not yet exploited in the current version of the paper. To increase sample size, the Centerpanel data were extended with a random subsample of LISS. The sample covers the Dutch population of ages 16 and over, but due to differential response rates, older individuals are overrepresented. We correct for this in the descriptive statistics, using sampling weights constructed by comparing the national statistics on the age distribution.

The main questions taken from the survey used by Rossi et al. (2019) are given below (the parts in square brackets were randomized; the names given to the questions are those used in Rossi et al.(2019).

> **Ownership of SR-assets (Q1 in Rossi et al.):**
> Do you (or your household) have any investments in socially responsible mutual funds or in other accounts that invest in environmentally friendly companies or in cultural or other activities that are beneficial to society? 1=yes; 2=no

The ownership rate in the 2024 data is 14.7%, substantially larger than the 8.5% ownership rate in the 2016 data of Rossi et al. (2019), indicating an increasing trend in the popularity of personal investing in SR assets.

The next questions are not about facts but about how you would allocate money in a hypothetical situation.

Stated choice for SR saving (1) (Q5 in Rossi et al.)

Suppose you receive an inheritance of *[€5000 / €10,000]* but the condition is that you cannot spend the money now but only one year from now at the earliest. You can invest it in some account or mutual fund and receive the money plus net return one year from now.

We ask you how you would invest the money. Please note that all the possible investment strategies are hypothetical; they do not reflect the returns you can currently get with real investments.

What would you choose you if you had the following possibilities?

a. Put the money in a saving account at a traditional bank and receive an interest rate of 1%.
b. Put the money in a saving account at a bank that only invests in socially responsible companies and receive an interest rate of *[0.6% / 0.8%]*.
c. Put the money in a saving account at a bank that only invests in socially responsible companies and receive an interest rate of *[0: 0.5% / 0.75%]*. In addition, if you open the account you get a Deluxe Edition of the book "Wildlife in Europe" with a value of *[40/ 60]* if you would buy it in a store.

Stated choice for SR saving (2) (Q6 in Rossi et al.)

Suppose you receive an inheritance of *[€5000 / €10,000]* but the condition is that you cannot spend the money now but only one year from now at the earliest.

What would you choose you if you had the following possibilities?

a. Put the money in a saving account at a traditional bank and receive an interest rate of 1%.
b. Put the money in a saving account at a bank that only invests in socially responsible companies and receive an interest rate of *[0.6%/ 0.8%]*. The bank guarantees that the remaining *[0.4%/ 0.2%]* will be used for *[vaccinations of children in Africa/ loans to help women in developing countries to set up their own business]*.
c. Put the money in a saving account at a bank that only invests in socially responsible companies and receive an interest rate of *[0.5% / 0.75%]*. In addition, when you open the account, the bank gives you a voucher worth *[40/ 60]* that you can spend on theatre visits, cinema tickets, sports events, or concerts in the next twelve months.

Choice among traditional stock mutual fund and two SR stock mutual funds (Q8 in Rossi et al.)

Suppose you receive an inheritance of *[€5000 / €10,000]* but the condition is that you cannot spend the money now but only one year from now at the earliest.

What would you choose you if you had the following possibilities?

a. Put the money in a mutual fund with a return linked to the AEX (Amsterdam Stock Exchange) Index. (The AEX invests in the stocks of the 500 largest companies in the Netherlands.)
b. Put the money in a mutual fund investing only in a careful selection of socially responsible companies. Compared to the AEX, this mutual fund has a *[1.0 percentage point / 0.5 percentage point]* lower return per year on average, and the same risk.
c. Put the money in a mutual fund investing only in a carefully selected group of socially responsible companies. Compared to the AEX, this mutual fund has a *[1.2 percentage*

point / 0.6 percentage point] lower return per year on average, and the same risk. In addition, you get a Deluxe Edition of the book "Wildlife in Europe" (with a value of 50 euros if you would buy it in a store).

Table 1 compares the distribution of the answers to the three choice questions with that in the 2016 data (the questions were identical). The distributions in the two survey years are rather similar. There is a small increase in the total percentage of choices for SR assets instead of the traditional counterpart, but the increase is small compared to the increase in actual ownership. Note that the interest in the SR asset is larger if the choice is among mutual funds than if it is among saving accounts, but also fr the mutual funds question (Q8), more than half of the respondents go for the traditional investment.

Table 1. Stated choices in 2016 and 2024

	Traditional (Option a)	SR (Option b)	SR (Option c)	Survey year
Q5	75.4	15.3	9.3	2016
	73.8	17.3	8.9	2024
Q6	69.3	23.1	8.6	2016
	65.9	21.9	12.2	2024
Q8	56.9	32.8	10.4	2016
	56.3	31.4	9.3	2024

Note: percentages computed using sample weights.

Splitting saving between SR and traditional (Q7 in Rossi et al., 2019)

Suppose you receive an inheritance of *[€5000/ €10,000]* but the condition is that you cannot spend the money now but only one year from now at the earliest.

For example, you can split the amount in two, put part of it in a savings account at a traditional bank with 1% interest rate, and the remaining part in a saving account at a bank that only invests in socially responsible companies, with an interest rate of *[0.6% / 0.8%]*. The bank guarantees that the remaining *[0.4%/ 0.2%]* will be used for *[vaccinations of children in Africa/ loans to help women in developing countries to set up their own business]*.

How would you choose to allocate the total amount?

0 … 100% in the traditional savings account

0 … 100% in the socially responsible savings account

(autofill second answer such that the answers add up to 100%)

Figure 1 shows the histogram for the percentage invested in the SR asset in the 224 data. Comparing with Figure 1 in Rossi et al. (2019) again shows that the distributions are rather similar. The mean was actually higher in 2016 (30.99%) than in 2024 (28.87%). This seems mainly due to the larger percentage of 0 answers (46.9 in 2024, 35.4 in 2016), which seems surprising given the changes in actual SR ownership and stated choice outcomes.

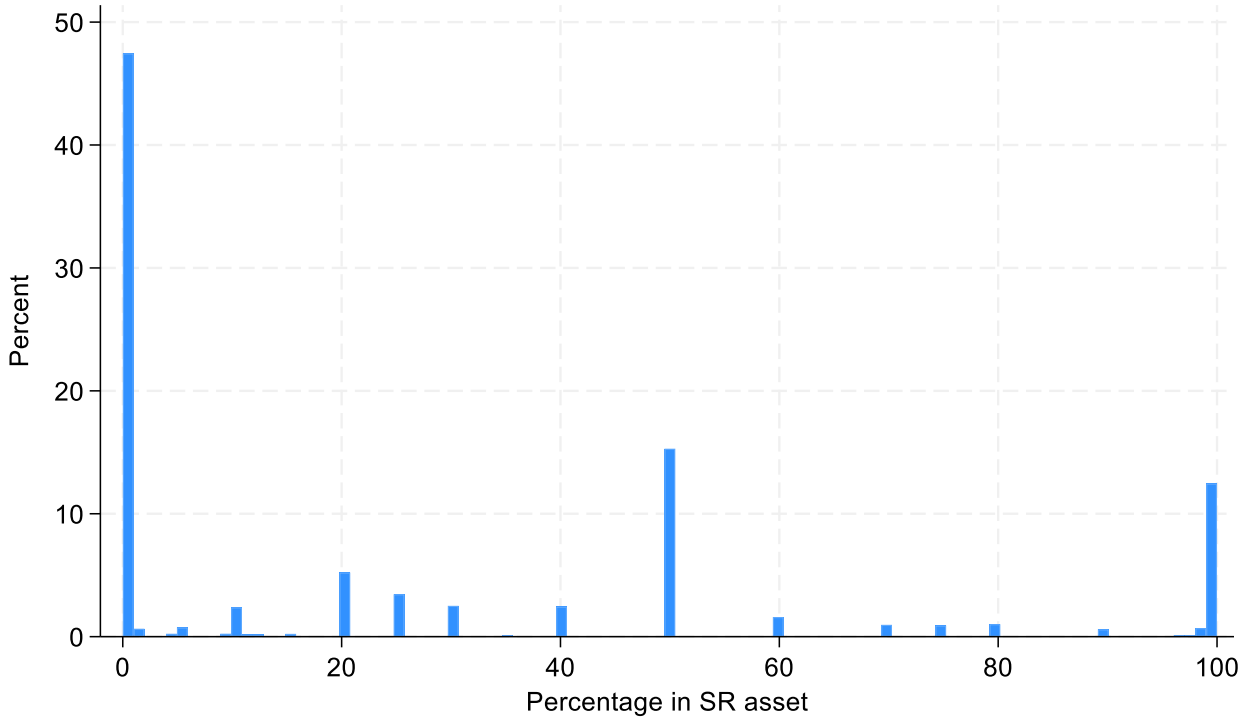

Figure 1. Histogram for question Q7 (weighted with sampling weights)

4. Econometric analyses

In this section we present results from the econometric analyses aimed to detect the association between the survey questions and the main socio-economic and demographic features of respondents. We first analyse results on actual ownership and stated preferences (§4.1), then the allocation between SR and traditional investments (§4.2), we compare these results with Belgium, Spain and Italy based on SHARE questions (§4.3), finally we

4.1 Actual ownership and stated preferences

Table 2 presents some probit results (in terms of average marginal effects) for actual ownership and stated preference for SR asset. (The two SR options are combined). Compared to Rossi et al. (2019), we introduce some alternative explanatory variables that may proxy an altruistic attitude and a taste for investments that help society (see table notes for their definitions and the questionnaire in the online appendix for details).

Main results in Table 2 can be summarized as follows:

- The main determinant of actual ownership of SR assets is education level – the high-educated are much more likely to own SR assets than those with low or intermediate education (*ceteris paribus*). This confirms what was found by Rossi et al. (2019).

- Age is never significant. Males are significantly less interested than women are when it comes to investing in an SR mutual fund instead of a traditional mutual fund. Residents of an urbanized area have a higher stated preference for SR, but this is not visible in actual ownership.

- Income is positive and marginally significant for actual ownership, but it is negative for the stated ownership questions (where there is no choice whether to invest or not, only how to invest).

- We find the expected positive associations between a stated interest in SR and donating to charity or working as a volunteer, but this is not the case for actual investment.

- A sustainable lifestyle is strongly positively associated with stated and revealed preferences for SR investments.

- Willingness to take risks and a future orientation (or a low rate of time preference) are positively associated with an interest in SR assets. The latter was expected. For the former, the expected relation was not so clear.

- Optimism on the return or risk from SR investments is strongly positively associated with stated preference for SR products, but is not significant for actual ownership. This is surprising since in the stated preference questions, risk and return are described explicitly.

Table 2: Participation in Social Investments. Probit Models.

	(1) Actual (Q1)	(2) Stated Banks (Q5)	(3) Stated Banks (Q6)	(4) Stated Stocks (Q8)
Male	-0.009	0.031	0.002	-0.065***
	(0.016)	(0.019)	(0.021)	(0.021)
Age	0.001	0.000	-0.000	0.000
	(0.000)	(0.001)	(0.001)	(0.001)
Intermediate Education	0.028	0.021	0.022	-0.029
	(0.022)	(0.025)	(0.026)	(0.026)
Higher Education	0.092***	0.089***	0.098***	0.032
	(0.021)	(0.024)	(0.026)	(0.027)
Urban	0.004	0.069***	0.055***	0.067***
	(0.015)	(0.017)	(0.019)	(0.019)
Individual Income in categories	0.007*	-0.009**	-0.002	-0.011**
	(0.004)	(0.004)	(0.005)	(0.005)
Charity	0.019	0.081***	0.113***	0.124***
	(0.018)	(0.022)	(0.023)	(0.023)
Volunteer Work	0.020	0.053***	0.059***	0.068***
	(0.015)	(0.018)	(0.020)	(0.021)
Sustainable lifestyle	0.042***	0.088***	0.098***	0.155***
	(0.015)	(0.018)	(0.019)	(0.019)
Risk seeking	0.024***	0.016***	0.011**	-0.005
	(0.004)	(0.004)	(0.005)	(0.005)
Future oriented	0.008**	0.022***	0.031***	0.030***
	(0.004)	(0.004)	(0.004)	(0.005)
Optimistic on return from SRI	0.023	0.050***	0.052**	0.061***
	(0.016)	(0.019)	(0.021)	(0.021)
Optimistic on risk from SRI	0.024	0.148***	0.172***	0.180***
	(0.022)	(0.027)	(0.030)	(0.032)
Observations	2189	2308	2308	2308

Notes: Randomized treatment dummies included but not reported. Average marginal effects; Standard errors in parentheses. Source: LISS panel, CentERpanel. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Explanatory variables:

Urban: 1 if living in urban area (at least 1500 inhabitants per km^2), 0 otherwise

Income categories: 1 (very low), …, 12 (very high); observations with missing values excluded

Charity: 1 if donating to charity, 0 otherwise

Volunteer work: 1 if active as a volunteer, 0 otherwise

Sustainable lifestyle: mean of 7 yes(1)/no(0) questions indicating a sustainable lifestyle

Risk seeking: subjective measure of willingness to take risks (scale from 0 to 10)

Future oriented: subjective measure for "willingness to sacrifice well-being in the present to achieve certain goals in the future" (scale from 0 to 10)
Optimistic on return from SRI: 1 if respondent believes return from SRI is higher than from traditional assets.
Optimistic on risk from SRI: 1 if respondent believes risk on SRI is lower than risk on traditional assets.

4.2 The allocation between traditional and SR

Table 3 presents the estimated average marginal effects of a two-limit tobit model explaining the answer to question on splitting saving between SR and traditional investiments, using the same explanatory variables as in Table 2.[4] A two limit tobit model is used to account for the censoring at 0 and at 100%.

Table 3 confirms the main findings from Table 2. Donating to charity is the strongest single predictor of the percentage invested in SR assets, followed by higher education and the index for a sustainable lifestyle. Volunteer work has much less predictive power. Moreover, residents of urbanized areas seem to be more interested than non-urban respondents. Age is now significant, and a ten years age difference raises the predicted investment in SR assets by 1.07 percentage points. Males invest less in SR assets than females do (keeping other variables constant, in all cases).

Willingness to take risks and, in particular, a strong focus on the future, are positively associated with an interest in SR assets, again in line with Table 2. Optimism about the risk or return of SR assets compared to traditional assets again also predicts a higher share invested in SR assets, somewhat surprisingly. One of the three randomized treatment variables is also significant: a higher interest rate for the SR option raises the fraction invested in the SR account.

Table 3: Stated percentage in SR account (Q7 in Rossi et al., 2019). Average marginal effects, Tobit model.

	(1) Marginal effects	
Male	-3.183**	(1.590)
Age	0.107**	(0.048)
Intermediate Education	1.407	(1.969)
Higher Education	7.590***	(2.008)
Urban	5.797***	(1.431)
Individual Income in categories	-0.505	(0.371)
Donates to charity	11.399***	(1.745)
Volunteer Work	2.795*	(1.542)
Sustainable lifestyle	7.279***	(1.501)
Risk seeking	0.760**	(0.354)
Future oriented	2.336***	(0.343)
Optimistic of return from SRI	6.315***	(1.586)
Optimistic of risk from SRI	11.300***	(2.366)
Inheritance 10K	-0.475	(1.433)
High int. rate SR option	4.427***	(1.428)
Investment in micro-credits	1.095	(1.431)
Observations	2308	

Notes: average marginal effects; Standard errors in parentheses
Source: CentERpanel, LISS panel; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Explanatory variables: see Table 2.

[4] It might be argued that the 50-50 answers are not driven by preferences but by uncertainty or the "one over n" investment rule (Benartzi and Thaler, 2001). Not using the 50-50 answers gives very similar results, however.

4.3 Comparing with Italy, Spain and Belgium: the question from SHARE

To compare the stated interest in SR investing in the Netherlands with that in some other countries, we asked the same question that was asked in 2019 a drop off questionnaire of SHARE (Survey of Health, Ageing and Retirement in Europe) in three other European countries, Belgium, Italy and Spain:

> Imagine that you can put €10,000 of your wealth in saving accounts. There are two different accounts: a traditional one (account A) where you receive an interest rate of 1% (100 euro after one year), and another one (account B) where you receive no interest but instead the bank uses the interest to fund a project helping the community where you live (e.g. subsidy to poor people, disabled or hospital expansion). How much would you invest in these two accounts?
>
> (1) all of it in A (you get 100 euros of interest),
>
> (2) more than half in A (you get more than 50 euros of interest)
>
> (3) half of it in A, half in B (you get 50 euros of interest)
>
> (4) more than half in B (you get less than 50 euros of interest)
>
> (5) all in B (interest completely goes to the community project)
>
> (99) "Don't Know"

The answers to this question are analyzed in Castagno et al. (2024). We reproduce their Figure 1 below. (Figure 2). The distribution in our sample, for the subsample covered by SHARE (ages 50 and older) is presented in Figure 3. The figures are quite different: the Netherlands has a much larger percentage of respondents that do not invest in the SR asset at all (61.5% for the 50+, 61.9% for the complete sample) than any of the other countries (all less than 50%). On the other hand, the percentage that equally splits the total amount (50% in traditional, 50% in SR) is much smaller. This suggests that the Netherlands is less interested in SR investing than the other three countries, though other explanations cannot be excluded (calendar time effect, mode effect).

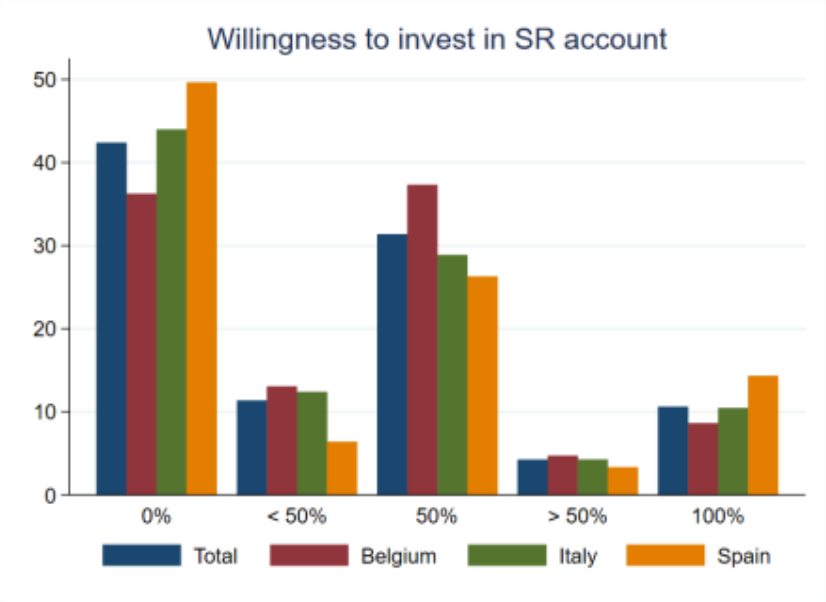

Figure 2. Answers to the SHARE question on stated preference for SR asset in SHARE 2019. Reproduced from Castagno et al. 2024.

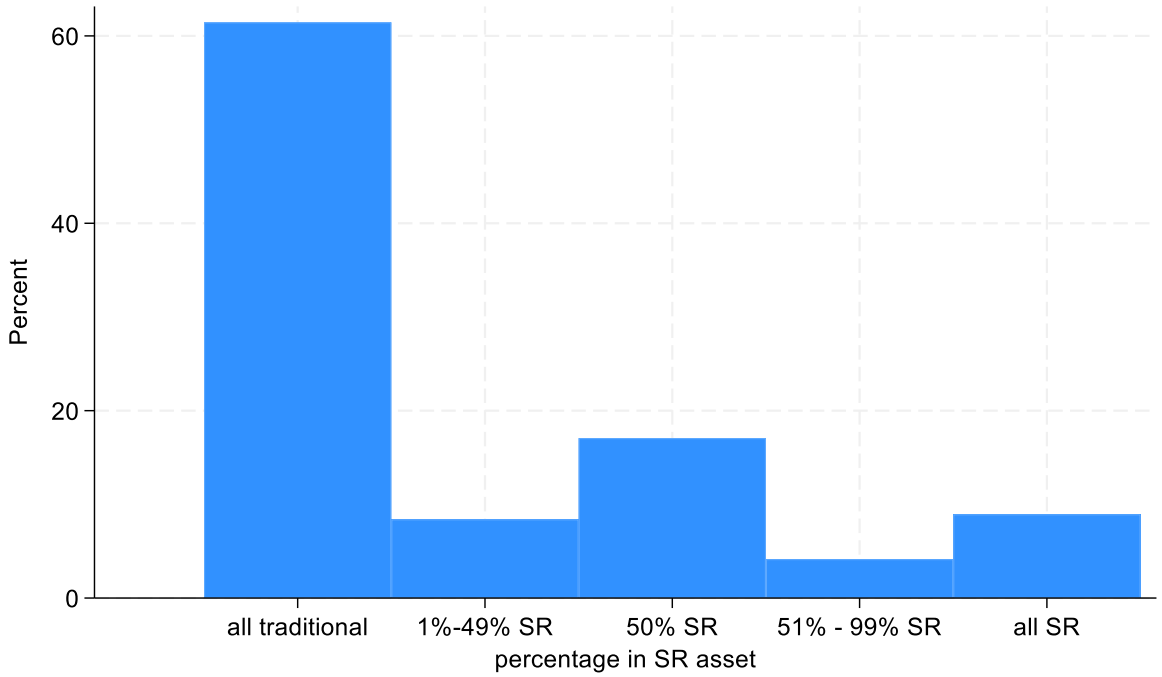

Figure 3. Answers to the SHARE question on stated preference for SR asset. LISS and CentERpanel 2024, ages 50 and older, weighted with sampling weights.

Table 4: Stated percentage in SR account, SHARE question. Ordered probit model

	coefficient	Standard error
Male	-0.092	(0.054)
Age	0.005**	(0.002)
Intermediate Education	-0.041	(0.067)
Higher Education	0.089	(0.068)
Urban	0.195***	(0.049)
Individual Income in categories	-0.045***	(0.013)
Donates to charity	0.210***	(0.061)
Volunteer Work	0.096	(0.052)
Sustainable lifestyle	0.186***	(0.052)
Risk seeking	0.013	(0.012)
Future oriented	0.061***	(0.012)
cut1	0.966***	(0.134)
cut2	1.215***	(0.135)
cut3	1.765***	(0.137)
cut4	1.916***	(0.137)
cut5	2.340***	(0.140)
N	2308	

Notes: Source: CentERpanel, LISS panel; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Explanatory variables: see Table 2.

Table 4 presents ordered probit estimates for the categorical answer. A positive coefficient indicates a positive association between the regressor and the share invested in the SR account. The most remarkable result here is that education plays a minor role and is not significant. This is quite different from what the other questions suggested and from the results in Castagno et al (2024). The association with income is negative and seems stronger than according to our earlier results or Castagno et al. It seems that, according to this stated choice question, especially the Dutch higher educated and higher income groups are much less interested in the SR account than their counterparts in Belgium, Italy and Spain. The other results are, at least qualitatively, more in line with the earlier results.

4.4 What willingness to pay for Environment, Social or Governance?

In order to assess the households' willingness to pay (WTP) for the 3 dimensions (E,S,G both separately and jointly), we asked a set of 16 questions based upon the multiple price list format often used to elicit risk attitudes or willingness to pay. The first four ask respondents to divide a given total investment amount into a share invested in a traditional mutual fund and a remaining share invested in an ESG mutual fund, with varying expected returns for the two funds. The other three sets of four questions do the same, but now making explicit that the ESG fund is either E or S or G.

First, we provided a short introductory text explaining the three dimensions E S and G:

> ESG investing is about investing in funds with a focus on environmental (E=environment), social policy (S=social) and good governance (G=governance); It's about the same as socially responsible investing.
> Environmental issues relate to the protection of the natural environment (e.g., climate change mitigation, CO2 emissions, fossil fuel use, pollution, or waste disposal; or enhancement of biodiversity, food security, or recycling).
> Social issues relate to the companies' relationships with employees, suppliers, customers, and other stakeholders (e.g., human rights, labor standards, child labor, gender equality, local community relations).
> Governance issues is about how well the company is run (e.g. composition, remuneration and independence of the board of directors, risk management, shareholder rights, control procedures, ethical behavior of management).

After this, the questions are asked. The wording of the first four questions is as follows:

> Imagine that you inherited €10,000 with the requirement that you invest the amount for [one year/ five years – randomize] before you are free to use it. You can invest it in two different ways: A) a traditional mutual fund of stocks without clear commitment to improve the environment or social policies or to stimulate good governance; B) a mutual fund that only invests in companies that improve the environment, social policies, or good governance (ESG funds).
>
> The risk of the return on the investments in A and B is the same, but the expected return may be different. Which part of the total investment would you invest in mutual funds A and B, if…

		In A	In B
a.	… the expected return for A is 5% and the expected return for B is 6%	…..	…..
b.	… the expected return for A is 5% and the expected return for B is also 5%	….	…..
c.	… the expected return for A is 5% and the expected return for B is 4%	…..	…..
d.	… the expected return for A is 5% and the expected return for B is 3%	…..	…..

The expected returns are randomized: in the other version, the expected returns on B is always 5% and the expected return on A is 3, 4, 5 or 6%. Moreover, the order of the four items is also randomized. In the next four questions, "environment, social policies, or good governance" is replaced by "environment". In questions 9 to 12, it is replaced by "social policies" and in the final set of four by "good governance".

Table 5 presents average percentages invested in the socially responsible mutual fund. First of all, these averages suggest a much higher interest in SR assets than the earlier questions. We already saw that the stated interest in SR was larger for mutual funds than for saving accounts (see Table 1), but in Table 5, the average preference has reversed: the majority of the hypothetical investment goes into the SR fund rather than the traditional fund.

Comparing columns shows that the environment domain is the most attractive one, followed by the social policies domain and, at some distance, but the good governance domain. The combination of the three domains (column 1) makes the mutual fund almost as attractive as the fund that focuses on the environmental dimension.

Comparing across rows shows the importance of the differential in the expected returns, obtained through the randomized design. For all four SR mutual fund types (ESG, E, S or G), the interest in the SR fund increases with the expected return differential between the SR fund and the traditional fund, but the differences are modest. Even if the traditional fund gives a two percentage points higher expected return than the SR fund, the majority of the amount invested still goes to the SR fund.

Table 5: Average percentages invested in ESG, E, S or G mutual fund, by expected return differential

Expected return difference SR – Trad. (%-points)	E, S and G	Environment	Social policies	Governance
-2	55.31	55.28	53.53	51.85
-1	56.84	57.55	55.23	53.08
0	61.42	61.97	60.28	57.65
1	62.30	62.94	61.66	60.40
2	62.46	63.41	61.73	61.03
All	59.82	60.40	58.65	56.84
Observations	9786	9734	9712	9688

Notes: weighted sample means, on a scale from 0% invested in SR fund to 100% invested in SR fund.
Source: CentERpanel and LISS panel.

Table 6 presents the results of a two limit tobit model combining the 16 questions; individual respondent effects are allowed for by using clustered standard errors.[5] The table presents the estimated coefficients, for the average marginal effects, these coefficients should be multiplied by 0.43, approximately.

Many results are in line with what we found before. For example, there is a significant positive association between the interest in the SR asset and donating to charity, doing volunteer work, a sustainable life style, and a strong orientation towards the future. The expectations that SR assets are less risky than traditional ones also helps. Like in the early tables except the one for the SHARE question, the interest in SR is much higher for the highest education level. Age has a marginally significant negative effect, this is different from what we got in Rossi et al. (2019).

Table 6: ESG, Environment, Social, Governance, all questions combined: Tobit model.

	coefficient	Standard error
QQ		
Male	-1.550	(2.497)
Age	-0.190**	(0.077)
Intermediate Education	1.993	(3.035)
Higher Education	19.137***	(3.112)
Urban	5.183**	(2.315)
Individual Income in categories	0.382	(0.439)
Donates to charity	15.615***	(2.772)
Volunteer Work	6.029**	(2.610)
Sustainable lifestyle	21.139***	(2.509)
Risk seeking	-0.685	(0.599)
Future oriented	3.562***	(0.627)
Optimistic of return from SRI	3.775	(2.490)
Optimistic of risk from SRI	19.720***	(3.800)
Interest diff SR-Trad	4.628***	(0.852)
Environment only	1.397**	(0.699)
Social only	-2.017**	(0.796)
Governance only	-6.603***	(0.958)
Var(error term)	6222.541***	(276.7)
Observations	38,624	

Marginal effects; Standard errors in parentheses, clustered at respondent level
Source: CentERpanel, LISS Panel; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Explanatory variables:
Interest diff SR-Trad: the difference in expected return between the SR and the traditional mutual funds (randomized in the questionnaire)
Environment only, Social only, Governance only: SR mutual funds explicitly mentions environment, social policy, or good governance. Baseline is ESG combined.
Other explanatory variables: see Table 2.

The most interesting variables are the expected returns differential and the dummies for the three domains. As expected, the interest in SR increases with the difference between the expected returns of the SR and the traditional mutual fund. With every additional percentage point, the expected share invested in SR increases by approximately 2 percentage points. This effect is significant but not that large, in line with the pattern in Table 5.

[5] A random effects tobit model gives mostly similar results, except that the interest rate differential has a much smaller and insignificant coefficient (surprisingly).

The dummies for the SR dimension indicate that SR assets that only focus on good governance are less attractive. In terms of willingness to pay, to make an SR fund investing in good governance assets would need to have an 1.4 percentage points higher expected return to make it as attractive as a mutual fund that addresses all three dimensions, and 1.7 percentage points higher to make it as attractive as a fund that focuses on environmentally conscious firms. Environment only mutual funds are the most attractive ones, followed by ESG combined and social only.

Conclusions

Against changes in the supply side (e.g. different types of assets that may finance the energy transition with or without attention to other dimensions of sustainability beside the environmental one, i.e. the social and governance dimensions), and important changes in households' attitudes towards this type of assets in their portfolio (e.g. increased awareness of the importance of financing a sustainable economy, changes in socio-demographic characteristics of households also in terms of cognitive abilities and financial knowledge) the present paper addresses several related research questions: What products do private households prefer? Do they care only for the low carbon feature or are they becoming aware that sustainability means ESG and not only E? Do they think they have to sacrifice return by ESG investing? If so, what is the "willingness to pay" (WTP) for that, i.e. how much are they willing to pay in terms of reduced returns to foster sustainability via their financial investments? Or do they think they can "do well while doing good"? Can households be stimulated in their financial decisions to support financial sustainability by using nudges)? If so, what kind of nudge is more effective?

To this end we collected survey data on the preferences, attitudes, expectations, and other characteristics of a representative sample of the Dutch adult population, using an ongoing panel run by Centerdata at Tilburg University. Part of the data collection and analysis provides an update to a previous paper (Rossi, Sansone, van Soest and Torricelli, 2019) that analyzed household preferences for SRI based on similar survey data conducted in 2016. In the light of the changes both in the sustainable asset universe and in the household attitude towards sustainable investments, we elicit changes in the population attitude compared to 2016. Moreover, while the earlier study considered ESG as a whole, the new survey also asked questions about preferences for assets that exclusively focus on either E, S or G, so as to detect whether households have a higher willingness to specifically finance the energy transition. To compare the stated interest in SR investing in the Netherlands with that in some other countries, we also asked the same question that was asked in 2019 in a drop off questionnaire of SHARE (Survey of Health, Ageing and Retirement in Europe) in three other European countries, Belgium, Italy and Spain.

Main results from the analyses of the collected survey data can be summarized as follows. First, the descriptive analysis reveals that while the ownership of SR assets has risen from 8.5% to 14.7% between 2016 and 2024, stated preferences for SR show much less of an increase yet they highlight E is more popular than ESG combined, S or G only, and the size of this difference is substantial: the estimated Willingness-To-Pay for changing from G to E: 1.7%-points difference in expected annual return. Second, the econometric analyses of plausible associations with respondent characteristics provides results mostly in line with earlier findings (e.g. Rossi et al., 2019), whereby the interest in ESG is positively related with a sustainable lifestyle, donating to charity, and doing work as a volunteer and some remarkable level differences depending on how the question is phrased. Third, when results are compared with Belgium, Spain and Italy based on analogous SHARE questions, Dutch household appear less interested in the socially responsible assets than in the other countries.

Our results have industry and policy implications. Specifically, for the financial industry also in regulatory terms (e.g. MiFID II) and for asset managers in term of assets/portfolios offered to customers (e.g. Bertelli and Torricelli, 2022a/b).

References

Ariely D, Bracha A, Meier S (2009) Doing good or doing well? Image motivation and monetary incentives in behaving proscially. *American Economic Review*, 99: 544–555.

Bauer, R., Smeets, P. (2015) Social identification and investment decisions. *Journal of Economic Behavior and Organization*, 117, 121–134.

Beal, D.J., Goyen, M., Philips, P. (2005), Why do we invest ethcally? *Journal of Investing*, 14(3): 66–78.

Benartzi, S., Thaler, R. (2001), Naive diversification strategies in Defined Contribution retirement saving plans, *American Economic Review*, 91(1): 79–98.

Berg, F., Kölbel, J., RIgobon, R.(2022), Aggregate confusion: The divergence of ESG ratings, *Review of Finance*, 26(6), 1315–1344.

Bertelli B., Torricelli C. (2022b), ESG screening strategies and portfolio performance: How do they fare in periods of financial distress?, Working Paper CEFIN N. 87, June.

Bertelli, B., Torricelli, C. (2022a), ESG compliant optimal portfolios: The impact of ESG constraints on portfolio optimization in a sample of European stocks, Working Paper CEFIN N. 88, October.

Bertelli B., Boero, G., Torricelli, C. (2021), The market price of greenness: a factor pricing approach for Green Bonds, Working Paper Cefin N.83, June.

Bollen, N.P.B. (2007) Mutual fund attributes and investor behavior, *Journal of Financial and Quantitative Analysis*, 42(3): 683–708.

D'Amato, Goeschl, T., Lorè, L., Zoli, M. (2023) True to type? EU-style date marking and the valuation of perishable food, *Food Policy*, 114, 102381.

Døskeland T, Pedersen LJT (2016) Investing with brain or heart? A field experiment on responsible investment. *Management Science*, 62(6): 1632–1644.

Glac K (2009) Understanding socially responsible investing: The effect of decision frames and trade-off options. *Journal of Business Ethics*, 87(SUPPL. 1): 41–55.

Hansen, P. G. (2016) The definition of nudge and libertarian paternalism: Does the hand fit the glove? *European Journal of Risk Regulation*, 7(1), 155−174.

Hood M, Nofsinger JR, Varma A (2014) Conservation, discrimination, and salvation: Investors' social concerns in the stock market. *Journal of Financial Services Research*, 45(1): 5–37.

Hong, H., Kacperczyk, M. (2009) The price of sin: The effects of social norms on markets. *Journal*

of Financial. Economics, 93(1): 15-36.

Junkus JC, Berry TC (2010) The demographic profile of socially responsible investors. *Managerial Finance,* 366(6): 474–481.

Kelsey, B. McDermott, K., Sautmann,, A. (2022) Multiple price lists for willingness to pay elicitation, *Journal of Development Economics*, 159, 102977.

Levitt SD, List JA (2007) What do laboratory experiments measuring social preferences reveal about the real world ? *Journal of Economic Perspectives,* 21(2): 153–174.

Nijman, T.E., van Soest, A. (2019), Effective and sustainable private pensions, in A. Walker (ed.), *The Future of Ageing in Europe,* Palgrave McMillan, Singapore, pp. 79-106.

Nilsson J (2008) Investment with a conscience: Examining the impact of pro-social attitudes and perceived financial performance on socially responsible investment behavior. *Journal of Business Ethics,* 83(2): 307–325.

Pasewark WR, Riley ME (2010) It's a matter of principle: The role of personal values in investment decisions. *Journal of Business Ethics,* 93(2): 237–253.

Principles for Responsible Investment (PRI). (2017), *The SDG investment case*. Available at https://www.unpri.org/sustainable-development-goals/the-sdg-investment-case/303.article

Renneboog, L, Ter Horst, J., Zhang, C. (2008), Socially responsible investments: Institutional aspects, performance, and investor behavior. *Journal of Banking and Finance,* 32(9): 1723–1742.

Rossi M.C., Sansone D., van Soest, A., Torricelli, C. (2019), Household preferences for Socially Responsible Investments, *Journal of Banking and Finance,* 105, 107-120.

Thaler, R. H., Sunstein, C. R. (2008), *Nudge. Improving decisions about health, wealth, and happiness*. Yale University Press, New Haven CT.

Torricelli C., Pellati E. (2023), Social Bonds and the "Social Premium", *Journal of Economics and Finance,* 47, 600-619.

United Nations. (2015), *Transforming our world: the 2030 Agenda for Sustainable Development.*

Widyawati, L. (2020), A systematic literature review of socially responsible investment and environmental social governance metrics. *Business Strategy and the Environment*, 29(2), 619-637.