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Occasional Paper Annex 2

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Annex 2. Matter of fact-sheets: improving consumer comprehension of financial sustainability disclosures

Contents

Summary

This exploratory research seeks to understand the impact of ESG (Environmental Social & Governance) attributes, such as ESG imagery, fund description, fund strategy, and objective ESG medals, compared to non-ESG attributes, on how likely a fund is to be chosen. We also explore the impact on the probability of a fund being chosen when participants were presented with objective medal gradings which indicate a fund's ESG characteristics. Finally, we present participants with contradictions between these objective medal gradings and the fund's ESG attributes, to help us understand the impact of greenwashing on the probability of a fund being chosen.

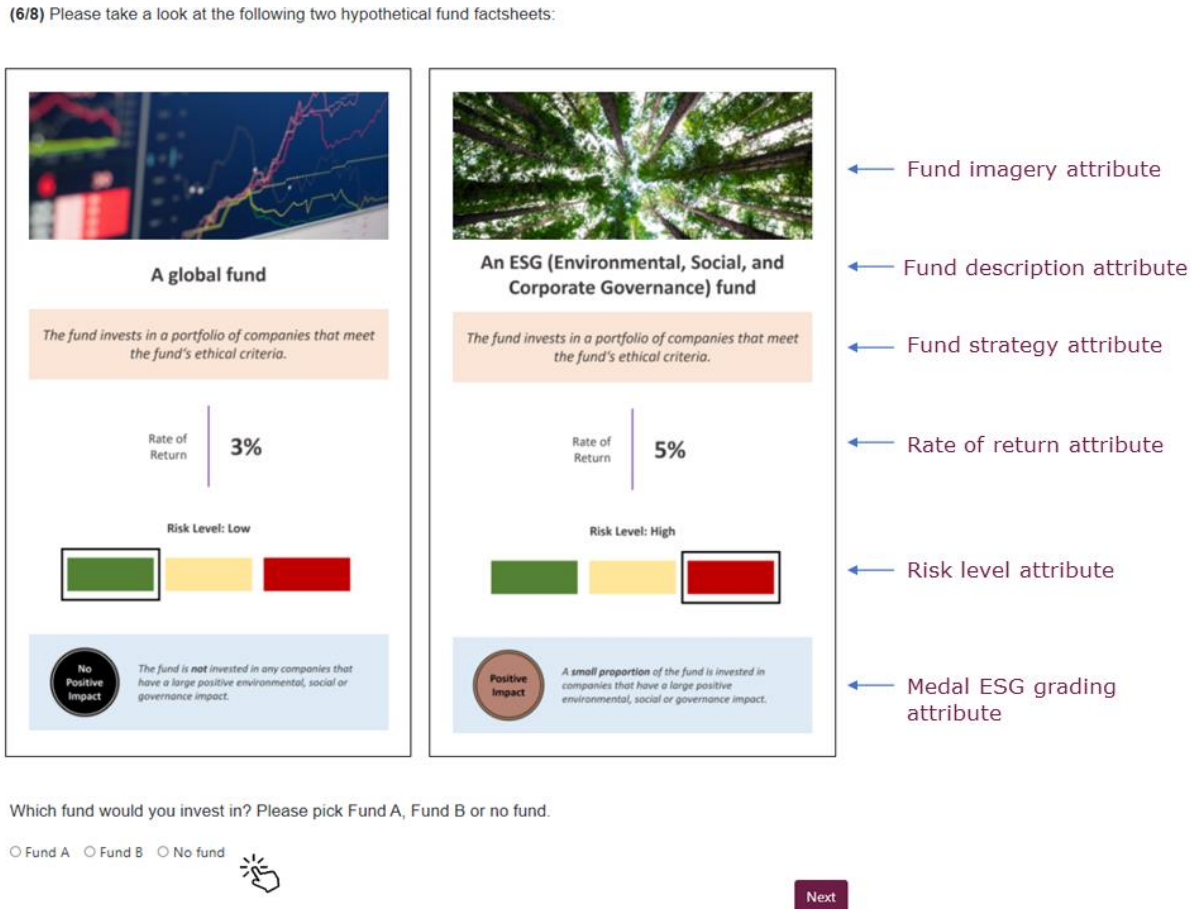
To do this, we run two simultaneous online conjoint analyses, in which participants see pairs of funds, where each fund has randomly selected (green and non-green) attributes, such as imagery, descriptions, and ESG medals, from a larger set of possible attributes. We find that ESG fund images, fund descriptions, and fund strategies have no statistically significant effect on participants' stated investment choice. However, we find that ESG medals increase likelihood of participants stating they would choose a given fund. Finally, our analyses show that participants' investment choices are not swayed by ESG information that conflicts with the ESG medal. These findings provide initial evidence for the importance of objective sustainability gradings, which we build on in further research to inform the Financial Conduct Authority's (FCA's) approach to consumer-facing product-level sustainability disclosures (FCA, 2022).

1 Research Design

1.1 Intervention

In the conjoint analysis, participants see pairs of funds, and each fund has attributes selected at random from a larger set of possible (green and non-green) attributes. In this case, there are up to six attributes, and participants see eight pairs of funds (16 in total). Figure 1 below provides a labelled example of a pair of funds that participants would see.

Figure 1: Example fund choice



The attributes were chosen to try and identify what were considered the core elements of a fund that we believed could influence consumer choice. We wanted to simplify the fund information so as not to be overwhelming or time-intensive within the experiment, given the number of funds they would have to examine. However, this also does mean that the funds participants saw were less realistic, which may affect how generalisable our findings are (see the section on generalisability & limitations below).

Each image, description, and strategy, we would consider to either signify ESG characteristics of the fund, or not. In **Table 1** below we outline what the different attributes were and whether we considered them ESG or not (marked with "**(ESG)**").

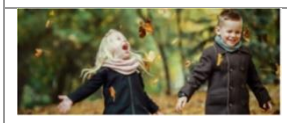
As noted above, all possible combinations of attributes were included. Participants could see images, descriptions, strategies, and medals that appeared to conflict (e.g., a strategy that stated, "The fund invests in companies that have a positive impact on society" and a medal which says "No positive impact"). This was a deliberate part of the design.

It is worth noting that there are similarities between the wording on the Medal attribute and the Strategy attribute. This is because, in part, the Medal describes if they have a standardised ESG impact goal, and the strategy outlines the fund's over-arching goal. The aim was for the Medal to be standardised, comparable, and ESG specific, whereas the over-all strategy more general to the fund.

Table 1: Attributes

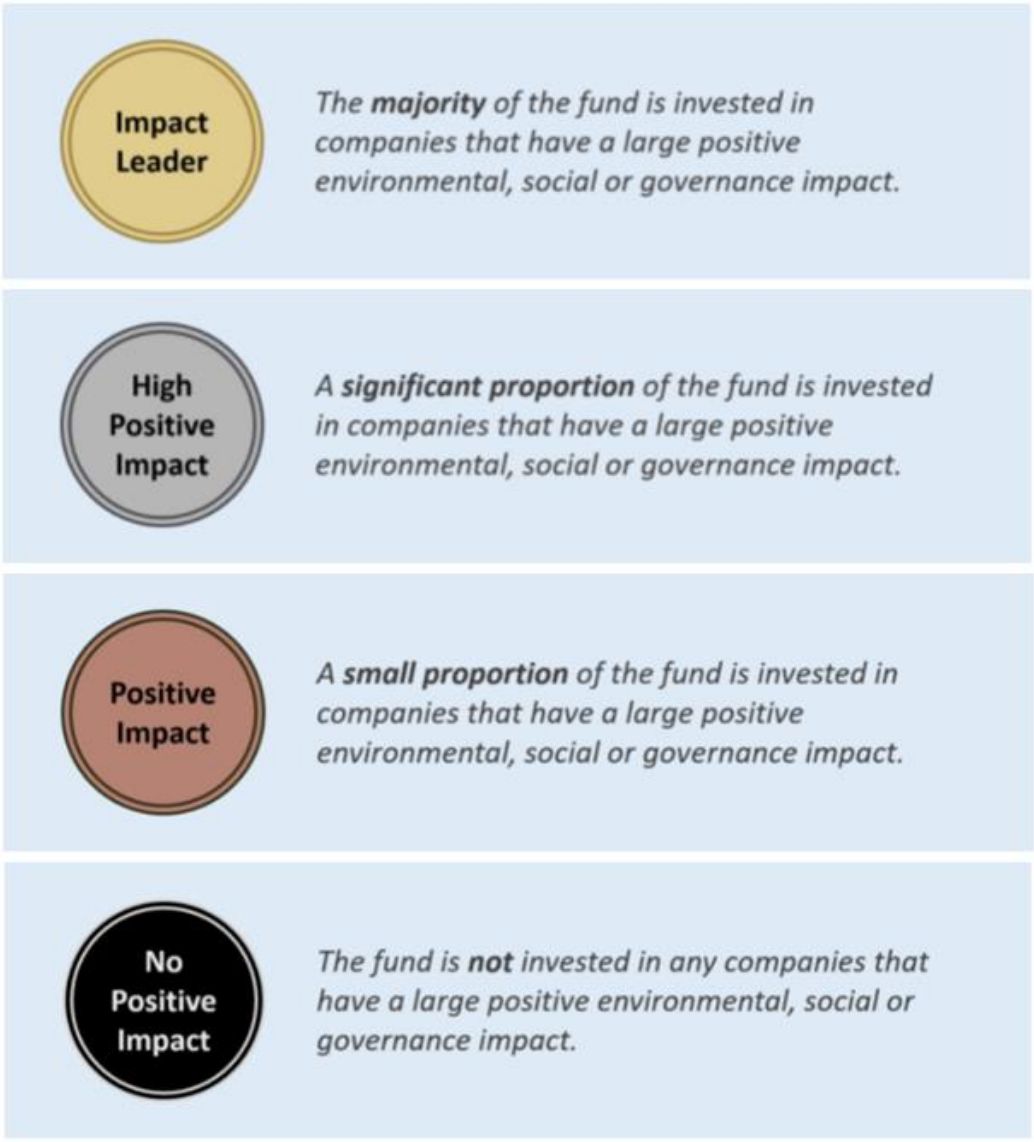
This outlines the six attributes that were randomised, and the possible values each attribute could take.

"(ESG)" marks the fact we considered the attribute to be signifying ESG characteristics – this was not present in the actual text/image.

Image	Description	Strategy	Rate of return	Risk	Medals (see below for full description; ~50% saw this attribute)
 **(ESG)**	A sustainable fund (ESG)	The fund invests in companies that have a positive impact on society (ESG)	3%	Low	 (ESG)
 **(ESG)**	"An ESG (Environmental, Social, and Corporate Governance) fund" (ESG)	The fund invests in a portfolio of companies that meet the fund's ethical criteria (ESG)	5%	Med-ium	 (ESG)

 **(ESG)**	An ethical fund (ESG)	The fund invests in companies with predictable revenue growth under an unconstrained strategy	7%	High	 (ESG)
	A growth fund	The fund invests in assets that provide long-term capital growth			
	A global fund				
	A diversified fund				

Figure 2: Medals with descriptions



1.2 Experimental design, outcome measures, and analytical approach

Experimental design

We conducted two simultaneous online conjoint analyses – with participants initially randomised to take part in two near identical experiments.

In a conjoint, participants are not allocated to treatment or control groups. There is no conventional control; instead, participants see pairs of funds, and each fund has attributes selected at random from a larger set of possible attributes. Then, comparing against a chosen arbitrary baseline, you can calculate the average marginal component effect for a given attribute. Hainmueller *et al*., (2013) undertake a formal identification

analysis and set out the methodology in more detail. For an overview of the assumptions underpinning conjoint analysis, see Annex 4.3.

All possible combinations were included, even where they may have contradicted themselves. Approximately half of the participants were randomised to see funds which had five attributes, the others were randomised to see funds that had those five plus an additional medal attribute, indicating the positive ESG impact (or lack thereof) of the fund. This allowed us to calculate the effects of the first five attributes under conditions where no medals exist, then separately look at the effect of the medals, and finally, investigate how the medals might influence the other attributes.

Outcome measures

Our primary (and only) outcome was only whether or not a given fund was chosen. For more details, see Annex 4.1.

Analytical approach

All of our analyses come from estimates of the Average Marginal Component-specific Effects (AMCE) estimator.[1] This means that we calculate the change in the average probability of choosing a fund, given each individual change (e.g., of having ESG images rather than non-ESG images). However, we cannot conclude anything about specific combinations or sets of attributes. For example, we cannot say what the effect of having an ESG image and an ESG description is from our models.

For the sample that did not see medals, we ran several models to estimate the average change in probability of choosing a fund with:

- An image signifying ESG characteristics
- A description signifying ESG characteristics
- A strategy signifying ESG characteristics

On the sample that did see medals, we ran a similar model, but we also estimated the average change in probability of choosing a fund for each medal type. We then ran additional models that looked at how having a medal may influence the effect of the ESG image, ESG description and ESG strategy probabilities. Specifically, we looked at two ways the medals might have this latter influence:

[1] As presented in Hainmueller, J., Hopkins, D. J., & Yamamoto, T. (2014). Causal inference in conjoint analysis: Understanding multidimensional choices via stated preference experiments. *Political analysis*, 22(1), 1-30. Available: http://web.mit.edu/teppei/www/research/conjoint.pdf. It is worth noting that this model produces the same coefficients as OLS, in the event (as is with our analyses) that there are no excluded component combinations.

i) We restricted our sample to only funds that have a "No positive impact" medal, to signify a fund that is not ESG, then examined the effect of adding ESG images, descriptions, or strategies on the average probability of the fund being chosen.

ii) We investigated whether there was a significant difference between the effect of the ESG images, descriptions, or strategies on the average probabilities of the fund being chosen when products had an impact medal (consistently ESG-signifying attributes) and when products have a "No impact medal" (contradictory ESG attributes).

These models sought to explore greenwashing, or in other words, the effect of implying a fund is ESG when a more objective grading says that the fund is not. We interpreted having ESG images, strategies or descriptions, when the more objective medal signifies there was no ESG impact, as greenwashing. For technical details on how we specified our models, see Annex 4.4.

1.3 Sample description and randomisation

Our sample consisted of 1,530 participants and was broadly nationally representative in terms of age, gender, and region. We recruited participants through an online panel provider, Dynata. However, we note that individuals who register for panels and complete them are unlikely to completely reflect the general population. For a more detailed sample description, see Table 4 in Annex 4.5. We did not include participants who did not make all eight choices (n = 16), or the small number of duplicates (n=5) (see

Figure 6 in Annex 4.2).

Randomisation took place within the survey platform to determine whether the participant would see funds with the medals attribute. Randomisation of each characteristic, within each fund was carried out in the platform as well. For further details, see Annex 4.5.

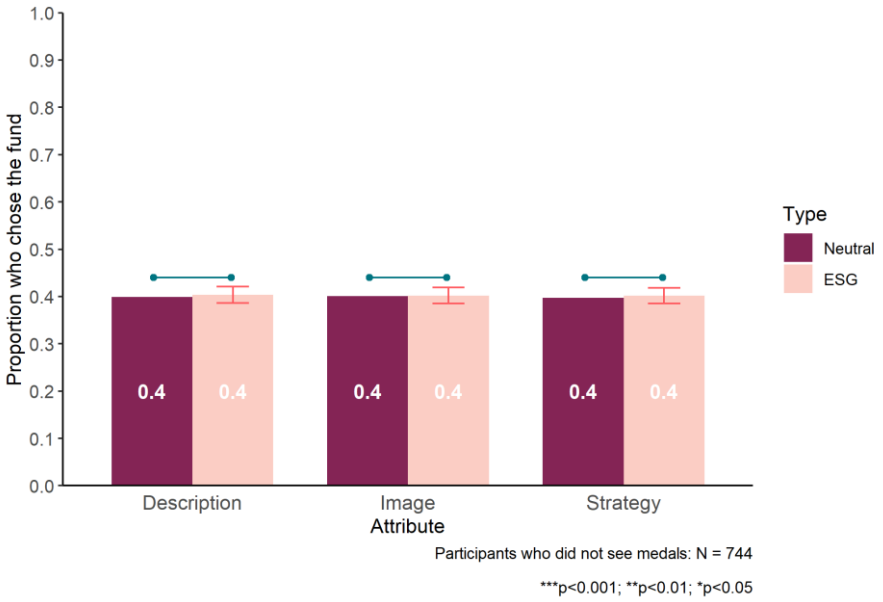
2 Results

2.1 Primary results

Research question 1: What is the impact of green attributes on how likely a fund is to be chosen, compared to non-green attributes?

We find that ESG fund images, fund descriptions, and fund strategies have no statistically significant effect on participants' stated investment choice in our analysis setup. Participants appeared no more likely to choose funds based on the factsheet having an ESG attribute compared to a neutral one.

Figure 3: Proportion of those choosing a given fund, for those who did not see ESG medals

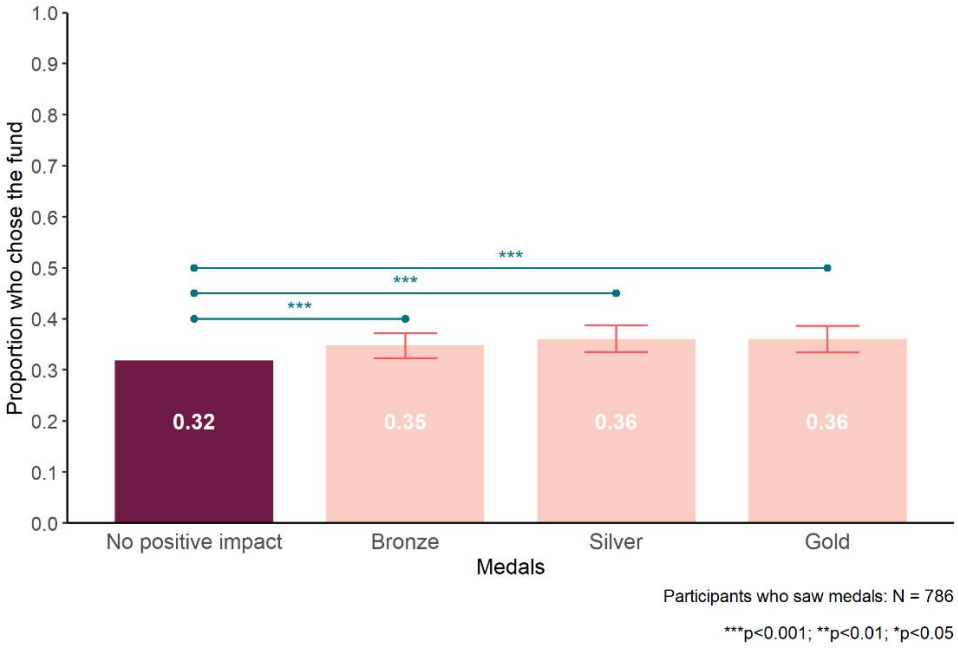


Research question 2: What is the impact on the probability of a fund being chosen of each positive medal type, compared to receiving a "No positive impact" medal?

We find that medals have a significant effect on participants' investment choices in our analysis setup. We compare funds with each of the positive ESG impact medals (bronze, silver, and gold) with those that have the 'No positive impact' medal. The bronze medal increases the likelihood of participants saying they would invest in the fund by 3

percentage points, and the silver and gold medals increase that likelihood by 4 percentage points each.

Figure 4: Effect of each positive medal type on the probability of choosing a given fund

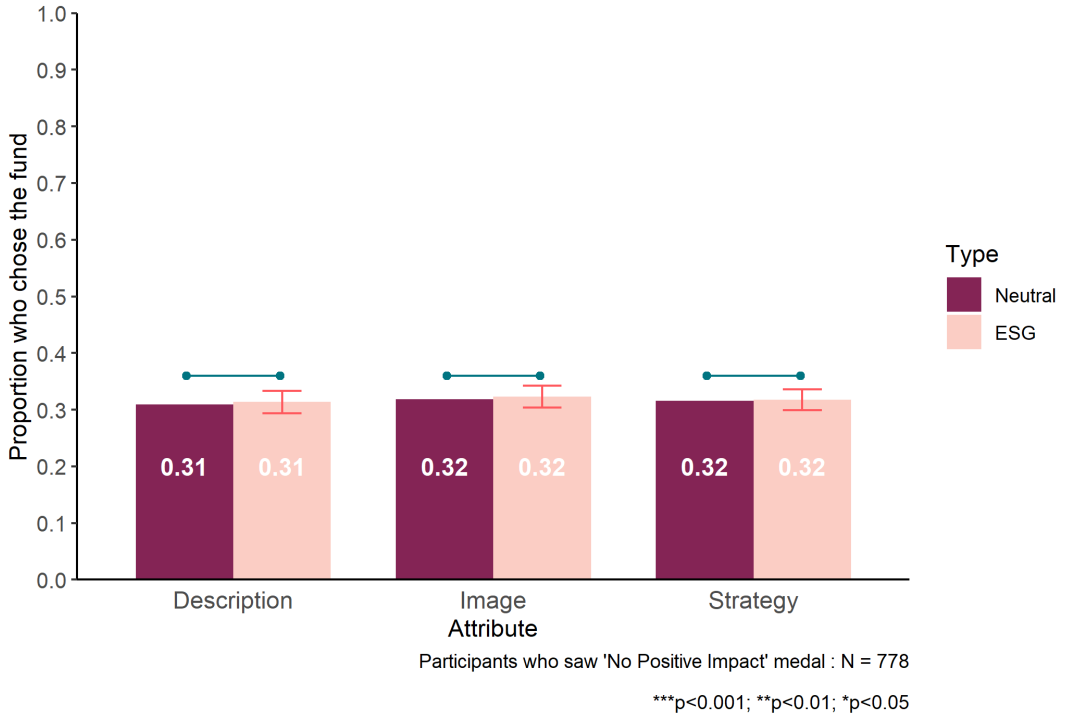


Research question 3: In a context where medals exist: What is the impact of greenwashing on the probability of a fund being chosen?

When the medal is "No positive impact", what is the impact of green components?

To test our first question on greenwashing, we look at the effect of factsheets that present ESG fund images, fund descriptions, and fund strategies, but where the medal says, 'No positive impact', conflicting with the other ESG attributes. This best simulates greenwashing in our setup. We find that participants' investment choices are not swayed by ESG information that conflicts with the medal's grading. We find no statistically significant differences in the effect of ESG fund images, fund descriptions and fund strategies on participants' choices when we compare cases where the medal conflicted with this information and cases where it agreed.

Figure 5: Impact of ESG attributes when the medal is "No positive impact"



Is there a differential impact between the effect of green components, on those with positive medals?

We found no significant differences between the effect of green components on those who saw positive impact medals compared to those who saw a "No positive impact" medal. This is true for all four models run as described above. For the full tables please see Table 6, Annex 4.6.

2.2 Exploratory results

While they were not our main hypothesis, we also explored the effect of risk level and rate of return on fund choice. Unsurprisingly, participants were more likely to choose funds with higher rates of return and more likely to choose funds with lower risk.

In more detail, compared to a "Medium" risk level, a "High" risk level reduced the chance of the fund being chosen by around 20 percentage points amongst the sample who saw the medals, and a decrease of around 24 percentage points amongst those who did not see medals. While having a "Low" risk level had a 13 percentage point increase on the chance of the fund being chosen amongst those who saw medals, and a 16 percentage point increase on those who did not see medals.

Compared to funds which had a 5% rate of return, having a 3% rate of return decreased the chance of the fund being chosen by 10 percentage points amongst the sample who

saw medals, and a decrease of 12 percentage points amongst those who did not see medals. While having a 7% rate of return had around an 8 percentage point increase on the chance of the fund being chosen amongst those who saw medals, and around a 10 percentage point increase amongst those who did not, compared to a 5% return.

All the above comparisons were statistically significant. It is important to be careful drawing conclusions by comparing the different effect sizes, either between the two samples (those who saw medals and those who did not) or between the different effect sizes (e.g., the difference between the effect of rate of return, and that of the effect of risk, or of the other attributes outlined in our primary and secondary analysis), as no formal comparison was made.

3 Discussion

3.1 Interpretation

Participants were no more likely to choose funds based on the factsheet having an ESG attribute compared to a neutral one

There are several potential hypotheses as to why. One could be that consumers do not in fact care about funds being ESG or not, however this conflicts with previous research (e.g., University of Cambridge Institute for Sustainability Leadership, 2019), as well as with our results to research question 2 outlined below. Another hypothesis is that for many funds, consumers were presented with inconsistent information (e.g., an ESG description, but a non-ESG strategy) and participants chose to discount ESG information. A third hypothesis is that consumers did not trust ESG information that was not believed to be genuine. This is supported by the lack of effect from ESG images, descriptions, and strategies and the significant, positive effect found from positive impact medals when compared to a "No Positive Impact" medal.

Medals have a significant effect on participants' investment choices

This suggests a salient grading, that is presented as an objective representation of a fund's ESG impact would have a significant effect on which funds consumers decide to invest in. This suggests that introducing an approach like this could be of value to consumers. However, it is important to note that we did not test comprehension of what the medals stood for, so consumers may have taken medals more as a sign of general quality, for example, and that it was this, not the signify of ESG impact, which was driving changes in investment choice.

In fact, any information that contradicts with medals did not impact choice

This is unsurprising given our first finding above, where fund images, fund descriptions, and fund strategies have no significant effect on the participants who did not see medals on their factsheets. This could suggest participants may not always identify greenwashing, but it could also suggest that they do not respond to it.

Our setup does not test what happens if the greenwashing is presented as objective information. However, our findings suggest that consumers may respond strongly if something is presented as objective information. For example, we did not test the effect of adding a gold medal to a fund that is non-ESG. As such, we would encourage further research to explore effects of objective gradings where they may not accurately represent the ESG characteristics of products, as the potential for greenwashing may be significant.

3.2 Generalisability & limitations

The results are useful in helping further substantiate the impact of different components on consumer decision making. However, they are more hypothesis generating and indicative, rather than providing robust causal evidence. While we think it is reasonable to expect the findings to hold in other contexts, to be confident in this, further research is needed. Duflo et al., (2006) outline hazards that affect the extent to which findings would be generalisable (i.e., external validity), which is applied and modified in a systematic review by Peters, Langbein and Roberts (2018). Three of these hazards are especially relevant to this piece of analysis are:

- The treatment is provided differently from what would be done outside the evaluation. The randomised funds are both very different in terms of the level of information provided, but also the combination of randomised components may be very different to funds that people see in the real world.
- Participants knew they were part of a research project, and this may change their behaviour.
- The sample may be different from the policy population in which the intervention will be brought to scale.

4 Annex

4.1 Outcome Measure

To understand how this was coded, it is worth noting that the data was reshaped - so that it was not participant level data (where each row or observation is one participant), but rather, fund level data. Given each participant had 16 funds shown to them (and 8 choices), this means that each participant had 16 rows of data.

The outcome variable, for each row of data, was then coded 1 if the participant had chosen that fund, or 0 otherwise. Please note, that this includes them choosing the other fund, or "no fund". There was no option to not respond.

Table 2: Outcome Coding

Option	Coding
Fund was chosen	1
Other fund was chosen	0
"No fund" was chosen	0

4.2 Power Calculations and Randomisation

Power Calculations

We calculated our minimum detectable effect size for the expected sample size of 750 in each of the two parallel conjoint experiments. To note, a separate power calculation was done for each characteristic we wanted to calculate in the analysis.

The power calculations were done using the R package cjpowR.[2] We made the following assumptions when calculating the minimum detectable effect size:

- A power threshold of 80%
- Alpha of 5%
- Sample size of 750
- 8 tasks (the number of choices participants made)

To note, a separate power calculation was done for each characteristic we wanted to calculate in the analysis. As we detail below, we combined the images, descriptions, and strategies into only two levels – either ESG signifying or not ESG signifying. While we did

[2] This package was created by the authors of Schuessler, J., & Freitag, M. (2020). Power analysis for conjoint experiments. Accessed at: https://osf.io/preprints/socarxiv/9yuhp/

explore each possible value of each separate image, or each separate description in exploratory analysis, for our primary analysis, to maximise power and best answer our policy questions, we focused on these higher-level questions – for example, what is the effect of an image signifying ESG characteristics, rather than what is the effect of a forest image.

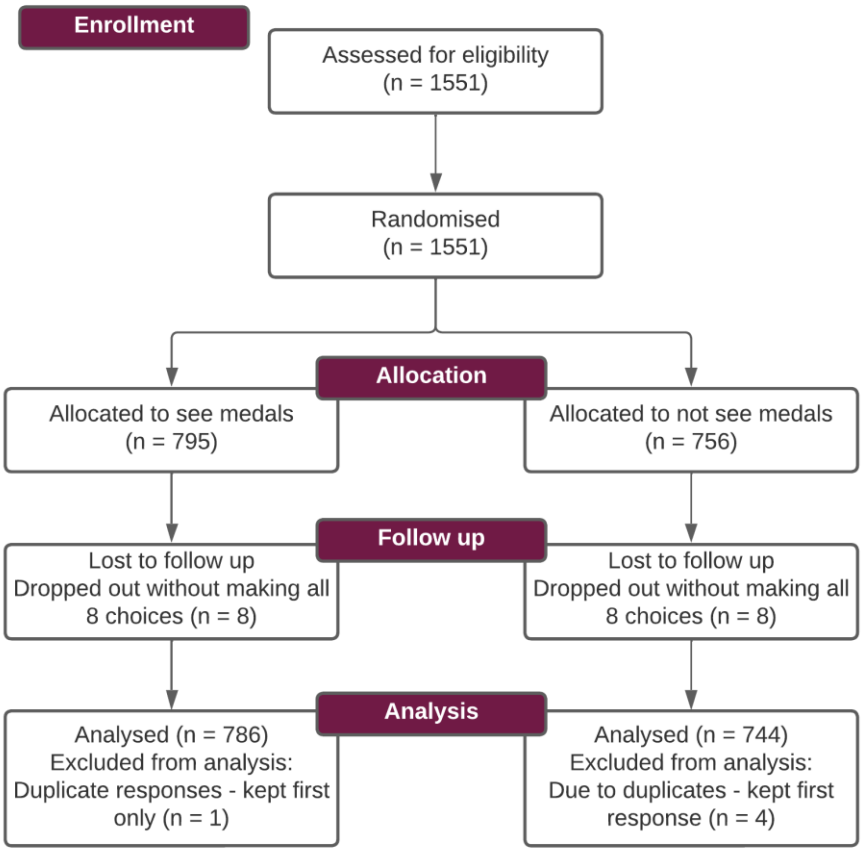
Table 3: Power Calculations

	Levels (number of different attribute possibilities)	Minimum detectable effect size at participants = 750, 8 tasks, power 80% alpha 5%
Image	2 (ESG or not ESG)	2.6 percentage points
Description	2 (ESG or not ESG)	2.6 percentage points
Strategy	2 (ESG or not ESG)	2.6 percentage points
Medal	4	3.6 percentage points

Randomisation

Simple individual unconstrained randomisation took place within oTree to determine whether or not the participant would see funds with the medals attribute, or not. Further simple unconstrained randomisation of each characteristic, within each fund within oTree as well.

Figure 6: Consort Diagram



4.3 Assumptions

Conjoint analysis, as conducted here, relies on four assumptions (Hainmueller et al., 2013). These are:

Carry over effects

This assumption implies that respondents would choose the same fund as long as the two fund profiles in the same choice task had identical attributes, regardless of what other funds they had already seen, or would see later.

Profile order effects

This assumption is that when given a choice between two funds, that respondents would choose the same fund regardless of whether it is displayed first or second (in our set up, whether it appears on the left or the right).

This assumption did not hold – there was a statistically significant effect of profile order on the chance of a product being chosen. To partially account for this, we added a fixed

effect for profile order. However, this remains a limitation of our research which could mean our estimates are not accurate.

Randomisation

The third assumption is that the experiment is randomised – this is something which we checked in the usual way – by checking the randomisation code works and for balance on observables characteristics to check for randomisation failure. Our assessment was that overall randomisation was successful.

Attribute order

The fourth and final assumption states that either, our results hold only for the order of the attributes within each choice (e.g., of risk below rate of return), or that the order does not matter. We assume the former in this case.

4.4 Analyses

For our analyses we used models with the following variables:

Outcome: a binary variable indicating whether or not the fund was chosen. This was with fund-level data, please see the Outcome section for more details.

Attributes:

ESG image
ESG description
ESG strategy

All binary variables coded to 1 if the respective image, description or strategy was considered to signify the fund has ESG characteristics (see the Intervention section – Table X above for details). This approach was taken to preserve power and as the best way of answering our research question.

Rate of return – which we consider as a categorical variable - so coded as dummy variables – with values "3", "5", or "7".
Risk – with values "low", "medium", and "high", again coded as dummy variables.
Profile order – as detailed below in our assumptions checks in the results, we found a significant effect of profile order on our outcome. As such we included a binary variable coded 1 if the profile appeared on the right and left otherwise. See the results section for details.

Two models were run, Model 1 was run with the outcome and the five attributes above on the sample that were randomised to see the funds with five attributes. Model 2 was run as per Model 1, but also with the Medals attribute described below. This was with the sample who were randomised to see all six attributes.

Medals – "Gold", "Silver", "Bronze", and "No positive impact", corresponding to the fuller descriptions available in figure X above.

Standard errors were clustered at the participant level.

Below we outline which models and coefficients were used to answer the research questions.

Research question 1: What is the impact of green attributes on how likely a fund is to be chosen, compared to non-green attributes?

We used Model 1 to answer this research question, as at this stage, we are not interested in considering the effect (even if indirect) of medals. We then separately considered the coefficients on ESG image, ESG description and ESG strategy.

Research question 2: What is the impact on the probability of a fund being chosen of each positive medal type, compared to receiving a "Mo positive impact" medal?

In this instance we used Model 2 since we are interested only in the impact of the Medals attribute. As such we interpreted the coefficient on Bronze, Silver, and Gold dummies, comparing against the "No positive impact" medal.

Research question 3: What is the impact of greenwashing on the probability of a fund being chosen?

Now in this instance, we look at Model 2. As we will use the presence of the medal to determine the true level of impact, thus more concretely we determine:

i) when the medal is "No positive impact", what is the impact of green components? Using Model 2, we determined by first restricting the sample the choices or tasks involved at least one "No positive impact" medal, then looking at the coefficients on ESG image, ESG description, and ESG strategy.

ii), is there a differential impact between the effect of green components, on those with positive medals.

For this we need to code new variables and run three new models. First, we code a binary variable, coded 1 if the fund had either a Bronze, Silver, or Gold medal, and 0 for a "No positive impact" medal. Then we respectively, for three new models, add an interaction between this new "Any Medals" variable and one of ESG image, ESG description, or ESG strategy. It is this interaction term that we consider for whether or not there is a differential impact. Further to this, we will also run a combined model in which we include three interactions in one model.

4.5 Sample Description

Table 4: Sample description

	Saw medals	Did not see medals
Observations	744	786
Gender		
Female	50.4	47.8
Male	46.4	50
Other or missing	3.2	2.2
Age Group		
18 - 24	6.8	9.3
25 - 34	20.0	20.4
35 - 44	19.4	19.5
45 - 54	17.5	16.9
55 - 64	15.2	16.7
65 - 74	21.1	17.3
Region		
East Midlands	6.7	7
East of England	9.5	8.5
Greater London	12.4	14.2
North East England	5.2	3.0
North West England	11.6	12.0
Northern Ireland	1.9	1.8
Scotland	8.5	7.2
South East England	15.5	13.7
South West England	7.3	9.2
Wales	3.6	4.1
West Midlands	7.4	7.8
Yorkshire and the Humber	7.9	9.7
Region: missing	2.5	1.8
Did not complete all questions	2.4	1.8

4.6 Results

Table 5: Probability increase of likelihood of choosing the fund

	Probability increase of likelihood of choosing the fund	
	(1) Sample who saw medals	(2) Sample who did not see medals
ESG description	0.012 (0.009)	0.012 (0.009)
ESG image	0.017 (0.008)	0.002 (0.009)
ESG strategy	0.005 (0.008)	0.011 (0.009)
Profile order: Right	0.029* (0.012)	0.037*** (0.011)
Rate of return: 3	-0.104*** (0.011)	-0.122*** (0.011)
Rate of return: 7	0.077*** (0.011)	0.096*** (0.011)
Risk: High	-0.198*** (0.012)	-0.237*** (0.121)
Risk: Low	0.132*** (0.012)	0.162*** (0.125)
Medal: Bronze	0.092*** (0.012)	-
Medal: Silver	0.135*** (0.013)	-
Medal: Gold	0.133*** (0.013)	-
Observations	12,576	
Respondents	786	
Note:		*p<0.05; **p<0.01; ***p<0.001
		Coefficients take the form of average marginal component effects (AMCEs).

Table 6: Probability increase of choosing the fund, with interactions to test greenwashing

	Probability increase of likelihood of choosing the fund			
	(1)	(2)	(3)	(4)
ESG description	0.014 (0.010)	0.014 (0.010)	0.011 (0.009)	0.012 (0.009)
ESG image	0.014 (0.010)	0.017* (0.008)	0.014 (0.010)	0.017* (0.008)
ESG strategy	0.005 (0.009)	0.004 (0.008)	0.004 (0.008)	0.005 (0.009)
Profile order: Right	0.029* (0.012)	0.029* (0.012)	0.029* (0.012)	0.029* (0.012)
Rate of return: 3	-0.104*** (0.011)	-0.104*** (0.011)	-0.0104*** (0.011)	-0.104*** (0.011)
Rate of return: 7	0.076*** (0.011)	0.077*** (0.011)	0.076*** (0.011)	0.077*** (0.011)
Risk: High	-0.198*** (0.012)	-0.198*** (0.012)	-0.198*** (0.012)	-0.198*** (0.012)
Risk: Low	0.131*** (0.012)	0.132*** (0.012)	0.131*** (0.012)	0.132*** (0.012)
Any medal	0.120*** (0.011)	0.120*** (0.011)	0.120*** (0.011)	0.120*** (0.011)
Any medal * ESG Description	-0.011 (0.019)	-0.011 (0.019)	-	-
Any medal * ESG Image	0.012 (0.018)	-	0.012 (0.018)	-
Any medal * ESG Strategy	-0.004 (0.019)	-	-	-0.004 (0.019)
Observations	12,576	12,576	12,576	12,576
Respondents	786	786	786	786
Note:				*p<0.05; **p<0.01; ***p<0.001

Coefficients take the form of average marginal component effects (AMCEs) or average component interaction effects (ACIEs).

4.7 References

Financial Conduct Authority (2022). CP 22/20: Sustainability Disclosure Requirements (SDR) and investment labels. Available online at: https://www.fca.org.uk/publication/consultation/cp22-20.pdf

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University of Cambridge Institute for Sustainability Leadership (2019). Walking the talk: Understanding consumer demand for sustainable investing. Cambridge, UK: University of Cambridge Institute for Sustainability Leadership.

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