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# Sustainability preferences and financial decision-making among mutual fund investors

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#### Abstract

In our representative sample of Swedish mutual fund investors, those who are sustainability motivated perceive investment choices more difficult than other investors. Of those who are sustainability motivated, 38 percent have never actively invested in a sustainable fund. Preferences for sustainable investment as well as the attentiveness of the investment decisions correlate with certain investor attributes. Young people and women value sustainability higher than others and women make their investment choice less attentively than men. Investors making the choice inattentively are less influenced by financial information. Nudges, such as sustainability labels, may be a more effective way of communicating with this group.

JEL classification: D91; G11; G41.

Keywords: Nudge, decision-making, sustainable investment, mutual funds.

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#### 1 Introduction

The financial sector has been identified as a key sector to leverage capital necessary to reach the temperature goals of the Paris Agreement. Consequently, in the prelude to the COP 26 in Glasgow, the initiative Glasgow Financial Alliance for Net Zero was launched by the UN Special Envoy for Climate Action and Finance Mark Carney. Still, to steer capital toward low-carbon and sustainable investments requires massive changes in how the sector discloses and understands sustainability impact and risks. In the European Union, this has resulted in a package of regulations (and amendments to earlier regulations) targeting the financial sector rolled out over time.

The regulations add a new layer to bank activities, affecting everything from risk assessment of loans to the composition of fund portfolios to financial advice provided to clients. In addition, more focus on sustainability and obligations to assess clients' sustainability preferences requires new competencies beyond standard financial knowledge, not the least among financial advisors. Hence, banks and other financial actors are required to build capacity and adjust their offers and advice to clients over the coming years, as well as to relearn their clients' preferences in relation to sustainability. In this article, we offer some guidance on how banks can most effectively support clients in making such preference-aligned decisions, with specific focus on bank clients' mutual fund investments. Our analysis is based on

<sup>1</sup>https://www.gfanzero.com/

<sup>&</sup>lt;sup>2</sup>The EU Commission adopted an action plan on financing sustainable growth in 2018 (https://ec.europa.eu/info/publications/sustainable-finance-renewed-strategy\_ en#action-plan). One of the actions outlined in the plan was to strengthen sustainability disclosures as a means to reduce greenwashing, improve comparability, and support This resulted in the adoption in 2019 of the Sustainable investors' financial decisions. Finance Disclosure Regulation (SFDR) (2019/2088), which came into effect in March 2021 (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019R2088). The regulation outlines how banks and larger companies should disclose relevant sustainability impacts of their financial products and advice to end investors. beginning of 2022, the EU Taxonomy Regulation (2020/852) followed suit (https: //eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32020R0852). With the Taxonomy Regulation, the EU aims to provide more harmonized definitions of what constitute sustainable activities and financial products. Furthermore, several delegated acts of the action plan on financing sustainable growth and SFDR are underway during 2022 and 2023, such as more detailed technical standards on how to disclose adverse sustainability (https://ec.europa.eu/info/business-economy-euro/banking-and-finance/ sustainable-finance/sustainability-related-disclosure-financial-services-sector\_ en) and the obligation to assess clients' sustainability preferences (https://ec. europa.eu/finance/docs/level-2-measures/C\_2022\_1931\_1\_EN\_annexe\_acte\_autonome\_ part1\_v6.pdfandaspartofMiFIDII:ec.europa.eu/finance/docs/level-2-measures/ mifid-2-delegated-act-2021-2616\_en.pdf).

survey data from a representative sample of 4,000 Swedish residents holding mutual fund investments.

We find that the investment choice is more difficult for sustainability motivated fund investors than for others. Because of this, along with other factors, they are less likely to make an attentive and rational investment decision. Moreover, they are more prone to seek advice from banks. However, given their higher degree of inattentiveness, sustainability motivated fund investors may not benefit much from traditional information, which may be yet another challenge for banks in their communication regarding sustainability aspects of financial instruments. There seems indeed to be an obstacle to investment, since we find that 38 percent of the mutual fund investors who are sustainability motivated have never actively invested in a sustainable fund. More than 30 percent of the sustainability motivated investors find it difficult to identify mutual funds that they perceive to be sustainable.

While sustainability is a complex concept, and one must consider a number of things to fully understand and assess clients' sustainability preferences, we argue that an important aspect is to understand the financial decision-making process. Bank clients are, as individuals in general, making more or less attentive choices depending on the choice situation (Munier et al., 1999; Simon, 1955). A less attentive choice means that one uses simplified decision rules and heuristics, thereby risking choice outcomes that are not fully in accordance with ones preferences. This is, of course, recognized by banks that spend a lot of resources on informing and advising customers with the purpose of making their financial decisions more rational and in accordance with their preferences. However, whether information or advice will support the customer in making a more attentive decision depends on other factors than reducing the complexity or cognitive cost of the choice situation. Based on the model developed by Löfgren and Nordblom (2020), we analyze critical aspects of the specific decision context of mutual fund investment to determine whether an individual makes an attentive or inattentive choice. Reducing the difficulty of the choice by informing customers about the sustainability of financial products does not guarantee that the choice will be made attentively, and this has implications for how banks should communicate with clients on sustainability aspects of their products.

The structure of the paper is as follows. In Section 2, the focus is on providing insights into sustainability preferences and, in particular, whether sustainability is

an important consideration when investing in mutual funds for bank customers. In addition, we investigate how trade-offs between return and sustainability are perceived and if there are specific sustainability aspects that seem to be more or less important when investing in mutual funds. The section starts with a literature review. In Section 3, we provide an in-depth analysis of the decision-making process and fund investment strategies to understand whether some client groups are more likely to make inattentive choices than others. Based on the analysis and results from Sections 2 and 3, we offer some guidance and implications for banks and financial advisors regarding how to inform and communicate sustainability aspects of mutual funds in Section 4. Section 5 concludes the paper.

## 2 Fund investors' motivations and preferences for sustainability and returns

#### 2.1 Previous literature

Previous literature has pointed out that financial decisions are complex to most individuals and that a significant amount of attention is required to make an optimal choice (e.g, Lusardi and Mitchell, 2014; Anderson and Robinson, 2021). Lusardi and Mitchell (2014) claim that the high degree of complexity causes many people to make uninformed and nonoptimal financial decisions due to a lack of financial literacy. Capon et al. (1996) conclude that most mutual fund investors are naïve—that is, they have little knowledge about their investments in general (only 4 percent of their sample was judged to be knowledgeable). Lusardi (2019) finds that women and young investors have the lowest degree of financial literacy.

The degrees of attentiveness and financial literacy are not independent of preferences; for example, Anderson and Robinson (2021) find that individuals with prosustainability preferences are overrepresented in the naïve investment group. A plausible mechanism that may explain this is that the decision context becomes even more complex when we add another preference attribute (Pedersen et al., 2021). Hence, informational complexity makes it more difficult to express one's financial preferences when one is also concerned with sustainability. In addition, there may be an indirect selection effect where those with stronger proenvironmental and sustainability preferences are less interested in financial matters (referred to

as financial disengagement) and subsequently hold financial assets to a lesser extent (Anderson and Robinson, 2021). Likewise, Bassen et al. (2019) find that those who place more weight on climate than on returns tend to make their financial decisions in a less reflective and attentive way.

In line with this, several studies divide investors into groups depending on their sustainability related preferences. Pedersen et al. (2021) divide the investors into three groups. The first group cares only about risk and return, without any consideration of sustainability. The second group likewise does not care about sustainability but acknowledges that expected returns and variance of assets may be affected by sustainability aspects and thereby indirectly consider sustainability. The third group consists of those who have preferences for sustainability in addition to returns when investing in financial assets. Similarly, Lagerkvist et al. (2020) also assign individuals into different classes, such as sustainability focused and financially focused. They identify 24 percent as inattentive, individuals who seem to make only inconsistent and random choices. Some studies have identified sustainability motivated investors as those who have been shown to willingly trade off returns for more prosustainable investments (Bauer and Smeets, 2015; Bauer et al., 2021; Riedl and Smeets, 2017).

Who, then, are the investors more likely to have prosustainable investment preferences? Several studies suggest that women have stronger preferences for sustainable investments (Gutsche et al., 2020; Lusardi, 2019; Bollen, 2007; Nilsson, 2008). In hypothetical and experimental settings, women have been found more likely to invest in sustainable funds (e.g., Gutsche et al., 2020). In the experiment by Gutsche et al., respondents allocated money among four different equity funds and were found overall to hold strong preferences for sustainable funds. Women and younger individuals allocated more to sustainable funds, as did those who were more concerned with environmental issues and those who had more than median household income. However, having prosustainable preferences and revealing them in experimental settings is not necessarily the same as holding sustainable mutual funds in real life (e.g., Anderson and Robinson, 2021). Anderson and Robinson report that females hold stronger environmental preferences but are not more likely than men to actively invest in environmental, social, and governance (ESG) pension funds. Neither do Riedl and Smeets (2017) find any gender difference in the likelihood of holding sustainability oriented funds. Still, they conclude that the

strongest predictor for a positive investment in a socially responsible equity fund is social preferences and that younger individuals are more likely to hold such funds, as are those with a university degree.

The literature is thus somewhat inconclusive when it comes to who holds prosustainability investment preferences and how this translates into real investment decisions. Also, if some groups hold strong sustainability preferences but their actual investments do not mirror those preferences, we should find out why. If those holding sustainability preferences to a larger extent than others are naïve, in the sense that they have a lower degree of financial literacy, and find the investment choice more complex than others do, banks may need to facilitate sustainable investments using different measures than are usually found in their standard toolkit.

#### 2.2 Survey results

To get a better understanding of mutual fund investors' preferences and behavior, we conducted an online survey during August and September 2021. Our survey data were collected among 4,011 Swedish mutual fund investors, who answered questions on fund investments in general and on sustainability and sustainable funds in particular. The baseline sample for the survey was representative for the Swedish population, but our sample consisted of mutual fund investors who were on average younger and more educated than the population as a whole. There is a very small overrepresentation of men (51 percent compared with 50 percent within the population as a whole).<sup>3</sup>

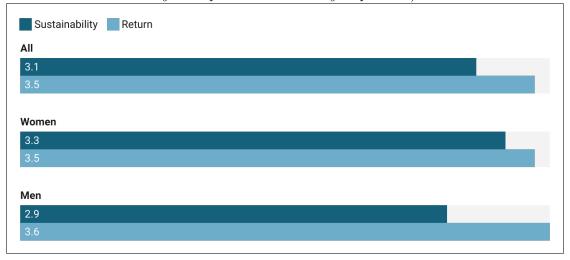
Regarding what aspects matter when investing in a new fund, Figure 1 shows the mean responses to the aspects "sustainability" and "historical returns." <sup>4</sup> The mean value for sustainability is 3.1; hence, on average, it is neither important nor unimportant (respondents answered on a 5-degree Likert scale, where 1 was defined as totally unimportant and 5 as very important). We notice, though, that women consider sustainability to be significantly more important than men do (3.3 vs 2.9, p<0.000). In comparison, the mean value for the importance of historical returns when making a fund choice is 3.5, and the discrepancy between genders is smaller

<sup>&</sup>lt;sup>3</sup>The survey is available on request, and summary statistics of explanatory variables used can be found in Table A1 in the Appendix. Our analysis contains 3,529 observations rather than 4,011 since not everyone chose to answer the question regarding savings amount.

<sup>&</sup>lt;sup>4</sup>The exact (translated) formulation is "How important are these aspects to you when choosing a fund...?" Mean values of all suggested aspects are found in Table A2 in the Appendix.

than for sustainability (3.5 for women and 3.6 for men, p = 0.003).

Figure 1: Stated importance of sustainability and historical returns (mean values, where 1 indicates totally unimportant and 5 very important)



Overall, 36 percent of the respondents stated that sustainability is important or very important (i.e., 4 or 5 on the scale) when choosing a fund. In line with earlier studies, we divide our sample into groups depending on their sustainability preferences. We label the respondents who state that sustainability is important or very important as "sustainability motivated." Regarding return, 54 percent of the respondents stated that previous returns are important or very important, and we label those "return motivated." As shown in Table 1, these groups are not mutually exclusive. Of our sample, 21 percent perceive both aspects to be important, and 30 percent perceive neither of them to be important.

Table 1: Investor motivation

Sustainability motivated	Return motivated		Total
	0	1	
0	1,221	1,327	2,548
1	609	854	1,463
Total	1,830	2,181	4,011

Another indicator of sustainability motivation is whether one is willing to give up returns in order to make one's portfolio more sustainable. Although only 36 percent of the fund investors are identified as sustainability motivated, as many as 71 percent would be willing to give up some return to invest in a sustainable fund.<sup>5</sup>

 $<sup>^5</sup>$ Divided by gender, 78 percent of women and 65 percent of men. Among the sustainability motivated, 88 percent would be willing to give up some return.

Many are thus willing to give up returns to invest sustainably, but what are their expectations concerning the trade-off between sustainability and returns? Interestingly, most investors do not think there is a negative relationship between sustainability and return of funds.<sup>6</sup> As expected, having a positive expectation regarding the returns of sustainable funds is more common among sustainability motivated investors than among those who do not find sustainability an important aspect when choosing funds. Of the sustainability motivated investors, 39 percent think that sustainable funds yield higher returns than other funds, compared with 22 percent of those who are not sustainability motivated.

Interestingly, among the 30 percent who think that sustainable funds in general yield less returns, as many as 70 percent are still willing to give up some return to invest in a sustainable fund. This observation is in line with that of Riedl and Smeets (2017), who conclude that socially responsible mutual fund investors expect to get lower returns but are still willing to invest in socially responsible funds, and also that of Bauer et al. (2021), who find that a majority of those who expect a more sustainable pension fund to yield lower returns still favor it.

Next, we run a bivariate ordered probit to find out what factors explain an individual's perceived importance of sustainability and previous return for fund choice. We are interested in the correlations with the following investor characteristics: gender, educational level, age group, savings amount, whether children live in the household, and whether one lives in a metropolitan area (we included the last three after communication with financial advisors). As found in previous studies, gender, age, and education can affect financial decisions as well as preferences for sustainability. (see Table A1 in the Appendix for the definitions and descriptive statistics of the explanatory variables). Since income is highly correlated with savings, we do not include income in our econometric specifications. The regression results are presented in Table 2.9

Men are somewhat more likely to care about returns than women, while women are more concerned with sustainability than men, something already indicated in

<sup>&</sup>lt;sup>6</sup>Of our sample, 30 percent think that sustainable funds are less profitable, 28 percent that they are more profitable, and 42 percent that there is no relationship between returns and sustainability. (Divided by gender, 31, 27, and 42 percent for men and 29, 30, and 42 percent for women, respectively.)

<sup>&</sup>lt;sup>7</sup>Running two independent ordered probits does not change the estimates.

<sup>&</sup>lt;sup>8</sup>See, e.g., Lusardi (2019) and Anderson and Robinson (2021).

 $<sup>^9\</sup>mathrm{Tables}$  A3 and A4 in the Appendix include all marginal effects.

Table 2: Importance of investment aspects: Bivariate ordered probit

Male $-0.410^{***}$ (-11.23) $0.126^{***}$ (3.43)         Education $-0.0299$ (-1.69) $0.0667^{***}$ (3.69)         Age 18-29 $0.193^{***}$ (4.41) $0.208^{***}$ (4.66)         Age > 64 $0.0979$ (1.88) $-0.378^{***}$ (-7.15)         Savings < USD 5,500 $-0.00691$ (-0.16) $-0.177^{***}$ (-3.98)         Savings > USD 33,000 $-0.0716$ (0.808) $0.0808$ (1.82)         Children under 18 $0.0549$ (1.39) $0.0627$ (1.56)         Metropolitan area $0.00715$ (0.20) $0.111^{**}$ (5.51)         / $0.104^{***}$ (5.51)         / $-1.558^{***}$ (-20.03) $-1.540^{***}$ (-20.03)         cut2 $-0.809^{***}$ (-11.58) $-0.978^{***}$ (-13.59)         cut3 $0.125$ (1.81) $0.138^{*}$ (1.96)         cut4 $1.036^{***}$ (14.56) $1.353^{***}$ (18.63)		Sustainability	Return
Education $ \begin{array}{c} -0.0299 \\ (-1.69) \\ \end{array} \begin{array}{c} 0.0667^{***} \\ (3.69) \\ \end{array} \\ \text{Age } 18-29 \\ \end{array} \begin{array}{c} 0.193^{***} \\ (4.41) \\ \end{array} \begin{array}{c} 0.208^{***} \\ (4.66) \\ \end{array} \\ \text{Age } > 64 \\ \end{array} \begin{array}{c} 0.0979 \\ (1.88) \\ \end{array} \begin{array}{c} -0.378^{***} \\ (-7.15) \\ \end{array} \\ \text{Savings} < \text{USD } 5,500 \\ \end{array} \begin{array}{c} -0.06691 \\ (-0.16) \\ \end{array} \begin{array}{c} -0.177^{***} \\ (-3.98) \\ \end{array} \\ \text{Savings} > \text{USD } 33,000 \\ \end{array} \begin{array}{c} -0.0716 \\ (-1.64) \\ \end{array} \begin{array}{c} 0.0808 \\ (-1.64) \\ \end{array} \begin{array}{c} 0.0808 \\ (-1.64) \\ \end{array} \\ \text{Children under } 18 \\ \end{array} \begin{array}{c} 0.0549 \\ (1.39) \\ \end{array} \begin{array}{c} 0.0627 \\ (1.39) \\ \end{array} \begin{array}{c} 0.111^{**} \\ (5.51) \\ \end{array} \\ \end{array} \begin{array}{c} \rho \\ \end{array} \begin{array}{c} 0.104^{***} \\ (-21.33) \\ \end{array} \begin{array}{c} -1.558^{***} \\ (-21.33) \\ \end{array} \begin{array}{c} -1.540^{***} \\ (-20.03) \\ \end{array} \\ \text{cut2} \\ \end{array} \begin{array}{c} -0.809^{***} \\ (-11.58) \\ \end{array} \begin{array}{c} -0.978^{***} \\ (-11.58) \\ \end{array} \begin{array}{c} -0.978^{***} \\ (-13.59) \\ \end{array} \\ \text{cut3} \\ \end{array} \begin{array}{c} 0.125 \\ (1.81) \\ \end{array} \begin{array}{c} 0.138^{*} \\ (1.96) \\ \end{array} \begin{array}{c} 1.353^{***} \\ (14.56) \\ \end{array} \begin{array}{c} 1.353^{***} \\ (18.63) \\ \end{array} $	Male		0.126***
Education $ \begin{array}{c} -0.0299 \\ (-1.69) \\ \end{array} \begin{array}{c} 0.0667^{***} \\ (3.69) \\ \end{array} \\ \text{Age } 18-29 \\ \end{array} \begin{array}{c} 0.193^{***} \\ (4.41) \\ \end{array} \begin{array}{c} 0.208^{***} \\ (4.66) \\ \end{array} \\ \text{Age } > 64 \\ \end{array} \begin{array}{c} 0.0979 \\ (1.88) \\ \end{array} \begin{array}{c} -0.378^{***} \\ (-7.15) \\ \end{array} \\ \text{Savings} < \text{USD } 5,500 \\ \end{array} \begin{array}{c} -0.06691 \\ (-0.16) \\ \end{array} \begin{array}{c} -0.177^{***} \\ (-3.98) \\ \end{array} \\ \text{Savings} > \text{USD } 33,000 \\ \end{array} \begin{array}{c} -0.0716 \\ (-1.64) \\ \end{array} \begin{array}{c} 0.0808 \\ (-1.64) \\ \end{array} \begin{array}{c} 0.0808 \\ (-1.64) \\ \end{array} \\ \text{Children under } 18 \\ \end{array} \begin{array}{c} 0.0549 \\ (1.39) \\ \end{array} \begin{array}{c} 0.0627 \\ (1.39) \\ \end{array} \begin{array}{c} 0.111^{**} \\ (5.51) \\ \end{array} \\ \end{array} \begin{array}{c} \rho \\ \end{array} \begin{array}{c} 0.104^{***} \\ (-21.33) \\ \end{array} \begin{array}{c} -1.558^{***} \\ (-21.33) \\ \end{array} \begin{array}{c} -1.540^{***} \\ (-20.03) \\ \end{array} \\ \text{cut2} \\ \end{array} \begin{array}{c} -0.809^{***} \\ (-11.58) \\ \end{array} \begin{array}{c} -0.978^{***} \\ (-11.58) \\ \end{array} \begin{array}{c} -0.978^{***} \\ (-13.59) \\ \end{array} \\ \text{cut3} \\ \end{array} \begin{array}{c} 0.125 \\ (1.81) \\ \end{array} \begin{array}{c} 0.138^{*} \\ (1.96) \\ \end{array} \begin{array}{c} 1.353^{***} \\ (14.56) \\ \end{array} \begin{array}{c} 1.353^{***} \\ (18.63) \\ \end{array} $		(-11.23)	(3.43)
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Savings > USD 33,000 $\begin{array}{cccccccccccccccccccccccccccccccccccc$	Savings < USD 5,500	-0.00691	-0.177***
Children under 18 $0.0549 \\ (1.39) \\ 0.0627 \\ (1.56) \\ Metropolitan area 0.00715 \\ (0.20) \\ 0.111^{**} \\ (5.51) \\ \\ cut1 \\ -1.558^{***} \\ (-21.33) \\ cut2 \\ -0.809^{***} \\ (-11.58) \\ -1.359 \\ \\ cut3 \\ 0.125 \\ (1.81) \\ (1.96) \\ \\ cut4 \\ 1.036^{***} \\ (14.56) \\ (18.63) \\ \\ (1.86) \\ (1.86) \\ (1.86) \\ (1.86) \\ (1.86) \\ (1.86)$		(-0.16)	(-3.98)
Children under 18 $0.0549 \\ (1.39) \\ 0.0627 \\ (1.56) \\ Metropolitan area 0.00715 \\ (0.20) \\ 0.111^{**} \\ (5.51) \\ \\ cut1 \\ -1.558^{***} \\ (-21.33) \\ cut2 \\ -0.809^{***} \\ (-11.58) \\ -1.359 \\ \\ cut3 \\ 0.125 \\ (1.81) \\ (1.96) \\ \\ cut4 \\ 1.036^{***} \\ (14.56) \\ (18.63) \\ \\ (1.86) \\ (1.86) \\ (1.86) \\ (1.86) \\ (1.86) \\ (1.86)$	G		
Children under 18 $0.0549$ (1.39) $0.0627$ (1.56)         Metropolitan area $0.00715$ (0.20) $0.1111^{**}$ (3.02) $\rho$ $0.104^{***}$ (5.51)         / cut1 $-1.558^{***}$ (-21.33) $-1.540^{***}$ (-20.03)         cut2 $-0.809^{***}$ (-11.58) $-0.978^{***}$ (-13.59)         cut3 $0.125$ (1.81) $0.138^*$ (1.96)         cut4 $1.036^{***}$ (18.63) $1.353^{***}$ (18.63)	Savings $> USD 33,000$		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		(-1.64)	(1.82)
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Children under 18	0.0549	0.0627
Metropolitan area $ \begin{array}{c} 0.00715 \\ (0.20) \\ \end{array} $ $ \begin{array}{c} 0.111^{**} \\ (3.02) \\ \end{array} $ $ \begin{array}{c} 0.104^{***} \\ (5.51) \\ \end{array} $ $ \begin{array}{c} \\ \text{cut1} \\ \end{array} $ $ \begin{array}{c} -1.558^{***} \\ (-21.33) \\ \end{array} $ $ \begin{array}{c} -1.540^{***} \\ (-20.03) \\ \end{array} $ $ \begin{array}{c} \text{cut2} \\ \end{array} $ $ \begin{array}{c} -0.809^{***} \\ (-11.58) \\ \end{array} $ $ \begin{array}{c} -0.978^{***} \\ (-13.59) \\ \end{array} $ $ \begin{array}{c} \text{cut3} \\ \end{array} $ $ \begin{array}{c} 0.125 \\ (1.81) \\ \end{array} $ $ \begin{array}{c} 0.138^{*} \\ (1.96) \\ \end{array} $ $ \begin{array}{c} \text{cut4} \\ \end{array} $ $ \begin{array}{c} 1.036^{***} \\ (14.56) \\ \end{array} $ $ \begin{array}{c} 1.353^{***} \\ (18.63) \\ \end{array} $			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		(1.93)	(1.50)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Metropolitan area	0.00715	0.111**
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		(0.20)	(3.02)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\rho$	0.10	4***
$\begin{array}{c} \text{cut2} & \begin{array}{c} (-21.33) & (-20.03) \\ \\ -0.809^{***} & -0.978^{***} \\ (-11.58) & (-13.59) \\ \end{array}$ $\begin{array}{c} \text{cut3} & \begin{array}{c} 0.125 & 0.138^* \\ (1.81) & (1.96) \\ \end{array}$ $\text{cut4} & \begin{array}{c} 1.036^{***} & 1.353^{***} \\ (14.56) & (18.63) \\ \end{array}$		(5.	51)
$\begin{array}{c} \text{cut2} & \begin{array}{c} (-21.33) & (-20.03) \\ \\ -0.809^{***} & -0.978^{***} \\ (-11.58) & (-13.59) \\ \end{array}$ $\begin{array}{c} \text{cut3} & \begin{array}{c} 0.125 & 0.138^* \\ (1.81) & (1.96) \\ \end{array}$ $\text{cut4} & \begin{array}{c} 1.036^{***} & 1.353^{***} \\ (14.56) & (18.63) \\ \end{array}$	/		
$cut2$ $-0.809^{***}$ $-0.978^{***}$ $(-11.58)$ $(-13.59)$ $cut3$ $0.125$ $0.138^*$ $(1.81)$ $(1.96)$ $cut4$ $1.036^{***}$ $1.353^{***}$ $(14.56)$ $(18.63)$	cut1		
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$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	out?	0.000***	0.070***
cut3 $0.125$ $0.138^*$ $(1.81)$ $(1.96)$ $0.1353^{***}$ $(14.56)$ $(18.63)$	Cut2		l l
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		(-11.00)	(-19.98)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	cut3	0.125	0.138*
cut4 1.036*** 1.353*** (14.56) (18.63)			
(14.56) $(18.63)$			( /
	cut4	1.036***	1.353***
		(14.56)	, ,
Observations   3529   3529	Observations	3529	3529

t statistics in parentheses

Figure 1.<sup>10</sup> The higher the level of education, the more important are returns

<sup>\*</sup> p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

<sup>&</sup>lt;sup>10</sup>This is also consistent with Dorfleitner and Utz (2014), who find women to be significantly more concerned with most sustainability aspects.

for the fund choice.<sup>11</sup> Interestingly, sustainability motivation is uncorrelated with education, something that Dorfleitner and Utz (2014) also found in their study on German investors. Young investors are more likely than others to find both aspects important, while the oldest age group is relatively less concerned with returns. The left-out category is the age group 30–64. Interestingly, sustainability motivation is unrelated to savings amounts, while those with the smallest savings amounts care less about returns than those who save larger amounts. The left-out category have fund savings between USD 5,500 and 33,000.

One may jump to the conclusion that young people are much more sustainability motivated than older age groups. However, if we run an ordered probit with the willingness to give up returns for a sustainable investment, we actually find a stronger effect on pensioners than on the youngest age group.<sup>12</sup>

Since sustainability is a broad concept, we also asked about more detailed and well-defined sustainability aspects of relevance for mutual funds.

Figure 2 shows the descriptive statistics of how important the respondents find five different sustainability aspects often evaluated in ESG scores and rankings in addition to the general question. Again, the respondents answered on a 5-degree scale, where 1 indicated totally unimportant and 5 very important. The two most important aspects are that perceived unethical industries are excluded and that the included firms do not violate human rights. Furthermore, the oldest age group is most concerned with each of the sustainability aspects (The differences are significant, p < 0.000.) Running ordered probits of the sustainability aspects, we find that women are more concerned than men and that pensioners are more concerned than younger age groups for each individual aspect.<sup>13</sup>

Overall, preferences for sustainable funds seem quite prevalent among fund investors, more so among certain groups than others. However, only 57 percent of the respondents claim to have actively chosen to invest in a sustainable fund at some point. Even among the sustainability motivated, 38 percent state that they never made an active choice to invest in a sustainable fund (among the sustainability motivated women, as many as 41 percent state that they have never invested in a sustainable fund).

In Table 3, we present results from probit regressions, where the dependent

<sup>&</sup>lt;sup>11</sup>Education is a categorical variable from 1 indicating less than high school and 4 university.

<sup>&</sup>lt;sup>12</sup>Results are available on request.

<sup>&</sup>lt;sup>13</sup>See Table A5 in the Appendix.

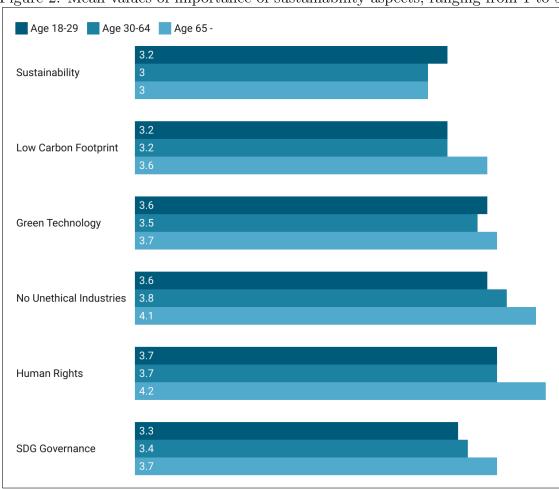


Figure 2: Mean values of importance of sustainability aspects, ranging from 1 to 5

variable takes on value 1 if one has actively invested in a sustainable mutual fund and 0 otherwise. In column 1, we use the full sample and the same explanatory variables as in previous regressions. In column 2, we add a dummy for if one thinks that sustainable funds are more profitable than other funds. In column 3, we instead control for being sustainability motivated. In column 4, we add both of these variables. In the last two columns, we restrict the sample to the sustainability motivated fund investors only.

While women are more likely to be sustainability motivated and more willing to give up expected returns to invest in a sustainable fund than are men, they are not more likely to invest in sustainable funds (controlling for being sustainability motivated, women are even less likely than men to invest). Although sustainability motivation is uncorrelated with education and savings amounts, actual investment in sustainable funds is more common the higher the education and the larger the savings amount, effects that remain when controlling for sustainability preferences.

Table 3: Propensity to actively invest in sustainable funds: Probits

Full sample Sustainability motivated							
		ruii s	ampie		Sustainability motivated		
Male	0.0745 $(1.69)$	0.0835 $(1.88)$	0.181*** (3.94)	0.183*** (3.98)	0.191* (2.50)	$0.190^*$ (2.50)	
Education	0.0731*** (3.38)	0.0818*** (3.76)	0.0834*** (3.75)	0.0877*** (3.93)	0.146*** (4.00)	0.148*** (4.04)	
Age 18-29	0.385*** (7.23)	0.368*** (6.89)	0.344*** (6.30)	0.337*** (6.16)	0.275** (3.08)	0.271** (3.03)	
Age > 64	-0.262*** (-4.06)	-0.263*** (-4.04)	-0.322*** (-4.80)	-0.321*** (-4.77)	-0.285** (-2.58)	-0.283* (-2.55)	
Savings < USD 5,500	-0.218*** (-4.06)	-0.225*** (-4.18)	-0.225*** (-4.08)	-0.229*** (-4.16)	-0.271** (-3.11)	-0.270** (-3.10)	
Savings > USD 33,000	0.189*** (3.57)	0.188*** (3.54)	0.217*** (3.97)	0.216*** (3.94)	0.389*** (4.07)	0.388*** (4.05)	
Children under 18	0.181*** (3.75)	0.167*** (3.45)	0.173*** (3.50)	0.166*** (3.35)	0.157 $(1.89)$	0.151 (1.81)	
Metropolitan area	0.0815 $(1.85)$	0.0830 (1.88)	0.0709 $(1.57)$	0.0722 $(1.59)$	0.191* (2.56)	0.191* (2.56)	
Profitable		0.294*** (6.14)		0.161** (3.23)		0.0642 $(0.85)$	
Sustainability motivated			0.812*** (17.51)	0.787*** (16.75)			
Constant	-0.545*** (-6.54)	-0.648*** (-7.58)	-0.911*** (-10.29)	-0.956*** (-10.65)	-0.336* (-2.40)	-0.363* (-2.53)	
Observations	3529	3529	3529	3529	1290	1290	

Note that everyone in our sample has some mutual fund investment, so this is not a result from highly educated being more likely to hold investments as such. And individuals in the oldest age group are the least likely to state that they have invested in sustainable funds, although they are the most concerned with each specific sustainability aspect. As expected, perceiving sustainable funds to be more profitable is positively associated with the probability of active investment, but the effect is significantly smaller than that from being sustainability motivated. Moreover, for those who are sustainability motivated, perceived profitability is of no significant importance for the investment choice.

Although sustainability motivated fund investors are more likely to have invested in a sustainable fund in general, a non-negligible group has not invested in sustainable funds even though they state that sustainability is an important aspect when choosing mutual funds. <sup>14</sup> Among the sustainability motivated mutual

t statistics in parentheses \* p < 0.05, \*\*\* p < 0.01, \*\*\* p < 0.001

<sup>&</sup>lt;sup>14</sup>Women, individuals with a lower level of education, pensioners, investors with low savings amounts, and those living outside of metropolitan areas are the most likely to be sustainability

fund investors, 14 percent claim to hold no sustainable funds in their portfolios. Hence, those investors have probably not invested according to their preferences. While this observation may seem surprising, it can be understood in light of the decision-making model by Löfgren and Nordblom (2020).

Next, we apply this theoretical model to the mutual fund decision context. It is important to understand the mechanisms that prevent investors from making preference-aligned financial decisions. This will further our understanding of how banks can reach out to their customers to help them find (and invest in) mutual funds that correspond to their sustainability preferences.

# 3 The decision-making process of mutual fund investors

#### 3.1 Attentive versus inattentive fund investment decisions

Löfgren and Nordblom (2020) have developed a model of individual decision-making that can be used to explain financial decisions. In its simplest form, the model predicts that people make decisions attentively, gathering information to make an informed and optimal choice, or inattentively, not giving it much thought, risking to make a mistake. Löfgren and Nordblom claim that three properties of the decision are crucial for whether it is made attentively or inattentively: (i) how important the decision is, (ii) how demanding it is to make the attentive decision, and (iii) how confident one is that the outcome of the inattentive decision would be the preferred one. The less important a decision, the less likely it is worth the cost of making it attentively. If making an attentive choice is very costly and requires a significant amount of effort, it is more likely that one instead will make an inattentive choice. And if one has high confidence that the outcome will be favorable even without any effort, it is more likely that the decision will be made inattentively (e.g., based on gut feeling, habits, or other heuristics). Still, although all three attributes are indicative of whether the investment choice is made attentively or inattentively, it is the combination of the three that is decisive.

In this section, we go through each of the three components—subjective importance, difficulty, and confidence—for our sample of fund investors to identify motivated but not invest in sustainable funds.

Table 4: Inattentivness indicators: Ordered probits

	Importance	Difficulty	Confidence	Inattentiveness	Importance	Difficulty	Confidence
Male	0.111** (3.02)	-0.312*** (-8.51)	0.215*** (5.84)	-0.124*** (-3.55)	0.120** (3.21)	-0.292*** (-7.91)	0.219*** (5.89)
Education	0.0207 $(1.15)$	0.0487** (2.73)	-0.0549** (-3.06)	-0.0204 (-1.20)	0.0115 $(0.63)$	0.0491** (2.74)	-0.0590** (-3.28)
Age 18-29	0.330*** (7.35)	0.115** (2.60)	0.230*** (5.18)	0.0708 (1.68)	0.284*** (6.29)	$0.0952^*$ (2.15)	0.208*** (4.68)
Age > 64	-0.274*** (-5.17)	-0.0565 (-1.08)	-0.224*** (-4.24)	-0.0198 (-0.40)	-0.232*** (-4.34)	-0.0570 (-1.08)	-0.206*** (-3.88)
Savings < USD 5,500	-0.368*** (-8.25)	-0.000898 (-0.02)	-0.0217 (-0.49)	0.179*** (4.26)	-0.339*** (-7.56)	0.00642 $(0.15)$	-0.00466 (-0.10)
Savings > USD 33,000	0.248*** (5.56)	-0.107* (-2.43)	0.145** (3.28)	-0.103* (-2.46)	0.238*** (5.31)	-0.107* (-2.44)	0.139** (3.14)
Children under 18	0.0546 $(1.35)$	0.0720 (1.81)	0.0768 $(1.92)$	0.0670 (1.76)	0.0319 (0.79)	0.0653 $(1.64)$	0.0673 (1.68)
Metropolitan area	0.0708 (1.92)	0.0102 (0.28)	0.0288 (0.79)	0.00338 (0.10)	0.0456 (1.23)	0.00330 (0.09)	0.0180 (0.49)
Sustainability motivated					0.257*** (6.75)	0.202*** (5.40)	0.104** (2.78)
Return motivated					0.477*** (12.77)	0.0595 $(1.64)$	0.184*** (5.02)
Observations	3529	3529	3529	3529	3529	3529	3529

whether certain groups can be expected to behave more or less attentively. We also construct a combined measure—inattentiveness—that indicates the likelihood of making an inattentive investment decision. Moreover, we study whether these measures correlate with sustainability preferences. As a reference for the discussions, we report coefficients of ordered probit regressions for each of the three components and of the inattentiveness measure in Table 4.<sup>15</sup>

#### 3.1.1 **Importance**

The more important the choice, the more likely that it will be made attentively. Respondents were asked how important the choice of funds was to them, and they answered on a 5-degree scale, where 1 indicated Totally unimportant choice and 5

t statistics in parentheses p < 0.05, \*\*\* p < 0.01, \*\*\*\* p < 0.001

<sup>&</sup>lt;sup>15</sup>Marginal effects of each of the first three regressions can be found in Tables A6, A7, and A9 in the Appendix. If the three regressions are estimated simultaneously, the results remain unchanged both quantitatively and qualitatively. There are, however, significant (p < 0.001)correlations between confidence and the two other aspects:  $\varrho_{\text{confidence, importance}} = 0.200$  and  $\varrho_{\text{confidence, difficulty}} = -0.089.$ 

Very important choice.<sup>16</sup> The mean is 3.5, so people on average seem to think fund investment is a somewhat important choice. The first column in Table 4 shows the results from an ordered probit regression, where the outcome variable is an ordinal variable that ranges from 1 (totally unimportant) to 5 (very important).<sup>17</sup> Men state that mutual fund choice is more important than women indicate, and the degree of importance is decreasing in age. It can be noted that the marginal effect of being younger than 30 (or older than 64) is much stronger than the gender effect, however. Also, the larger the savings, the more important the choice is considered, while education is uncorrelated with importance. Ceteris paribus, we would thus expect young men with large investments to be the most likely to make an attentive fund choice, while women older than 64, with small investment amounts, would be the most likely to make the choice inattentively.

#### 3.1.2 Difficulty

An attentive choice requires that one acquires and values information. Someone who regards this as very difficult is more likely to make the choice inattentively, because it would require too much effort to make the choice attentively. Respondents indicated on a 5-degree scale how demanding they find an attentive choice of funds. Choosing 1 indicated Not at all demanding and 5 Very demanding. The overall mean is 3.1. The second column in Table 4 shows the results from the ordered probit regression, where the outcome variable ranges from 1 (not at all demanding) to 5 (very demanding). Overall, men are less likely than women to think the choice is demanding, and notably, the marginal gender effect is much larger than concerning importance. Interestingly, the higher the level of education, the more demanding one perceives the choice of funds to be. This may seem counterintuitive. However, "difficulty" is a subjective measure not necessarily capturing the objective capability of making the best choice. Those with higher education may to a larger extent be aware of the complexity of the choice and therefore realize that it would be quite demanding to make a well-thought-out decision. The youngest age group

 $<sup>^{16}</sup>$ Direct translation: "Some choices are of great importance to people, while others seem unimportant. How important would you say that choice of funds is to you?"

<sup>&</sup>lt;sup>17</sup>Table A6 in the Appendix shows the marginal effects.

<sup>&</sup>lt;sup>18</sup>Direct translation: "To make a well-thought-out choice of funds, one could need to gather and value certain information. How demanding would it be for you to make a thought-through choice of funds?"

<sup>&</sup>lt;sup>19</sup>Table A7 shows marginal effects.

is the one finding the choice most difficult. Overall, these results are consistent with those of Lusardi (2019), who finds that women and young people have the lowest financial literacy (and should therefore find the investment decision more difficult).

Moreover, how difficult the choice is depends partly on how objectively complex the decision is. This complexity depends on the individual's utility function. As suggested by Pedersen et al. (2021), someone who cares only about profitability will have an objectively less complex decision to make than someone who is also concerned with sustainability, risk, and business orientation. We have therefore created an index of complexity, ranging from 0 to 10, indicating how many aspects one finds important for the fund decision. Although this index is not a perfect measure of objective difficulty, it still captures an important aspect of the objective complexity of an optimal investment decision for an individual. Table A8 in the Appendix includes this index as an explanatory variable for how demanding a fund choice is. As expected, we note that a more objectively complex choice is also perceived by the individual as more difficult. The gender effect remains intact, while marginal effects and significance levels of education and age are reduced. Indeed, the complexity of the fund choice increases with education and decreases with age. Also, those with the largest savings find the choice less difficult, although they have a more complex choice than those with smaller savings.

#### 3.1.3 Confidence

To make the fund choice attentively may be demanding but would result in choosing the preferred option according to the model in Löfgren and Nordblom (2020). An inattentive fund choice does not require that effort, but there is a risk that one will make the wrong choice so that the outcome is not aligned with one's preferences. Some have more confidence than others that they will make the right choice without having to think too much (due to being accustomed to making such decisions, overconfidence, or something else). The higher this confidence, the more likely that one will make the choice inattentively. (Why put in a lot of effort when one will probably pick the preferred option just by gut feeling?) We asked the respondents how certain they were that they could pick the preferred option just by gut feeling. Here again, the answers were on a 5-degree scale, where 1 indicated Very uncertain that the choice would be the right one and 5 Completely sure that the choice would be

the right one.<sup>20</sup>. The mean response was 2.7, and only 2.4 percent of the respondents answered 5.

The third column in Table 4 shows the results from an ordered probit regression, where the outcome variable ranges from 1 (very uncertain) to 5 (completely sure).<sup>21</sup> Men have higher confidence, and the marginal effects are of the same magnitude as concerning difficulty. Note, though, that we only measure confidence and cannot tell whether it is genuine or overconfidence as in, for example, Barber and Odean (2001), who find that men are much more overconfident than women in stock market trading. The marginal effects from being younger than 30 and older than 64 are of the same magnitude, where younger have the highest and older the lowest confidence. The larger one's fund investments, the more confident one is in choosing by gut feeling. The higher the education level, the lower the confidence, which is consistent with the interpretation in Section 3.1.2 that those with higher education have a higher awareness of the complexity of the choice of funds. Hence, young men with a low level of education and large fund investments have the strongest confidence in their own inattentive choice. For given levels of perceived importance and difficulty, they would therefore be the most likely to make the choice of funds inattentively.

#### 3.1.4 Attentive or inattentive?

Based on the three above-mentioned components, there is no group we can completely single out as the most or the least likely to make an inattentive choice. We combine our three components into the new variable *Inattentiveness*, for which a higher value indicates a higher likelihood of making the choice inattentively.<sup>22</sup> Figure 3 illustrates this. Combinations of importance ( $\Delta U$ ), confidence ( $\theta$ ), and difficulty ( $\sigma$ ) to the upper left indicate attentive choices, while combinations to the lower right imply inattentive choices. In column 4 of Table 4, the results from an ordered probit of this combined measure are shown.

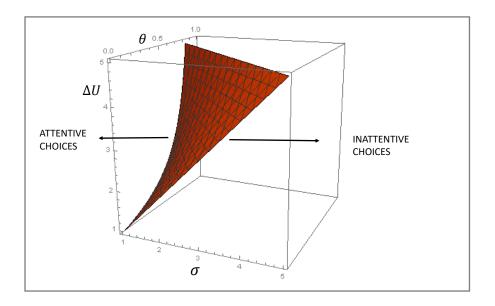
We find that women and those with low savings are significantly more likely to make an inattentive choice than other groups. The mean value of inattentiveness

<sup>&</sup>lt;sup>20</sup>Direct translation: "Sometimes we don't think too much when we make choices but listen more to our gut feeling. If you would choose a fund completely by gut feeling, how certain are you that you would make the right choice (i.e., the choice you would have made had you thought it through carefully)?

<sup>&</sup>lt;sup>21</sup>Table A9 shows the marginal effects.

<sup>&</sup>lt;sup>22</sup>See Appendix B for a formal definition and derivation of the variable.

Figure 3: Attentive and inattentive choices



is significantly higher for the youngest than for other age groups, but it does not turn out as significant in the ordered probit due to the counteracting effects of the three components.

### 3.2 Sustainability preferences and attentiveness

In the three last columns of Table 4, representing each of the components determining attentiveness, we control for sustainability and return motivation. The overall results are robust to these inclusions. Naturally, both return and sustainability motivated investors find fund investments to be a more important decision than others.<sup>23</sup> The sustainability motivated investors perceive the fund choice to be more difficult than do others, which could be because the fund choice seems more complex to them, as Pedersen et al. (2021) suggest, or because they are less financially literate, as Anderson and Robinson (2021) conjecture.

 $<sup>^{23}</sup>$ The marginal effects are, though, much stronger for the return than from the sustainability motivation.

Young people, women, and those with small savings are the ones most likely to make their fund choice inattentively. Being young and female are attributes that are also more common among the sustainability motivated. Moreover, the variable "inattentiveness" is correlated positively with sustainability motivation (p < 0.01) and negatively with return motivation (p < 0.05).<sup>24</sup> Considering the four groups from Table 2, those who are only sustainability motivated are the most inattentive according to our measure, and those who are only return motivated are the least inattentive.<sup>25</sup> The groups that find both or none of the motives important are somewhere in between. This is in line with the findings by Bassen et al. (2019) that "intuitive" investors place more weight on climate performance than on financial performance, while those with the highest cognitive reflection rank financial performance as much higher.

Sustainability motivated investors are thus more inattentive in their decision-making than return motivated in general, according to our theoretical measures. Next, we support these findings by some descriptives concerning stated behavior. We asked the respondents about their strategies when they are about to invest in new funds. Respondents answered on a 5-degree Likert scale, where 1 indicates do not agree at all and 5 agree completely. Mean values of different groups are found in Table 5.

Table 5: Mean values of investors' strategies when choosing fund (1 = fully disagree, 5 = fully agree)

Strategy	Overall	Sustainabil.	Return
		motivated	motivated
As much info as possible	3.01	3.21	3.27
Name of fund	2.31	2.54	2.50
Sustainability label	2.58	3.46	2.71
Advise from bank	2.39	2.64	2.28
Random first best	1.34	1.36	1.30
I don't invest in new funds	2.01	2.07	1.96
Gut feeling	2.51	2.60	2.62
			<u>'</u>
Observations	4,011	1,463	2,181

<sup>&</sup>lt;sup>24</sup>Because of a high degree of multicollinearity and endogeneity, we have not run any regressions with inattentiveness as the dependent variable including the preference parameters.

<sup>&</sup>lt;sup>25</sup>The difference is significant, p < 0.001.

We note that the return motivated are more likely than the sustainability motivated to seek information (p < 0.05), which we think of as an indicator of an attentive choice. Picking a random fund, or simply not investing in new funds (i.e., behaviors more likely to indicate inattentiveness) are significantly more frequent among the sustainability motivated investors (p < 0.01), while looking at the name of the fund and choosing out of gut feeling are not significantly different depending on motive. Notable is that the sustainability motivated investors are more likely to seek advice from the bank (p = 0.000).

Analyzing in more detail the relationship between investor characteristics on how to choose a new fund (see A10 in the Appendix), we observe that men are more likely to gather information, while women seek advice from the bank and are overrepresented in just picking a fund or not investing at all. Young people tend to seek information but are also more likely than others to just pick a fund or listen to their gut feeling. Those with an invested amount < USD 5,500 are more likely to just pick a fund and not to save new funds at all. They are the least likely to gather information, while those with an invested amount > USD 33,000 are the most likely.

Another indicator for the degree of attentiveness could be how active one is as an investor. Of our sample, 10 percent of individuals never do anything about their funds, while 15 percent are active every week. Of those who are only return motivated, the numbers are 6 and 20 percent, respectively, while the corresponding numbers for the subsample that is only sustainability motivated are 12 and 11 percent. How activity varies with investor characteristics is shown in Table A11 in the Appendix. The dependent variable is an ordinal one that ranges from 1 (never do anything) to 5 (check funds every week). Men are more active than women. Age is negatively and invested amount positively correlated with the degree of activity. We also find that having children at home and living in a metropolitan area are associated with being a more active investor.

Hence, we have several indicators that sustainability motivated investors make less attentive investment decisions than do those who are return motivated. We also find that those with observable attributes correlated with sustainability motivation make less attentive decisions than do those with attributes correlated with return motivation. This is important information for banks when setting up communication strategies. The best way to communicate with sustainability motivated clients

# 4 Discussion and implications for banks' communication strategies

An important question for banks is how to reach out to their customers to help them find (and invest in) mutual funds that correspond to their preferences. The banks have various channels of communication at their disposal, including web pages, meeting with advisors, social media, and newsletters. However, bank customers will process the content of the communication in different ways, depending on whether they make their decision attentively or inattentively.

It is useful to distinguish among three types of communication that work via different mechanisms in decision-making (Löfgren and Nordblom, 2020): (i) information that is new to the customer and influences an attentive choice, (ii) nudges that are irrelevant to an attentive choice but may influence an inattentive choice, and (iii) boosts, which simplify information with the purpose of reducing the effort required to make an attentive choice.

Information is a commonly used strategy, and there are regulations stipulating what kind of information banks and other financial institutions have to provide to their customers. However, reacting to information requires an attentive decision. We have seen that return motivated investors are more likely than sustainability motivated investors to gather information and that the same goes for men and those with large amounts of savings (attributes that are positively correlated with being return motivated). Hence, information may be an effective communication tool when reaching out to men with large investments who are motivated by high returns. However, it may be less effective in facilitating investment decisions by sustainability motivated investors if they make their decision inattentively. In such cases, a nudge or a boost would be more effective (Löfgren and Nordblom, 2020).

A nudge can be thought of as a change in the choice context that we would not expect to influence a (rational) choice that is made with full information. Thaler and Sunstein define a nudge as "any aspect of the choice architecture that alters people's behavior in a predictable way without ... significantly changing their economics incentives" (2008, p. 6). A more formal definition is provided in Löfgren and Nordblom (2020): "A nudge is an alteration of an inattentive choice situation,

which would not affect an attentive choice." Nudges of relevance specifically for banks' communication about mutual funds are, for example, changes in the order of options on a list, preselected options (defaults), different colors of text, changes in fund names, or different types of sustainability labels. Importantly, according to the definition, a nudge would influence only those investors who are in an inattentive decision mode.

A boost instead makes an attentive choice more likely by reducing the effort of making the choice (Grüne-Yanoff and Hertwig, 2016; Hertwig and Ryall, 2020). In this context, boosts could be easily available information or search tools that make the fund choice less complicated.

Worth noting is that the same communication content can be a nudge for one investor but serve as information or a boost for someone else. One example is sustainability labels. For an attentive investor who is actively looking for sustainable funds, a label could give the information that certain criteria are met. For someone who thinks that investigating sustainability aspects is not worth the effort, the label could serve as a boost that makes sustainability information more easily available. Finally, a green leaf next to the fund name could nudge inattentive investors to choose the fund, although they may not understand what the label actually implies. Gutsche and Zwergel (2020) conclude that information costs are important obstacles to sustainable investments and that labels can reduce those costs. Bassen et al. (2019) find that climate labels are more effective among inattentive investors than among attentive ones, indicating that those labels work primarily as nudges rather than as information.

In Section 3, we noticed that sustainability motivated investors are more likely to make their choice inattentively. They are also more likely to seek advice from the bank than are the return motivated, which signals that they perceive the choice more difficult.<sup>26</sup>

In Section 3, we also noticed that certain categories of investors are more likely to make their choices inattentively than others. Young women are a group likely to make an inattentive investment choice.<sup>27</sup> This group finds the choice significantly more difficult than others (p = 0.000) and rely somewhat more on their gut feeling

<sup>&</sup>lt;sup>26</sup>The sustainability motivated find it significantly (p = 0.000) more difficult than others, while the return motivated find it easier than others (p = 0.005).

<sup>&</sup>lt;sup>27</sup>They score higher than others on our combined inattentiveness measure (p = 0.006).

$$(p = 0.088)^{28}$$

In the group of young women, 47 percent are sustainability motivated, as compared with 36 percent in the general population. They are also more willing than others to give up returns for sustainability (p = 0.000). Hence, this group both is more inattentive and values sustainability higher than other investors. Therefore, easily accessible information about funds in general and sustainability in particular could boost them toward a more attentive choice. Also, nudges could be effective in facilitating investments in accordance with this group's preferences (given that one knows the preferences, which of course still vary at the individual level). We find young women to be more likely to look at the name of the fund (p = 0.000) and sustainability labels (p = 0.000) than others, things that might well work as nudges. However, they are somewhat less aware of the meaning of the most common sustainability labels.<sup>29</sup> This further suggests that sustainability labels likely work as nudges for this group.

The degree of (in)attentiveness thus varies with investment motive and investor characteristics. This means that the optimal way of communicating with investors also varies. Naturally, there are individual differences, but in general, sustainability motivated investors are more likely to make their investment choices inattentively than those who are return motivated. This means that the effectiveness of communication can be increased by providing information in different ways for return versus sustainability, since sustainability motivated customers are less likely to be influenced by information but more so by nudges or boosts. Hence, the order of fund options or clear labels may facilitate sustainability motivated customers' fund choices, while making information easily accessible would benefit return motivated customers.

### 5 Concluding remarks

We conclude that sustainability-aspects of mutual funds play a role for private investments. A large majority of a representative sample of Swedish mutual fund investors would be willing to give up some expected return to get more sustain-

<sup>&</sup>lt;sup>28</sup>They do not differ from others in terms of importance; women in general find the mutual fund choice less important than do men, while young people find it more important than older investors.

<sup>&</sup>lt;sup>29</sup>In general, women are less aware than men, while the youngest age group is the most aware.

able investments and 36 percent claim that sustainability is an important or very important aspect when investing in new funds.

However, these results do not necessarily imply that people hold sustainable funds to a corresponding extent. Although we find that sustainability motivated Swedes are more likely to have invested in sustainable funds than those who do not consider sustainability an important factor, as many as 38 percent of the sustainability motivated respondents state that they have never actively invested in a sustainable fund. Interestingly, women in general perceive sustainability to be more important than do men, but they do not hold sustainable funds to a larger extent.

This discrepancy between preferences and behavior can be understood from the perspective that sustainability adds complexity to the investment choice, thereby making a rational choice harder. Indeed, we find that sustainability motivated investors to a larger extent than others find the investment decision difficult. They are thus more likely to make the choice inattentively, thereby risking an outcome that is not aligned with their preferences. Those who are primarily concerned with returns find the choice easier and make the choice more attentively.

Moreover, we find that preferences for sustainable investment as well as the inattentiveness of the investment decisions correlate with certain investor attributes. Young people and women value sustainability higher than others and the degree of inattentiveness is higher for women and those with small saving amounts. These differences imply a challenge for banks when trying to facilitate their clients' preference-aligned investments. Traditional information that may have proven useful in informing investors concerned with returns could be a suboptimal way of communicating with sustainability motivated investors. Nudges and boosts could then be more effective tools than pure information.

Our results strongly indicate that a reason why sustainability motivated investors do not invest in sustainable funds to a larger extent is that they are more prone than others to make investments inattentively. However, we cannot rule out that some individuals with prosustainable preferences do not invest in sustainability funds just because they do not find any funds that are sufficiently sustainable according to their preferences. We leave this for further research, but this is clearly important given the regulatory development in the EU to elicit the sustainability impact of financial products offered to customers, as well as for understanding customers preferences.

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### A Appendix: Tables

Table A1: Summary statistics

	Share
Male	0.521
Education	
Less than high school	0.075
High school	0.404
Vocational	0.139
University	0.381
Age	
18-29	0.25
30-64	0.562
>64	0.180
Savings amount	
< USD 5,500	0.257
USD $5,500 - 33,000$	0.460
> USD 33,000	0.283
Children under 18	0.363
Live in metropolitan area	0.413
Observations	3,529

Table A2: Stated importance of various aspects of the fund choice (mean values where 1 indicates totally unimportant at all and 5 very important)

	Women	Men
Historical return	3.48	3.57*
Risk level	3.73	3.54**
Sustainability	3.31	$2.87^{**}$
Fees	3.78	3.79
Name of the fund	1.95	$1.79^{**}$
Geography and branch	3.25	3.43**
Fund management	2.91	3.04**
Rating	3.08	3.20**
Sustainability labels	3.00	2.63**
Type, e.g., equity or interest	3.66	3.78**
Observations	1962	2049

Significance of gender differences \* p = 0.003, \*\* p < 0.001

Table A3: Importance of sustainability: Ordered probit marginal effects

Male	0.0691***	$0.0672^{***}$	$0.0142^{***}$	-0.0759***	-0.0745***
	(10.45)	(11.06)	(5.31)	(-11.33)	(-10.56)
Education	0.00502	0.00488	0.00103	-0.00552	-0.00541
	(1.68)	(1.68)	(1.62)	(-1.68)	(-1.68)
Age 18-29	-0.0326***	-0.0317***	-0.00670***	0.0358***	0.0352***
	(-4.36)	(-4.41)	(-3.58)	(4.42)	(4.38)
Age > 64	-0.0165	-0.0161	-0.00340	0.0182	0.0178
	(-1.88)	(-1.89)	(-1.80)	(1.89)	(1.88)
Savings < USD 5,500	0.00120	0.00116	0.000246	-0.00131	-0.00129
,	(0.16)	(0.16)	(0.16)	(-0.16)	(-0.16)
Savings > USD 33,000	0.0121	0.0117	0.00248	-0.0133	-0.0130
,	(1.64)	(1.64)	(1.58)	(-1.64)	(-1.64)
Children under 18	-0.00925	-0.00900	-0.00190	0.0102	0.00998
	(-1.39)	(-1.39)	(-1.35)	(1.39)	(1.39)
Metropolitan area	-0.00113	-0.00109	-0.000231	0.00124	0.00121
•	(-0.19)	(-0.19)	(-0.19)	(0.19)	(0.19)
Observations	3529	3529	3529	3529	3529

t statistics in parentheses

<sup>\*</sup> p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

Table A4: Importance of returns: Ordered probit marginal effects

Male	-0.0102***	-0.0128***	-0.0258***	0.0201***	0.0288***
	(-3.35)	(-3.39)	(-3.44)	(3.43)	(3.43)
Education	-0.00538***	-0.00675***	-0.0136***	0.0106***	0.0151***
Education					
	(-3.58)	(-3.64)	(-3.70)	(3.68)	(3.69)
Age 18-29	-0.0168***	-0.0211***	-0.0424***	0.0330***	0.0473***
	(-4.43)	(-4.54)	(-4.67)	(4.62)	(4.65)
	,	,	,	,	,
Age > 64	0.0304***	0.0382***	0.0768***	-0.0598***	-0.0857***
	(6.40)	(6.77)	(7.15)	(-7.07)	(-7.05)
Savings < USD 5,500	0.0143***	0.0179***	0.0360***	-0.0280***	-0.0401***
Savings CSD 5,500			(3.99)	(-3.97)	
	(3.85)	(3.91)	(3.99)	(-3.91)	(-3.97)
Savings $> USD 33,000$	-0.00649	-0.00815	-0.0164	0.0128	0.0183
,	(-1.80)	(-1.81)	(-1.82)	(1.81)	(1.82)
	,	,	,	,	,
Children under 18	-0.00504	-0.00633	-0.0127	0.00990	0.0142
	(-1.54)	(-1.55)	(-1.55)	(1.55)	(1.55)
N. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	0.00000**	0.0110**	0.000**	0.0175**	0.0051**
Metropolitan area	-0.00893**	-0.0112**	-0.0225**	0.0175**	0.0251**
	(-2.95)	(-2.98)	(-3.02)	(3.01)	(3.01)
Observations	3529	3529	3529	3529	3529

t statistics in parentheses

<sup>\*</sup> p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

Table A5: Importance of sustainability aspects: Ordered probit

Tuble 116. Impervaled of sustainability aspects. Ordered proble						
	Low carbon	$\operatorname{Green}$	No unethical	Human	SDG	
	footprint	technology	industries	$\operatorname{rights}$	governance	
Male	-0.389***	-0.297***	-0.554***	-0.488***	-0.251***	
	(-10.63)	(-8.07)	(-14.58)	(-12.93)	(-6.85)	
Education	0.0432*	$0.0389^*$	0.0559**	0.00381	0.0301	
	(2.42)	(2.16)	(3.04)	(0.21)	(1.68)	
Age 18-29	-0.0410	0.0570	-0.104*	-0.0751	-0.0843	
	(-0.93)	(1.29)	(-2.31)	(-1.68)	(-1.92)	
Age > 64	0.367***	0.264***	0.493***	0.558***	0.347***	
	(6.96)	(4.98)	(8.87)	(10.09)	(6.55)	
Savings < USD 5,500	-0.0762	-0.0861	-0.0385	-0.0606	-0.102*	
	(-1.74)	(-1.95)	(-0.85)	(-1.34)	(-2.32)	
Savings > USD 33,000	0.0401	-0.0182	-0.0194	-0.0641	-0.000413	
	(0.92)	(-0.41)	(-0.43)	(-1.43)	(-0.01)	
Children under 18	-0.0124	0.0540	-0.00242	0.00901	0.00869	
	(-0.31)	(1.35)	(-0.06)	(0.22)	(0.22)	
Metropolitan area	0.0345	0.0306	0.0377	0.0514	0.0649	
-	(0.95)	(0.84)	(1.01)	(1.38)	(1.78)	
Observations	3529	3529	3529	3529	3529	

t statistics in parentheses

<sup>\*</sup> p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

Table A6: Importance: Ordered probit marginal effects

	[1]	[2]	[3]	[4]	[5]
Male	-0.00641**	-0.0135**	-0.0228**	0.0171**	0.0257**
	(-2.91)	(-3.00)	(-3.02)	(3.01)	(3.02)
Education	-0.00119	-0.00251	-0.00423	0.00317	0.00476
	(-1.14)	(-1.14)	(-1.15)	(1.14)	(1.14)
Age 18-29	-0.0190***	-0.0401***	-0.0676***	0.0507***	0.0760***
	(-6.17)	(-7.01)	(-7.37)	(7.25)	(7.30)
Age > 64	0.0157***	0.0332***	0.0560***	-0.0420***	-0.0630***
	(4.72)	(5.04)	(5.17)	(-5.15)	(-5.14)
Savings < USD 5,500	0.0212***	0.0447***	0.0754***	-0.0565***	-0.0848***
	(6.69)	(7.85)	(8.22)	(-8.20)	(-8.13)
Savings > USD 33,000	-0.0143***	-0.0301***	-0.0508***	0.0380***	0.0571***
	(-5.00)	(-5.40)	(-5.57)	(5.51)	(5.54)
Children under 18	-0.00314	-0.00663	-0.0112	0.00838	0.0126
	(-1.34)	(-1.35)	(-1.35)	(1.35)	(1.35)
Metropolitan area	-0.00407	-0.00860	-0.0145	0.0109	0.0163
1	(-1.90)	(-1.92)	(-1.92)	(1.92)	(1.92)
Observations	3529	3529	3529	3529	3529

t statistics in parentheses

<sup>\*</sup> p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

Table A7: Difficulty: Ordered probit marginal effects

Male	0.0403***	0.0554***	$0.0147^{***}$	-0.0637***	-0.0466***
	(7.85)	(8.48)	(5.37)	(-8.53)	(-8.05)
Education	-0.00629**	-0.00865**	-0.00229*	0.00995**	0.00728**
Education	(-2.71)	(-2.73)	(-2.54)	(2.73)	(2.71)
	(-2.71)	(-2.73)	(-2.54)	(2.13)	(2.71)
Age 18-29	-0.0148**	-0.0204**	-0.00540*	0.0235**	0.0172**
	(-2.59)	(-2.60)	(-2.45)	(2.61)	(2.59)
Age > 64	0.00729	0.0100	0.00266	-0.0115	-0.00844
	(1.08)	(1.08)	(1.06)	(-1.08)	(-1.08)
Savings < USD 5,500	0.000116	0.000160	0.0000423	-0.000184	-0.000134
Savings CDD 9,900	(0.02)	(0.02)	(0.02)	(-0.02)	(-0.02)
	(0.02)	(0.02)	(0.02)	(-0.02)	(-0.02)
Savings $> USD 33,000$	$0.0138^*$	$0.0190^*$	$0.00502^*$	-0.0218*	-0.0159*
	(2.42)	(2.43)	(2.29)	(-2.43)	(-2.42)
Children under 18	-0.00929	-0.0128	-0.00339	0.0147	0.0108
	(-1.80)	(-1.81)	(-1.75)	(1.81)	(1.80)
Metropolitan area	-0.00131	-0.00181	-0.000479	0.00208	0.00152
wicoroponian area	(-0.28)	(-0.28)	(-0.28)	(0.28)	(0.28)
Observations	3529	3529	3529	3529	$\frac{(0.28)}{3529}$
	3020	3020	3020	3020	3020

t statistics in parentheses

<sup>\*</sup> p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

Table A8: Difficulty: Ordered probit marginal effects

Male	0.0403***	0.0554***	0.0147***	-0.0637***	-0.0466***
	(7.89)	(8.52)	(5.38)	(-8.57)	(-8.10)
Education	-0.00529*	-0.00728*	-0.00193*	0.00837*	0.00612*
	(-2.28)	(-2.30)	(-2.18)	(2.30)	(2.29)
Age 18-29	-0.0120*	-0.0165*	-0.00438*	0.0190*	0.0139*
11gc 10-29	(-2.11)	(-2.11)	(-2.03)	(2.12)	(2.11)
	(-2.11)	(-2.11)	(-2.03)	(2.12)	(2.11)
Age > 64	0.00604	0.00832	0.00220	-0.00956	-0.00699
8-1-1	(0.90)	(0.90)	(0.89)	(-0.90)	(-0.90)
	(0.00)	(0.00)	(3133)	(3133)	( 313 3)
Savings $<$ USD $5,500$	-0.00286	-0.00394	-0.00104	0.00453	0.00331
	(-0.50)	(-0.50)	(-0.50)	(0.50)	(0.50)
G . TIGD		0.004.044			0.04.00444
Savings $>$ USD 33,000	0.0158**	0.0218**	0.00577**	-0.0251**	-0.0183**
	(2.78)	(2.80)	(2.59)	(-2.80)	(-2.79)
Children under 18	-0.00766	-0.0106	-0.00279	0.0121	0.00888
Cilitateir under 10	(-1.49)	(-1.49)	(-1.46)	(1.50)	(1.49)
	(-1.43)	(-1.49)	(-1.40)	(1.50)	(1.43)
Metropolitan area	-0.000277	-0.000382	-0.000101	0.000439	0.000321
•	(-0.06)	(-0.06)	(-0.06)	(0.06)	(0.06)
	,	,	,	,	,
Complexity index	-0.00569***	-0.00784***	-0.00207***	$0.00901^{***}$	$0.00659^{***}$
	(-5.37)	(-5.53)	(-4.34)	(5.56)	(5.41)
Observations	3529	3529	3529	3529	3529

t statistics in parentheses

<sup>\*</sup> p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

Table A9: Confidence: Ordered probit marginal effects

Male	-0.0479***	-0.0314***	0.0211***	0.0461***	0.0122***
	(-5.80)	(-5.82)	(5.47)	(5.83)	(5.15)
Education	0.0123**	0.00803**	-0.00539**	-0.0118**	-0.00312**
	(3.05)	(3.06)	(-3.01)	(-3.06)	(-2.95)
Age 18-29	-0.0513***	-0.0336***	0.0225***	0.0493***	0.0130***
	(-5.14)	(-5.17)	(4.90)	(5.17)	(4.70)
Age > 64	0.0500***	0.0327***	-0.0220***	-0.0481***	-0.0127***
	(4.23)	(4.23)	(-4.11)	(-4.23)	(-3.95)
Savings < USD 5,500	0.00485	0.00317	-0.00213	-0.00466	-0.00123
	(0.49)	(0.49)	(-0.49)	(-0.49)	(-0.49)
Savings > USD 33,000	-0.0323**	-0.0211**	0.0142**	0.0311**	0.00821**
	(-3.27)	(-3.28)	(3.21)	(3.27)	(3.15)
Children under 18	-0.0172	-0.0112	0.00754	0.0165	0.00436
	(-1.91)	(-1.92)	(1.90)	(1.92)	(1.89)
Metropolitan area	-0.00644	-0.00421	0.00283	0.00619	0.00164
•	(-0.79)	(-0.79)	(0.79)	(0.79)	(0.79)
Observations	3529	3529	3529	3529	3529

t statistics in parentheses

<sup>\*</sup> p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

Table A10: Ordered probits: Investor strategies

	As much info	Name of	Sustainability	Advice	Random	Don't invest	Gut feeling
	as possible	the fund	label	from bank	first best	in new funds	O
Male	0.310***	0.00391	-0.163***	-0.338***	-0.114*	-0.155***	0.0406
	(8.49)	(0.11)	(-4.46)	(-8.85)	(-2.43)	(-4.05)	(1.11)
Education	0.0315	-0.0233	-0.00740	-0.0361	-0.0385	-0.0193	-0.0671***
	(1.77)	(-1.28)	(-0.41)	(-1.94)	(-1.67)	(-1.03)	(-3.74)
Age 18-29	0.367***	0.410***	0.355***	-0.197***	0.144**	-0.00281	0.0842
1180 10 20	(8.31)	(9.22)	(8.06)	(-4.25)	(2.64)	(-0.06)	(1.91)
Age > 64	-0.0862	-0.397***	-0.155**	0.261***	-0.247***	0.362***	-0.291***
0*, *-	(-1.64)	(-7.18)	(-2.91)	(4.83)	(-3.31)	(6.62)	(-5.45)
Savings < USD 5,500	-0.224***	-0.0240	-0.124**	-0.0523	0.253***	0.140**	0.0357
g	(-5.07)	(-0.54)	(-2.80)	(-1.14)	(4.73)	(3.06)	(0.81)
Savings > USD 33,000	0.138**	-0.117**	0.00749	0.124**	-0.189**	-0.0620	0.00997
2010-7	(3.16)	(-2.58)	(0.17)	(2.72)	(-3.14)	(-1.33)	(0.23)
Children under 18	0.0133	0.0666	0.0879*	0.0534	0.117*	-0.125**	0.0454
omaron ander 10	(0.34)	(1.65)	(2.20)	(1.29)	(2.33)	(-2.96)	(1.14)
Metropolitan area	-0.0125	0.0815*	0.0141	-0.128***	-0.0550	-0.0952*	-0.0443
metropontan area	(-0.34)	(2.19)	(0.39)	(-3.37)	(-1.17)	(-2.48)	(-1.21)
Observations	3529	3529	3529	3529	3529	3529	3529

Table A11: Active as an investor: Ordered probit marginal effects

Male	-0.0635***	-0.0794***	0.00370***	0.0540***	0.0853***
	(-10.03)	(-10.68)	(3.76)	(10.40)	(10.45)
Education	-0.00594* (-2.04)	-0.00742* (-2.04)	0.000346 $(1.82)$	$0.00504^*$ $(2.04)$	$0.00797^*$ $(2.04)$
Age 18-29	-0.0980***	-0.122***	0.00571***	0.0832***	0.132***
	(-12.15)	(-13.72)	(3.79)	(12.94)	(13.27)
Age > 64	0.0808***	0.101***	-0.00471***	-0.0686***	-0.108***
	(9.08)	(9.32)	(-3.81)	(-9.33)	(-9.13)
Savings < USD 5,500	0.0472***	0.0590***	-0.00275***	-0.0401***	-0.0634***
	(6.45)	(6.60)	(-3.50)	(-6.53)	(-6.54)
Savings > USD 33,000	-0.0411***	-0.0514***	0.00239***	0.0349***	0.0552***
	(-5.63)	(-5.73)	(3.30)	(5.69)	(5.69)
Children under 18	-0.0307***	-0.0383***	0.00179**	0.0260***	0.0412***
	(-4.66)	(-4.73)	(3.04)	(4.70)	(4.71)
Metropolitan area	-0.0187**	-0.0234**	0.00109*	0.0159**	0.0251**
	(-3.14)	(-3.16)	(2.48)	(3.15)	(3.15)
Observations	3529	3529	3529	3529	3529

t statistics in parentheses

<sup>\*</sup> p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

#### B Formal definition of inattentiveness

Löfgren and Nordblom (2020) present a model of individual decision-making that is also useful to explain financial decisions and show that three properties of the decision are crucial for whether it is made attentively or inattentively: (i) how important the decision is,  $\Delta U$ ; (ii) how demanding it is to make the attentive decision, measured by  $\sigma$ ; and (iii) how confident one is in the inattentive choice.  $\theta \in [0,1]$  measures the subjective probability that the outcome of the inattentive decision would be the preferred one.

Löfgren and Nordblom (2020) derives the condition  $\sigma \geq (1-\theta)\Delta U$  as indicative for whether a decision is made attentively or inattentively. In a simplified setting where the choice is made either completely attentively or completely inattentively, a ratio of  $\frac{\sigma}{(1-\theta)\Delta U} > 1$  implies an inattentively made choice, and if the ratio is smaller than one, it is made attentively.

From our three variables, we create the variable *Inattentiveness*, which is the combination  $\frac{\sigma}{(1-\theta)\Delta U}$ . A higher value indicates a higher likelihood of making the choice inattentively. In figure 3, we show how the likelihood of an attentive versus an inattentive choice varies depending on the combination of the three variables. In Table 4, we present the results from an ordered probit of *Inattentiveness* with the same explanatory variables as for the three included components.