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'100% Pure'? Households' preferences and attitudes with respect to Ethical Investing☆

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Abstract

Using a nationally representative survey of New Zealanders conducted in 2020, this study investigates households' preferences and attitudes with respect to ethical investing (EI). Our results suggest that stated adopters of EI funds are well informed about what EI is (25.5% more likely to adopt), trust EI providers (11.2%) and interestingly prefer exclusion over engagement (9.7%). Given that there is a shift in New Zealand towards engagement this raises concerns about whether investment managers are delivering what ethical investors want. An analysis of interaction effects shows that higher EI knowledge increases the probability of adoption for Baby Boomers, those that prefer exclusions (marginally so), and investors that perceived greater environmental effectiveness and trust in EI providers. Our regression for EI investment performance shows that EI adopters are much more likely to perceive better returns from ethical investments (15.6%) than potential adopters and those not interested in adopting, suggesting that those that claim to have adopted EI have had a good return experience. However, stated adopters are not more willing to sacrifice returns to invest ethically compared to non-adopters.

1. Introduction

New Zealand (NZ) advertises itself to international visitors under the '100% Pure' brand, portraying an image of progressiveness, inclusivity and environmental and social responsibility. From the environmental perspective, NZ has made a great effort to combat climate change in the past few years. The NZ government has exercised influence over investors through legislation and letters of expectation to the state-owned financial institutions (such as the NZ Superannuation Fund) for reducing climate emissions, and legislation requiring default providers of private superannuation funds ('KiwiSaver funds') to have an ethical policy and exclude fossil fuel emissions (see Section 2 for more details). In 2021, NZ became the first country to instigate mandatory reporting on climate risks adopting recommendations from the Task Force on Climate-related Financial Disclosures (TCFD) to support and accelerate NZ's transition to a zero-carbon economy. The TCFD framework requires information disclosure on firm governance, risk, strategy, metrics and targets concerning climate-related risks and opportunities. Earlier this year (May 2022), NZ launched its first emissions reduction plan (ERP)[1] which sets the direction for climate action for the next fifteen years. Some policies are underway – these include but are not limited to the mandatory TCFD-aligned climate-related risk reporting as mentioned above; the end of new offshore fossil fuel explorations; the Clean Car Discount Scheme that helps encourage the uptake of zero-emission vehicles, coupled with the drastic increase in the number of the electric vehicle (EV) charging stations across NZ; and the multi-million dollars investment in agricultural emissions research which helps establish the evidence base for emissions reduction technologies and mitigation tools (The New Zealand Government 2022).

[1] See Towards a productive, sustainable and inclusive economy: Aotearoa New Zealand's first emissions reduction plan (Ministry for the Environment) for more details.

NZ is also home to the second oldest emissions trading scheme (ETS) (Kennett *et al.* 2021), designed in 2008 as the most ambitious emissions trading scheme that aims to include all economic sectors and all major greenhouse gases (Leining *et al.* 2020) to meet the 2050 target and emissions budgets under the Paris Agreement. However, these carbon reduction initiatives not only face substantial technical and political challenges [2] concerning implementation (Leining *et al.* 2020) but also contrast with dairy farming intensification and rising emissions (Diaz-Rainey & Tulloch 2018). Compared to other OECD countries, NZ has a very unique emissions system, with nearly half of its gross GHG emissions made up of agricultural methane and other biogenetic greenhouse gases (Leining *et al.* 2020; Stats New Zealand 2022). Agriculture was meant to be part of the ETS, but the sector is not yet fully integrated into it due to the lack of political will, and there are still ongoing negotiations between the NZ government and the sector concerning an alternative (and potentially self-governed) emissions pricing system.[3]

The paradox is not only evident in NZ at the macro-economic/policy level, but also evident when looking at New Zealanders' attitudes toward climate change. Tranter and Booth (2015) find that despite having the lowest percentage of respondents that are unconcerned about the environment, climate scepticism is high in New Zealand, with the percentage of climate sceptics outweighing environmentally unconcerned respondents the most among all fourteen

[2] The NZ ETS contains several design features that demotivates emissions reductions in NZ. These include *Output-Based Uncapped Free Allocations* (2009 to date; started being phased out from 2021); *Unlimited Kyoto Carbon Offsets* (2008 to mid 2015; the de-link from Kyoto took effect on the 31st of May 2015) where the government allows participants to purchase unlimited overseas Kyoto units acceptable for surrender within the NZ ETS; *One-for-Two Subsidy* (2010 to Dec 2016; started being phased out on the 1st of January 2017, and was fully phased out on the 1st of January 2019) where the government enables non-forestry participants to fulfil a 50 percent surrender obligation; *Unlimited Fixed-Price Option* which got replaced by the new *Fixed-Volume Cost Containment Reserve* operating through the auction mechanism in 2021 ($25 per tonne from 2009 to 2019; $35 per tonne for surrenders that covering 2020 emissions and discontinued for emissions that occurred from 2021 onward) that ironically guarantees participants with a maximum compliance cost (i.e., price ceiling) under the market solution.

[3] He Waka Eke Noa has proposed a scheme, which allows the agriculture sector to self-govern its emissions pricing scheme, with a starting price of eleven cents per kilogram of methane (i.e., $1.31 CO2 equivalent price per tonne) which is significantly lower than the current carbon price of $75.42 per tonne.

developed countries covered in the sample. Individualistic worldviews/free market ideology and affiliation with conservative political parties, as identified by the authors, are the two main drivers of climate scepticism in NZ – the validity of this argument is further confirmed by Smith and Mayer (2019).[4]

From the social perspective, NZ was the first country to grant women voting rights in parliament elections. As women were not granted suffrage in most other democracies, notably the United Kingdom and the United States, until after World War I, New Zealand's global leadership in women's suffrage became an important aspect of its image as a trailblazing 'social laboratory'. There is also a strong imperative for investors and businesses to honour Treaty of Waitangi commitments, developing business opportunities with iwi, hapu and whānau that will grow the NZ business sector to reduce negative social outcomes and inequalities including a growing housing crisis.[5]

Ethical investing has grown rapidly over the past decade. Sustainable funds were also found to be more resilient during times of uncertainty, whereas their conventional counterparts suffered a significant drop in fund flows following the COVID-19 pandemic and the Russian invasion (Bioy *et al.* 2022).[6] One of the main drivers behind the shift in taste is the increased awareness of environmental (e.g., climate change) and social issues (e.g., housing crisis, inequality, COVID) among retail investors, which drives up the demand for EI, and leads to more sustainable financial products being launched by fund managers and financial advisors. As the global shares of retail sustainable investing assets continued to grow, from 11% in 2012 to 25% in 2020 (Global Sustainable Investment Alliance 2020), understanding retail investors'

[4] Smith and Mayer (2019) document a negative relation between affiliation with conservative political parties/ free market ideology and respondents' perception of climate change's danger and importance. The effects of party affiliation and free market ideology on climate change attitudes are stronger for those living in Anglophone countries (including New Zealand).

[5] See Perry (2019) and Rashbrooke *et al.* (2021) for a detailed discussion on NZ incomes/wealth, inequality and housing affordability.

[6] European conventional funds saw approximately 200 billion USD net outflows following the COVID-19 outbreak in early 2020, and 21billion USD net outflows following the Russian invasion in early 2022. A similar trend was also observed in the United States.

preference is important. The paradox, as noted above, coupled with the rapid growth in sustainable-labelled investments in Australasia (Kennaway 2021; Bioy *et al.* 2022), provides us with an interesting background to investigate households' preferences and attitudes with respect to ethical investing (EI). We are especially interested in understanding whether the recent industry movements in NZ – including fund managers' prioritized themes and preferred EI approaches – are in line with retail clients' preferences.

Concerning prioritised themes, a recent paper by McLean *et al.* (2022) finds that compared to U.S. funds that put a greater emphasis on the environment pillar, Australasian fund managers' priorities are more spread across environmental, social, and governance themes. This is likely to be driven by Australian ethical investors' low prioritisation placed on environmental issues as compared to social and/or health issues (Pérez-Gladish *et al.* 2012). This is not surprising, given that Australia's per capita CO2 emissions (especially from coal power) are among the world's highest, and there is a documented positive relationship between national-level CO2 emissions and climate scepticism documented in past literature (Tranter & Booth 2015). That said, it is not fair to assume NZ retail investors share the same sentiment.

Concerning preferred EI approaches, engagement strategies have been gaining popularities in the past two decades (Vandekerckhove *et al.* 2007, 2008; Wen 2009; Scholtens & Sievänen 2013; Goodman *et al.* 2014; Scholtens 2014; Kolstad 2016), but it was not until recently that the market observed a substantial shift in EI approaches, from exclusion towards thematic/ integration/ engagement, among fund managers (Global Sustainable Investment Alliance 2020). New Zealand is no exception. The RIAA 2020 benchmark report (Boele & Bayes 2020) finds that for the first time, ESG integration replaced exclusion to become the number one EI approach favoured by fund managers, followed by engagement. The drastic increase in the proportion of AUM managed using ESG integration (36% in 2018 versus 48.5% in 2019) and

corporate engagement (19% in 2018 versus 40.4% in 2019) was at the expense of a decrease in negative/exclusionary screening (44% in 2018 versus 9.6% in 2019).

Nevertheless, there has been limited and conflicting evidence on what retail investors truly prefer, with a majority finding that engagement does not comply with investors' needs (See Section 3.2 for more). A recent study by Pástor and Vorsatz (2020) unveils that during the COVID-19 pandemic, funds that divest enjoyed net inflows (i.e., increased investor demand), whereas funds that fail to employ exclusions in the investment process suffered net fund outflows. It seems like the industry is moving rapidly in one direction while clients want another.

Indeed, engagement has long been seen as a more effective alternative to exclusion and has been widely endorsed by academics (Dimson *et al.* 2015; Blitz & Swinkels 2020) and industry practitioners (Krueger *et al.* 2020): First, negative screening makes it hard for carbon-intensive firms to attract new funding, whereas engagement gives these firms a second chance to finance the transition to a low-emission future (Huber 2021). Second, exclusion does little to reduce emissions, but rather, may result in polluting assets being offloaded to less responsible investors. On the other hand, engagement, through private discussions and/or public interactions, put pressure on firms and can therefore improve firm behaviour (Huber 2021). [7] Third, engagement avoids underperformance caused by the reductions in the investment universe (Vandekerckhove *et al.* 2007). However, Kolstad (2016) argues that the aforementioned claims are open to challenge: First, exclusion allows an investor to interact with management as a potential investor or an ex-investor that may reinvest, thus it does not necessarily reduce investors' influence. Second, engagement is a two-way influence process, meaning that it is possible for firm management to reverse influence its investors, especially

[7] This argument is evidenced by Barko *et al.* (2021)who found that successful engagement helps create a win-win situation: firms with low ex-ante ESG scores enjoy an increase in sales coupled with substantial growth in ESG ratings; whereas activists could benefit from excess returns within 6 to 12 months following a successful engagement.

when the difference between the objective functions of investors and the firm itself is neither too small nor too large and/or when the firm has more bargaining power against its investors. Under such circumstances, the effectiveness of engagement (or engagement with exclusion) may not necessarily exceed that of pure exclusion. Third, while effective engagement does not limit the investment universe in terms of companies, it does entail reductions in the set of firm activities and practices. On top of the aforementioned three arguments, engagement is associated with other issues, such as being less transparent than exclusion, hard to verify (McLaren 2004) which may lead to greenwashing (McLean *et al.* 2022), and only leads to symbolic rather than substantive improvements in corporate social performance (David *et al.* 2007). In addition, exclusion at a scale relative to trading volumes has influenced the demand for equities, the cost of capital and the ability of fossil fuels companies to generate capital for investment (Dordi & Weber 2019). Since warnings over climate risk and the dangers of stranded assets, over US$40 trillion of assets under management is now committed to divesting from fossil fuels. Divestment from fossil fuels has also been associated with lower risk and higher returns over the past decade.[8] Beyond the direct financial impacts, exclusion campaigns can also de-legitimise harmful sectors or companies, and make it more likely that governments would be willing to introduce regulations or restrictive policies. Exclusion campaigns affect the company's social licence to operate, affecting not only the finance sector, but also consumer or business demand for their products, their ability to recruit the best staff, the morale and motivation of employees and their corporate reputation. There is evidence that these indirect impacts are real and influential.

The paradox and the conflict between recent industry movements and retail investors' preferences, as noted above, naturally leads to our research questions: Are NZ truly '100%

[8] See Why divestment remains a sound, long-term investment approach (Wealth Professional), Myth busting: Fossil fuel divestment (Mindful Money), and Cost of capital spikes for fossil fuel producers (Bloomberg)

pure' and how progressive are NZ investors? More specifically, using a nationally representative survey of New Zealanders conducted in 2020 we examine the following three research questions: (i) What drives the decision of New Zealanders to actually invest ethically (become a stated adopter)? (ii) Does stated adoption explain households' perception of ethical investments' (EI) returns vs. traditional investments? and (iii) Are stated adopters more willing to sacrifice returns to meet higher ethical requirements? Each of these questions is driven by the need to better understand what factors influence the choices made by investors and the underlying characteristics of responsible investors. By looking across these three issues, our primary contribution is to provide one of the most comprehensive analyses of retail investors' EI preferences and attitudes in the related literature to date (Rosen *et al.* 1991; Beal & Goyen 1998; Lewis & Mackenzie 2000a, b; Tippet & Leung 2001; McLachlan & Gardner 2004; Vyvyan *et al.* 2007; Williams 2007; Haigh 2008; Nilsson 2008; Glac 2009; Nilsson 2009; Junkus & Berry 2010; Cheah *et al.* 2011; Jansson & Biel 2011; Pérez-Gladish *et al.* 2012; Berry & Junkus 2013; Borgers & Pownall 2014; Dorfleitner & Utz 2014; Jansson *et al.* 2014; Peifer 2014; Bauer & Smeets 2015; Diouf *et al.* 2016; Gutsche & Zwergel 2016; Wins & Zwergel 2016; Riedl & Smeets 2017; Hoffmann *et al.* 2019; Rossi *et al.* 2019; Anderson & Robinson 2021; Bauer *et al.* 2021; Siemroth & Hornuf 2021). Further, we use a nationally representative sample and provide the first evidence on the subject in the context of New Zealand.

We report that Baby Boomers (i.e., investors aged 55 or older), investors that are familiar with ethical investing, prefer to exclude unethical choices, find environmental issues important in constructing investment portfolios (i.e., have high environmental considerations), and/or believe their investment decisions can influence climate change (i.e., have high perceived consumer effectiveness on environmental outcomes) are more likely to make ethical investments. Furthermore, trust in EI and environmental considerations are important factors

driving EI adoption. Analysing the data for investors who are more likely to perceive higher returns from EI shows that these individuals are stated adopters and tend to be younger/middle-aged urban dwellers who hold perceptions of high consumer effectiveness from social outcomes. Stated adopters have had a positive return experience, and are not more willing to sacrifice returns in favour of higher ethical requirements compared to non-adopters.

Our findings point to some key policy implications. Using a national representative sample, this paper provides the first evidence of the conflict between industry trends and clients' preferences in the context of New Zealand. Our results suggest that while the industry prioritises E, S, and G evenly and is moving rapidly towards engagement at the expense of exclusions, NZ retail clients prefer a higher priority for environmental considerations together with the exclusion of unethical investment choices. Thus, fund managers should revert to exclusions and consider focusing on environmental themes when promoting EI products in NZ. Second, having sufficient EI knowledge is critical to the decision to adopt, with respondents that get financial information (including EI knowledge) or advice from non-independent but qualified financial service providers being the most likely to adopt. That said, for-profit financial institutions may engage in greenwashing activities due to the drastically increased demand for green investment products, the lack of consistent and quality ESG data,[9] and fund managers' lack of expertise (Cowell & Weir 2020). As retail investors are more likely to be deceived by the obfuscation associated with greenwashing (DeHaan *et al.* 2021), it is important to support the dissemination of independent and qualified information in preventing greenwashing and raising ethical investing awareness to increase ethical investment levels.

[9] See Amel-Zadeh and Serafeim (2018) where the authors unveil that the difficulty in performing cross-sectional comparisons across firms, and the lack of standards governing ESG reporting are the top two issues that hinder institutional investors' ESG integration efforts. Also see Berg *et al.* (2020)'s working paper where the authors document the widespread changes to Refinitiv's historical ESG ratings, with the adjusted, but not the original, ESG scores showing a positive relationship to stock returns; and Berg *et al.* (2022) for a detailed discussion on the scope, measurement, and weight divergence among ESG data providers.

Finally, policy needs to highlight and publicise higher financial performance among EI products to achieve greater uptake.

The rest of the paper is organized as follows. Section 2 outlines the New Zealand context and gives readers a background knowledge of the KiwiSaver scheme and associated ethical problems. Section 3 focuses on an overview of the core theories and empirical evidence as to what socio-demographic, behavioural and attitudinal variables drive EI adoption. Section 4 outlines the methodology and data. Based on the methodology described in the previous section, Section 5 presents results from the ordered probit regressions. Finally, Section 5 discusses the limitations of this study and concludes.

2. The KiwiSaver Context

The KiwiSaver Act (2006) was established to address NZ's historically low long-term savings habits. The scheme automatically deducts contributions from salary which are invested and accumulate in value over an individual's working life. Individuals are automatically enrolled when they begin a new job but can opt out if they choose. KiwiSaver accounts and providers follow individuals throughout their working lives. By law, employers must match contributions of 3% of salary or wages. Apart from the attractive features (i.e., auto-enrolment and compulsory contributions from employer and the government) mentioned above, KiwiSaver schemes offer people an exclusive chance to apply for a first home grant (worth a maximum of $10k), given that they have been contributing to the scheme for more than three years.[10] The KiwiSaver scheme was designed to increase financial independence and wellbeing, and to provide retirement benefits that support standards of living in retirement akin to those in pre-retirement.

[10] See KiwiSaver benefits (Inland Revenue)

The KiwiSaver scheme is far from perfect. It suffers from problems such as lack of transparency, lack of diversification and lack of flexibility. The question of ethical investment choice first drew media attention in August 2015 with the exposure of KiwiSaver growth fund's involvement in ethically problematic firms, including those that engage in the manufacture/supply of land mines and cluster munitions.[11] A year later, NZ Herald's in-depth investigation once again brought to light ethical concerns associated with KiwiSaver. The article revealed that more than 150 million dollars of KiwiSaver funds were still devoted to ethically problematic sectors/ firms such as tobacco, weapon manufacturing, and landmines, some of which were even banned by the New Zealand government and/or blacklisted by the New Zealand Superannuation Fund.[12] The scandal, coupled with the growing desire for ethical and responsible investments,[13] has made many KiwiSaver providers start moving money away from sectors and firms that are not in line with New Zealanders' values.[14] However, analysis by Mindful Money shows that by 30th September 2019, 7.32% of KiwiSaver beneficiaries' contributions ($4.3 billion) were still put into questionable sectors/ firms.[15] The 2019 report also argues that KiwiSaver responsible investments still face considerable reporting problems[16] that need to be addressed by further actions.

In 2018, research commissioned by RIAA and Mindful Money[17] found that New Zealand investors engaged in share markets indicate a high affinity for responsible investments.[18]

[11] See KiwiSaver, cluster bombs, mines and nukes (Stuff)
[12] See Dirty secrets of your KiwiSaver (NZ Herald) and KiwiSavers fund cluster bombs, land mines (RNZ)
[13] See Mindful Money 2018 and 2019 survey reports (Mindful Money)
[14] See KiwiSaver providers dump $109m of weapon and tobacco investments and Background paper on responsible investment in New Zealand (KPMG)
[15] See From crisis to opportunity (Mindful Money) and Barry Coates: Investing smart, investing ethically (Sharesies). Investments include animal testing, fossil fuels, human rights or environment violations, alcohol, gambling, weapons, GMOs, tobacco, palm oil, and pornography.
[16] See Background paper on responsible investment in New Zealand (KPMG). Concerns include inconsistent terminology and confusing documentation, redundancy, ambiguous responsible investment policies, and immature process.
[17] Mindful Money is a charity that promotes ethical investment.
[18] See Responsible Investment: NZ Survey 2018. 72 per cent of respondents expect their investments to be made responsibly and ethically.

However, research undertaken by RIAA (2018) reports a discrepancy between investors' purported preferences and practices. The most important of these refer to (i) lack of consumer awareness about responsible investment options; (ii) lack of appropriate responsible investment products/options; and (iii) the misconception that responsible investment strategies underperform relative to their peers. In 2019, the Commission for Financial Capability (CFFC) undertook a review of New Zealand retirement income policies. The CFFC wanted more information about the public's perception and understanding of ethical investments in KiwiSaver. More specifically, the commission wanted to know about the kinds of investments that New Zealanders may want KiwiSaver providers to exclude, as well as the range of KiwiSaver funds with an ethical investment mandate.

In March 2020, New Zealand government announced a few changes to the KiwiSaver default provider scheme, to encourage fund managers to take ESG issues into account in their investment decisions.[19] Major changes include the exclusion of fossil fuels and illegal weapons from the default (effective 1st December 2021). The new prerequisite also requires default suppliers to disclose their responsible investment policies on their websites. The recent controversy related to the ethical choices made by KiwiSaver investment schemes as well as the recent rule changes in KiwiSaver default schemes provide an interesting background for us to take a deep dive into New Zealand retail investors' ESG investing preferences.

3. Hypothesis Development

3.1 Socio-demographic variables

The effect of socio-demographic variables (e.g., age, gender, education, wealth, place of residence, employment, marital status, religion) on investors' ethical investing behaviours,

[19] See Default KiwiSaver changes support more responsible investment (New Zealand government) and KiwiSaver default provider scheme improvements slash fees, boosts savings (New Zealand government)

awareness of EI and/or attitudes towards EI have been extensively examined in the existing literature (Rosen *et al.* 1991; Beal & Goyen 1998; Tippet & Leung 2001; McLachlan & Gardner 2004; Williams 2007; Nilsson 2008, 2009; Junkus & Berry 2010; Cheah *et al.* 2011; Pérez-Gladish *et al.* 2012; Escrig‐Olmedo *et al.* 2013; Borgers & Pownall 2014; Dorfleitner & Utz 2014; Jansson *et al.* 2014; Peifer 2014; Bauer & Smeets 2015; Diouf *et al.* 2016; Gutsche & Zwergel 2016; Wins & Zwergel 2016; Riedl & Smeets 2017; Hoffmann *et al.* 2019; Rossi *et al.* 2019; Anderson & Robinson 2021; Bauer *et al.* 2021; Siemroth & Hornuf 2021). However, the results are mixed due to sample size and geographical differences in survey responses. Based on the available data obtained from the survey, we develop hypotheses related to six socio-demographic variables, namely, *age*, *gender*, *education*, *past EI knowledge*, *income*, and *urban domicile*.

Age. Some studies argue that younger generations tend to invest more ethically or give greater emphasis to firms' ESG performance than older investors (Rosen *et al.* 1991; Tippet & Leung 2001; Junkus & Berry 2010; Cheah *et al.* 2011; Bauer & Smeets 2015; Gutsche & Zwergel 2016; Riedl & Smeets 2017; Bauer *et al.* 2021), whereas others (Beal & Goyen 1998; Williams 2007; Hoffmann *et al.* 2019; Rossi *et al.* 2019) suggest that older generations deserve more credit for the evolution of ethical investing. Borgers and Pownall (2014) report an indirect relation between age and investment behaviour – the authors observe a positive relationship between age and individual's Social, Environmental and Ethical (SEE) considerations (measured by respondents' preference for negative/positive SEE screens), and higher SEE considerations positively contribute to respondents' hypothetical ethical investment behaviours/willingness to sacrifice returns in favour of SEE screens. Anderson and Robinson (2021) find that older generations tend to be more likely to actively move their money from a non-green retirement portfolio to a 100% ESG fund, but are however less likely to stay if the default fund is ESG-complaint. Further, the authors find that older investors are less likely to

hold stocks in the energy sector. Nevertheless, younger adults are less sceptical about climate change in NZ (Tranter & Booth 2015) and are more open to new concepts/experiences (Zimprich *et al.* 2009; Schwaba *et al.* 2018). Younger New Zealanders are also better educated (see Figure 1, New Zealand 2018 Census data shows that nearly 35% of the New Zealanders aged 65+ have no qualification). Thus, we expect younger investors to be more aware of the increasing threat of environmental and social issues such as climate justice, civil rights and racial discrimination, and are more likely to have a positive attitude towards ethical investing, which ultimately makes them more likely to take the ethical path when it comes to investment.

[Insert Figure 1 Here]

Hypothesis 1: Younger investors are more likely to become stated adopters of EI than older investors.

Gender. Several studies have shown that female investors are more likely to become ethical investors and/or invest a greater proportion in EI (Beal & Goyen 1998; Tippet & Leung 2001; Nilsson 2008; Junkus & Berry 2010; Pérez-Gladish *et al.* 2012; Dorfleitner & Utz 2014; Bauer & Smeets 2015; Rossi *et al.* 2019), are less likely to hold energy stocks (Anderson & Robinson 2021), or show more appreciation towards companies with better ESG performance (Cheah *et al.* 2011), as "women have brought a natural affinity to the concept of ethical investing with them" (Schueth 2003) and/or women "diversify rather than invest everything in the traditional account" (Rossi *et al.* 2019). Further, Borgers and Pownall (2014) find that women are more supportive of SEE screens (both positive and negative) than their male counterparts and are more willing to sacrifice returns for (a partial) alignment with their preferences towards certain SEE screens. Bauer *et al.* (2021) observe that female investors tend to select funds with more Sustainable Development Goals (SDG) embedded in their sustainable investment policy, and show more appreciation towards pension funds' extra engagement and portfolio screening based on the four SDGs (i.e., "climate action", "decent work and economic

growth", "peace, justice and strong institutions", and "responsible consumption and production"). Women are found to be more altruistic (Andreoni & Vesterlund 2001; Rand *et al.* 2016; Brañas-Garza *et al.* 2018) and more ethical (Franke *et al.* 1997; Deshpande *et al.* 2006; Valentine & Rittenburg 2007; Barua *et al.* 2010; Cumming *et al.* 2015; Luo *et al.* 2020). Women tend to put greater emphasis on social aspects of EI choices (Escrig‐Olmedo *et al.* 2013), are more environmentally considerate (Stern *et al.* 1993; Laroche *et al.* 2001; Larijani 2010; Escrig‐Olmedo *et al.* 2013; Tranter & Booth 2015; Xiao & McCright 2015; Vicente-Molina *et al.* 2018; Briscoe *et al.* 2019; Li *et al.* 2019; Anderson & Robinson 2021), and are less likely to become climate sceptics in most advanced industrialised countries including NZ (Tranter & Booth 2015) than their male counterparts. Women in leadership positions are also found to have a positive impact on a firm's ESG performance: female board/TMT representation is found to be positively related to firm social performance (Hafsi & Turgut 2013; Harjoto *et al.* 2015), environmental performance (Burkhardt *et al.* 2020; De Masi *et al.* 2021) and environmental innovation (Liao *et al.* 2019; Burkhardt *et al.* 2020; Nadeem *et al.* 2020), while negatively related to environmental violations (Liu 2018). Thus, we expect female investors' pro-environmental and pro-social attitudes to be ultimately translated into ethical investing behaviours, which leads to the increased probability of becoming stated adopters.

Hypothesis 2: Female investors are more likely to become stated adopters of EI than their male counterparts.

Education and EI knowledge. Better educated investors have higher levels of environmental awareness (Madigele *et al.* 2017), tend to put greater emphasis on environmental wellness over financial welfare (Anderson & Robinson 2021), are more willing to pay higher fees for an all-ESG fund (Anderson & Robinson 2021), and are more likely to become ethical investors and/or invest a greater proportion of their budget in ethical funds (Rosen *et al.* 1991; Beal & Goyen 1998; Tippet & Leung 2001; Williams 2007; Nilsson 2008;

Junkus & Berry 2010; Cheah *et al.* 2011; Pérez-Gladish *et al.* 2012; Bauer & Smeets 2015; Gutsche & Zwergel 2016; Rossi *et al.* 2019). Better education not only increases the probability of individuals' preference for exclusionary SEE screens and their willingness to sacrifice returns in favour of exclusionary and/or best practices screens (Borgers & Pownall 2014) but is also associated with increased awareness of EI-related terms (Escrig‐Olmedo *et al.* 2013). Further, analyst reports[20] and recent studies suggest that EI tend to offer similar or better risk-adjusted returns, and/or greater resilience compared to traditional investments (Friede *et al.* 2015; Andersson *et al.* 2016; Nagy *et al.* 2016; Verheyden *et al.* 2016; Shafer & Szado 2020; Ilhan *et al.* 2021), especially during crises and market downturns (Nofsinger & Varma 2014; Soler-Domínguez & Matallín-Sáez 2016; Albuquerque *et al.* 2020; Omura *et al.* 2020; Pástor & Vorsatz 2020; Broadstock *et al.* 2021; Yousaf *et al.* 2022). Thus, we expect better-educated investors to be more likely to incorporate these findings into their investment strategies during the COVID-19 pandemic.

In terms of EI knowledge, Gutsche and Zwergel (2016) find that investors with insufficient self-reported EI knowledge are less likely to become EI adopters. Wins and Zwergel (2016) report that investors' average knowledge about EI terms is a relevant factor in separating ethical investors from interested investors and conventional investors. Diouf *et al.* (2016) document that those who heard about EI products via various sources are more likely to invest ethically. Thus, we assume that better-educated investors and investors with more EI knowledge are more likely to incorporate ethical considerations in their decision-making process.

[20] See Coronavirus: How ESG scores signalled resilience in the Q1 market downturn (AXA), Sustainable investing: Resilience amid uncertainty (BlackRock), Putting sustainability to the test: ESG outperformance amid volatility (Fidelity International), Social-impact efforts that create real value (Harvard Business Review), Ethical funds perform well through Covid economic crisis (Mindful Money) How does European sustainable funds' performance measure up? (Morningstar) MSCI ESG Indexes during the coronavirus crisis (MSCI), Covid-19 and the performance of responsible investments (RIAA), Why companies with stronger ESG credentials should be expected to underperform…but won't (Schroders)

Hypothesis 3: Better educated investors and investors that are more knowledgeable about EI are more likely to become stated adopters of EI than less educated investors or investors with no prior knowledge about EI.

Income. Contradictory results have been found in the ethical investing literature concerning the relationship between investors' income and their willingness to adopt or proportion of investment allocated to EI products. Rosen *et al.* (1991) report that ethical investors tend to hold less annual household income than their non-ethical counterparts. Beal and Goyen (1998) show that ethical investors tend to have lower household income but higher household assets. In a recent study, Bauer *et al.* (2021) state that respondents with higher monthly household income are less supportive of extra engagement or portfolio screening based on the four SDGs, indicating less affluent investors are more likely to adopt a more socially responsible approach when it comes to investment. On the contrary, Williams (2007) finds income to be positively contributing to the probability of being EI influenced in the "all countries" sample and the Australia and Canada subsamples. Vyvyan *et al.* (2007) document that participants with higher income tend to have higher environmental activism scores. However, while they find a positive association between environmental activism and participants' green attitudes as well as their stated willingness to invest in EI funds, these do not necessarily translate into greener investment behaviours. Although Borgers and Pownall (2014) find no explicit link between individuals' monthly household income and their SEE considerations, the authors observe a positive relationship between income and willingness to sacrifice returns in favour of positive or negative SEE screens. Finally, Anderson and Robinson (2021) observe that while investors with higher disposable income are less likely to stay in an all-ESG default retirement portfolio, they are more likely to make an active ESG choice if the default option is a non-ESG compliant pension fund. Interestingly, high-income individuals are less likely to give higher importance to environmental issues over financial welfare and/or

perceive higher returns from green investments in the long run. While it is hard to make assumptions based on past literature, we expect investors with more annual household income to be more willing to tolerate an 'ethical penalty' and more able to afford the extra financial cost associated with EI.

Hypothesis 4: Investors with more annual household income are more likely to become stated adopters of EI than less affluent investors.

Urban Domicile. Beal and Goyen (1998) report that ethical investors are more likely to live in metropolitan cities than in regional areas, whereas Williams (2007) finds town size to be negatively related to the probability of being EI influenced in the Australia subsample. In a recent study, Rossi *et al.* (2019) find that urban residents are associated with greater stated interests in EI products, but this does not necessarily translate into higher EI adoption. On one hand, urban dwellers have access to more information, experience less information asymmetry, and have more potential investment choices. Therefore, one may expect those living in urban areas to be more likely to adopt EI. On the other hand, unlike rural dwellers in other parts of the world, farmers in New Zealand tend to have pro-environmental attitudes driven by market-based best-practice schemes and government regulations (Fairweather *et al.* 2009). Results from Stahlmann-Brown (2019)'s survey also indicate that rural decision makers in New Zealand are well-educated, highly aware of biosecurity and climate change issues and have taken active steps in response to climate change. It would be interesting to see whether urban Kiwis and rural dwellers share a similar vision of EI. Thus, we decided to include area type as one of the explanatory variables.

Hypothesis 5: Area type may affect investors' probability of adopting EI. However, the relationship is hard to predict given the conflict findings in past literature.

3.2 Behavioural Variables

Preferred investment strategy (exclusion vs. engagement). Since the Rosen *et al.* (1991) study,[21] the EI literature has been linking investors' preferred investment strategies (e.g., exclusion, inclusion, engagement, confrontation) to their investment behaviour. While there are papers finding investment strategy to have no explanatory power towards investor type (McLachlan & Gardner 2004) or the proportion of budget invested in EI products (Pérez-Gladish *et al.* 2012), few papers (Haigh 2008; Berry & Junkus 2013) argue that a more inclusive screening approach contributes positively to investors' intention to purchase EI products. While engagement has been widely endorsed by academics (Dimson *et al.* 2015; Blitz & Swinkels 2020) and industry professionals (Krueger *et al.* 2020) in recent years, the increased effectiveness and efficiency of engagement over exclusion have been challenged at a theoretical level (Kolstad 2016). Further, engagement may not be in line with retail investors' preferences. For instance, Lewis and Mackenzie (2000b) find exclusion to be the number one strategy preferred by U.K. ethical investors. When ethical investors are pushed to make hypothetical investment choices, they still seem to prefer funds that employ an exclusion strategy to one that uses "soft" or "hard" engagements. In terms of preferred fund actions, 39.6% of respondents prefer ethical funds to sell unethical firms immediately even if such action hurts financial performance, compared to 33.9% claiming that they would rather keep the company in their investment portfolio and engage with it for positive changes. The decision to sell unethical stocks immediately is associated with an exclusion preference, whereas for respondents that choose to engage, a greater than expected proportion choose to hold the company's stock to influence positive changes. Vyvyan *et al.* (2007)'s simulation result shows that avoidance of firms that engage in unethical activities (e.g., alcohol, tobacco, gambling, and

[21] Survey respondents were asked "what factors are most important in determining whether a company's behaviour can be considered socially responsible?". 83% of the socially responsible investors consider companies to be socially responsible for avoiding unethical activities, and only 17% consider companies to be socially responsible for proactively engaging in socially responsible activities.

weapons) are ranked as more important in driving participants' investment choices than the inclusion of firms with environmental management systems or with good labour relations. Jansson and Biel (2011) find that investment professionals significantly underrated the importance of the exclusion of sin stocks and firms' social and environmental performance, while overrated the importance of profit maximisation, compared to institutional/retail investors' own rating on the same issues. Wins and Zwergel (2016) find that current ethical investors favour funds that incorporate inclusionary screening (36.5%), followed by exclusion (25.0%), engagement (9.6%), and confrontation (0%). After excluding respondents that stated no preference, nearly three times more current ethical investors (35.1%) than conventional investors (9.3%) choose exclusion as their primary investment strategy. Both current ethical investors (SR) and former ethical investors/interested investors (INV) consider investing directly in firms with a pro-environmental/pro-social profile (i.e., inclusion) as the most effective way of influencing firm behaviour, followed by avoidance of companies that fail to comply with certain ethical criteria (i.e., exclusion), and finally, various soft and hard engagement methods. The authors conclude that exclusion and inclusion are equally important to retail investors,[22] and the two strategies are "two sides of the same coin" in building up a sustainable portfolio. In a similar vein, Bauer *et al.* (2021) show that a higher proportion of respondents are supportive of the implementation of portfolio screening (77.1%) than the implementation of extra engagement (56.5%). In terms of investors' return perception of extra engagement versus portfolio screening, results show that the proportion of participants expecting better returns from portfolio screening is greater than those expecting better performance from extra engagement.[23] Lastly, by looking at net fund flows during the COVID-

[22] SR and INT investors that prefer exclusion over all other investment strategies rank inclusion as the most effective investment strategy in changing firm behaviours; SR and INT investors that prefer inclusion the most also rank exclusion as one of the most effective investment strategies.

[23] Results show that: (1) 4.1% (27.7%) perceive much higher (slightly higher) returns by implementing portfolio screening while only 2.3% (21%) thought the same for "engagement" – differences were statistically significant

19 pandemic, Pástor and Vorsatz (2020) show that investors favour funds that divest (net inflows) over those that don't (net outflows). Despite the recent shift from negative screening to ESG integration and engagement among New Zealand fund managers (Boele & Bayes 2020), empirical evidence suggests that there might be a positive relation between investors' preference for exclusion and the probability of becoming stated adopters.

Hypothesis 6: Investors that prefer exclusion are more likely to become stated adopters of EI than those investors who favour engagement.

Sources of information (independent vs. non-independent sources). Haigh (2008) finds that investors who use financial advisory services (a form of non-independent source) when purchasing social funds are less likely to experience information asymmetries (i.e., lack of information transparency/credibility) than those who do not have a financial advisor. Further, the more credible investors perceive information to be, the more likely for them to purchase social funds. Therefore, we expect investors that rely on either non-independent but qualified information sources (e.g., financial advisors, bankers, KiwiSaver providers) or independent qualified information sources (e.g., RIAA, Mindful Money, government website) to be more likely to invest ethically.

Hypothesis 7: Investors that use non-independent but qualified or independent qualified sources of information when seeking financial information or advice are more likely to become stated adopters of EI than those who make investment decisions with their guts or rely on non-qualified information when making investment decisions.

3.3 Attitudinal Variables

SEE considerations, PCE and trust. Social, environmental and ethical considerations (*SEE*), perceived consumer effectiveness (*PCE*) and trust in pro-social claims made by EI

at a 1% level; (2) 6.5% (22.8%) perceive much lower (slightly lower) returns by implementing portfolio screening while only 6.6% (23.3%) thought the same for "engagement" – though without any statistical difference; (3) finally, 19.2% and 24.5% believe portfolio screening and engagement has no effect on their retirement benefits, respectively - differences were statistically significant at a 1% level.

products (*Trust*) were found to be important in explaining investors' propensity to invest ethically.

Concerning SEE considerations and PCE on social/environmental outcomes, Rosen *et al.* (1991) report that ethical investors tend to have a high level of perceived effectiveness in EI. McLachlan and Gardner (2004) deduce that ethical investors tend to rate all ethical issues as being more important than conventional investors and generally perceive higher levels of moral intensity than conventional investors. Haigh (2008) finds that investors are motivated to invest in social investment products if they believe investing in social funds can influence corporate behaviour. Nilsson (2008) finds that investors with high levels of pro-social attitudes (*PSA*) towards issues relevant to ethical investing and *PCE* in EI invest a greater proportion of their portfolios in ethical mutual funds. Pérez-Gladish *et al.* (2012) document a positive relation between investors' social and health considerations and the proportion of budget invested in EI funds, however the coefficient on the PCA score capturing investors' environmental considerations is not statistically significant. Their results indicate that Australian ethical investors are more focused on social and health issues than environmental issues. Jansson *et al.* (2014) report that higher levels of SEE considerations lead to significantly higher EI preference, and self-transcendent value, through SEE considerations, yields a significant positive effect on respondents' EI preference. Diouf *et al.* (2016) found investors' awareness of ESG issues to be a powerful predictor of the likelihood of holding an EI portfolio. Wins and Zwergel (2016) show that investors' involvement in EI is largely driven by *PSA* towards EI and *PCE*. By employing the Classification Tree method, the authors further identified four important factors in distinguishing different types of investors (i.e., ethical investors, interested investors, and conventional investors): *PSA*, *PCE*, *SEE*, and the investors' average knowledge of EI terms (*Knowledge*). The study finds that most conventional investors consider *SEE* issues as unimportant for their investment process and are particularly doubtful about ethical funds'

effectiveness which leads to lower *PCE* values. On the contrary, ethical investors state higher values for *PCE*, *PSA*, and *Knowledge*. Compared to ethical investors, interested investors exhibit slightly lower *PSA* values but a much lower level of knowledge about EI terms. Riedl and Smeets (2017) find that intrinsic social preferences[24] is the most important factor driving EI adoption. The authors further claim that strong social preferences is a prerequisite for holding EI funds, but do not necessarily lead to a higher proportion of investment portfolio allocated to EI. Similarly, high perceived effectiveness of EI on social outcomes positively contributes to EI adoption but has no effect on the percentage of investment dedicated to EI. Contrary to Pérez-Gladish *et al.* (2012), Siemroth and Hornuf (2021) observe that investors who attach more importance to positive environmental impact tend to invest more in green projects, whereas investors' perceived importance of social impact does not have any explanatory power towards the percentage of investment portfolio allocated to green projects – results are similar for both experimental and survey measures.

In terms of trust toward EI providers/products, while Nilsson (2008) and Wins and Zwergel (2016) find investors' trust in pro-social claims made in EI to be unimportant in explaining ethical investing behaviour, Gutsche and Zwergel (2016)'s probit[25] (multinomial logit[26]) results show that investors who distrust EI providers are less likely to become actual adopters (interested investors), but have a higher tendency of becoming potential adopters (sceptical or conventional investors). These results lead to:

[24] As captured by a trust game. If the second mover choose not to send back any money then he/she is considered to have low social preference.

[25] Dependent variables: two dummy variables indicating whether an investor belongs to the actual adopters/ potential adopters' group

[26] Dependent variable: investor type, a nominal variable takes the value of one if the respondent is an actual adopter and will continue to invest in EI in the future (actual adopters), takes the value of two if the respondent is currently investing in EI but does not plan to purchase EI products in the future (sceptical investors), takes the value of three if the respondent hasn't invested in EI but is interested (potential adopters), and takes the value of four if the investor has not invested in EI and does not plan to purchase any EI products in the future (conventional investors)

Hypothesis 8: Investors with a higher level of SEE considerations are more likely to become stated adopters than those with relatively low SEE considerations.

Hypothesis 9: Investors with a higher level of PCE of EI on social and/or environmental outcomes are more likely to become stated adopters than those with low PCE.

Hypothesis 10: Investors who have more trust in EI are more likely to become stated adopters than those who don't.

4. Data and Methodology

4.1 Data

This study uses data sourced from the 2020 survey conducted by Mindful Money and RIAA. The survey was conducted in September 2020 with 1,031 online participants aged 18 and over participating. Our data provider employed a routing technology to ensure that the sample is nationally representative of the NZ adult population by age, gender, and region. Socio-demographic data, including age, gender, area type (i.e., rural/ suburban/ urban) and region (i.e., Auckland/ Wellington/ Other North Island/ Canterbury/ Other South Island), highest educational level, and annual household income were collected for all survey respondents. Survey participants had to have a KiwiSaver account or have other financial investments to complete the survey.[27] The survey section contains seventeen questions concerning respondents' investment behaviour, past knowledge about ethical investing, and attitudes towards ethical investing and various social & environmental issues. The data used in this study is anonymous.

[27] Only those who either have a KiwiSaver (Q1_1=1) account or other have financial investments (Q1_4=1) are allowed to proceed to Question 3 to Question 10, Question 14, Question 16, and Question 17. Thus, we have 831 observations for the aforementioned questions. Question 11 to Question 13, Question 15 and Question 18 have 994 available observations, this is because participants who do not have a KiwiSaver account and do not intend to get one (Q1_3=1), who have no investment activity (Q1_9=1), and who are not sure about their investment activities (Q1_10=1) have been excluded from answering those questions.

We compare our sample distribution to the latest New Zealand 2018 census data[28] retrieved from Stats NZ.[29] From Panels A and B of Table 1, the survey respondents are representative of the larger New Zealand population, especially for age, gender, urban domicile, and region. Our sample seems to be better educated than the New Zealand population and contains a lower proportion of people who are extremely poor or extremely rich. As stated before, our sample only contains investors that are aged 18 and over. When a given variable in the New Zealand 2018 Census database has the breakdown of each category as a percentage of total New Zealanders aged 18 and over (i.e., for age and gender), we compare like with like. When such information is not available, we compare the survey's 18+ percentage with New Zealand Census's overall percentage (i.e., for annual household income, urban domicile and region) or 15+ percentage (i.e., for education).

[Insert Table 1 here]

4.2 Variable Construction

4.2.1 Dependent Variables

This paper aims to investigate the underlying factors that drive the decision of New Zealanders to invest ethically. Our main dependent variable measures investor type. In the survey, participants were asked "*When, if ever, would you be most likely to consider investing in responsible and ethical KiwiSaver funds/ investments or companies?*". We classify investors whose responses were "already doing this" as stated adopters, investors who selected "will consider in the next 12 months", "will consider in the next 5 years", or "will never consider doing so" as interested or conventional investors. Our dependent variable, ***STATED_ADOPTERS***, takes the value of one if the respondent is a stated adopter of EI, and zero otherwise.

[28] The official count of population and dwellings in New Zealand that are run every five years. The latest census was held on 6th March 2018.
[29] Stats NZ Database.

It is also interesting to see whether ethical investors have different return perceptions compared to other survey respondents, and whether ethical investors are willing to sacrifice returns in favour of moral commitments. Note that in past literature, perception of EI return has been used as an independent variable explaining investor type.[30] While past surveys make

[30] Past literature suggests that investors who believe ethical investing provides superior performance than traditional investment products are more likely to invest ethically (Rosen et al. 1991; Williams 2007; Nilsson 2008; Dorfleitner & Utz 2014; Bauer & Smeets 2015; Diouf et al. 2016; Siemroth & Hornuf 2021). This is because the primary purpose of investing is to receive financial returns (Nilsson 2008). Investors will be motivated to invest ethically if they believe EI products can produce good financial performance (Haigh 2008; Nilsson 2008; Diouf et al. 2016), even for those who are not concerned with social issues (Michelson et al. 2004). McLachlan and Gardner (2004) observe that ethical investors are not statistically different from non-SR investors in terms of their views on the importance of financial return on investment. Vyvyan et al. (2007) look at the top factors driving environmentalists' and non-environmentalists' investment decisions. Interestingly, they find that both groups are primarily concerned with wealth maximisation, followed by fund rating and fund fees, and are less concerned with fund inclusion/ exclusion strategies. Further, environmentalists are found to be no more likely than non-environmentalists to be influenced by a company's environmental management systems and company's engagement in non-ethical activities (e.g., alcohol, tobacco, gambling and weapon) when making investment choices. Haigh (2008) finds diversification of investment portfolio and/or achieving superior financial performance to be the third biggest motivation for investors to purchase EI products. Jansson and Biel (2011) report that while retail investors' short-term return perception of EI does not have any explanatory power on their EI investment intention, the perception of better long-term performance of EI significantly increases the likelihood of respondents' willingness to invest in EI in the future. Pérez-Gladish et al. (2012) employ a principal component analysis (PCA) in constructing three variables capturing factors that are perceived to be important by investors when choosing an investment product – one for fees, one for age/size of the fund, and one for performance. Interestingly, the authors document a negative (positive) relation between the PCA score and the proportion of budget invested in EI funds for those with a focus on fees (performance), whilst no relation could be found between the PCA score capturing investors' focus on the age/size of the fund and their proportion of investment portfolio devoted in EI, indicating that Australian ethical investors are performance and fee conscious. Escrig‐Olmedo et al. (2013) find that while a lower percentage of ethical investors choose EI in hope of higher returns and/or put more emphasis on returns over social, environmental, and ethical aspects compared to the whole sample (consisting of both ethical and non-ethical investors), the percentage of respondents that value financial returns most is the highest among all four choices (i.e., returns, ethical aspects, social aspects, environmental aspects) among ethical investors, and there is little difference between ethical investors' perception of EI return compared to the whole sample. Jansson et al. (2014) observe that Swedish pension fund investors believe EI performs better in the long term than in the short term. Nevertheless, an average score of below 3.0 suggests that investors on average perceive EI to perform slightly worse than traditional investments. The authors also report a significant and positive association between higher EI return perception and EI preference (as measured by two general questions and three scenario-based questions). Results from a field experiment conducted by Døskeland and Pedersen (2016) also suggest that wealth-framing investors (i.e., those that received information framing responsible investments to be financially attractive) are more likely than their moral-framing counterparts (i.e. those that received information framing responsible investments as a way to contribute to a just and sustainable economy by having incorporating higher moral standards when it comes to investments) in terms of their willingness to receive additional EI information and the probability of purchasing EI products. Wins and Zwergel (2016) report that current ethical investors are more optimistic about EI returns than former and interested ethical investors (INT) and conventional investors (CONV). Consistent with Lewis and Mackenzie (2000a), the authors claim that although current ethical investors show more fund loyalty when EI funds underperform traditional investments, ethical investors are found to be much more sensitive to potential gains than to potential losses, whereas former ethical investors and interested investors' elasticity for gains and losses is much more symmetric. Riedl and Smeets (2017) find that only a small percentage of ethical investors and conventional investors expect higher returns from EI compared to conventional investments, with ethical investors being slightly less pessimistic than their conventional counterparts. Further, their probit regression results suggest that investors who expect EI to underperform conventional investments are less likely to hold an EI equity fund. There is no evidence that high

it difficult to unwind causality issues, the way that the question was constructed in the Mindful Money/RIAA survey makes the perception of return variable more of an ex-post rather than an ex-ante measure. Thus, we constructed the following dependent variables for further analysis:

PERC_RETURN: measures respondents' perception of EI return compared to traditional investments. ***PERC_RETURN*** takes the value of one if the respondent strongly disagrees or disagrees with the statement '*Responsible and ethical KiwiSaver and other investments perform better in the long term*', takes the value of two if the respondent agrees with the statement, and takes the value of three if the respondent strongly agrees that responsible and ethical investments outperform in the long run.

WILLINGNESS: measures respondents' willingness to sacrifice. In the survey, respondents were asked "*Would you be prepared to invest in a KiwiSaver scheme/ an investment scheme or company that invested only in companies that create positive benefits for society and the environment?*". ***WILLINGNESS*** takes the value of one if the respondent is not willing to invest in the aforementioned schemes, takes the value of two if the respondent is willing to do so given that the scheme has a return as high as a standard one, and takes the value of three if the respondent is willing to do so even if the return is lower.

return perception leads to a higher likelihood of investing socially responsibly. The authors further conclude that ethical investors are willing to sacrifice, given that a majority of them perceive EIs to underperform yet are willing to pay significantly higher management fees on EI. Rossi et al. (2019) document that 24% (ranked 4th) of ethical investors are motivated by better-perceived returns compared to traditional investments, whereas only 11.1% of conventional investors are discouraged by low yields or high costs associated with EI. The authors also observe a positive relationship between higher expected EI return and the probability of choosing EI. Further, even though survey respondents are willing to sacrifice returns for social responsibility, they exhibit a higher willingness to invest in EI when the expected return loss compared to traditional investments is lower. In terms of respondents' attitude towards extra engagement and portfolio screening based on four rather than three SDGs, Bauer et al. (2021) observe that investors who perceive lower returns from the implementation of four SDGs are less likely to vote in favour of the four-SDG option, whereas investors that believe implementing four SDGs to provide better financial returns compared to three SDGs more than doubles the likelihood of choosing the four-SDG option over other options (i.e., "three-SDG" or "no opinion") compared to the base category (i.e., those who perceive similar returns). In terms of respondents' attitude towards extra engagement and portfolio screening based on the four SDGs, the authors document an increase (a decline) in the probability of supporting engagement or screening for those with higher (lower) perceived returns with more engagement.

4.2.2 Explanatory Variables

Based on the available information obtained from survey respondents, the explanatory variables are defined in Table A1 of the Appendix. The information for the construction of the two SEE variables using principal component analysis is reported in Table A2 of the Appendix.

4.3 Methodology

As mentioned in Section 4.2.1, the main dependent variable to be used in this study, ***STATED_ADOPTERS***, is a dummy variable capturing investors' type (1 = stated adopters of EI, 0 = interested investors or conventional investors). Probit regression is used to ascertain the important factors in determining investor type as given by Equation (1).

$$STATED\_ADOPTERS_i = \alpha + \sum_{n=1}^{N} \beta_n DEMOGRAPHIC_{n,i} + \sum_{m=1}^{M} \gamma_r BEHAVIOURAL_{m,i} + \sum_{r=1}^{R} \delta_r ATTITUDINAL_{r,i} + \in_i \quad (1)$$

where *DEMOGRAPHIC* is a vector of N investors' socio-demographic characteristics, including age, gender, education, EI knowledge, area type and annual household income; *BEHAVIOURAL* is a vector of M investor behavioural-related explanatory variables, including preferred investment strategy, and sources of information used when seeking financial information or advice; and *ATTITUDINAL* is a vector of R attitudinal variables, including social considerations, environmental considerations, perceived consumer effectiveness on social outcomes, perceived consumer effectiveness on environmental outcomes, and trust in EI. β, γ, and δ represent the vectors of regression coefficients that we wish to estimate.

Next, we investigate whether investor type explains investors' perception of EI return in the long run, and investors' willingness to invest in a scheme that only contains pro-social and pro-environmental firms given different return scenarios. The relationships are tested using ***PERC_RETURN*** and ***WILLINGNESS*** as dependent factors in ordered probit models given by Equations (2) and (3).

$$PERC\_RETURN_i = \alpha + \varphi_1 STATED\_ADOPTERS_i + \sum_{n=1}^{N} \beta_n DEMOGRAPHIC_{n,i} + \sum_{m=1}^{M} \gamma_r BEHAVIOURAL_{m,i} + \sum_{r=1}^{R} \delta_r ATTITUDINAL_{r,i} + \in_i \quad (2)$$

$$WILLINGNESS_i = \alpha + \varphi_1 STATED\_ADOPTERS_i + \sum_{n=1}^{N} \beta_n DEMOGRAPHIC_{n,i} + \sum_{m=1}^{M} \gamma_r BEHAVIOURAL_{m,i} + \sum_{r=1}^{R} \delta_r ATTITUDINAL_{r,i} + \in_i \quad (3)$$

STATED_ADOPTERS is the main variable of interest. We controlled for the same set of socio-demographic, behavioural and attitudinal variables as those being included in Equation (1).

5. Results

5.1 Univariate analysis

92 respondents indicated that they will never consider EI (classified as conventional investors); 522 respondents said they have not yet purchased any EI products but will consider EI in the next 12 months or the next 5 years (classified as potential adopters), and 217 respondents have already invested ethically (classified as stated adopters). Given that all of our variables are binary, categorical, or ordinal, we only report the percentage of responses for each category of the explanatory variables (see Table 2). Our univariate results suggest that there is a marked difference between stated adopters and non-adopters (including potential adopters and conventional investors). There is a larger percentage of stated adopters that are Baby Boomers, have high annual household income, prefer exclusion over engagement, have substantially high environmental considerations and perceived consumer effectiveness on social and environmental outcomes, trust EI fund providers, and perceive much better EI returns in the long run, especially compared to conventional investors. In addition, potential adopters seem to have insufficient EI knowledge compared to both stated adopters and conventional investors – that could be something that stopped them from having purchased EI funds. Moreover, only 22.83% (35.87%) of conventional investors get financial information or

advice from both (neither) independent qualified and (nor) non-independent qualified information sources, whereas 55.3% of stated adopters take advantage of both types of information to make financial decisions. Not surprisingly, we find that 21.69% of stated adopters are willing to invest in a scheme that only contains pro-social and/or pro-environmental firms even if it generates lower returns, whilst no conventional investor is willing to sacrifice financial benefits in favour of social responsibility.

[Insert Tables 2 here]

5.2 Multivariate analysis

5.2.1 Determinants of Adoption

[Insert Table 3 here]

The determinants of investor type are examined in Table 3 using probit regression. The first column only controlled for investors' socio-demographic characteristics, the second column contains socio-demographic and behavioural explanatory variables, whereas the third and the fourth column contains investors' socio-demographic characteristics and attitudes, and all possible controls, respectively.

Examining the results for the socio-demographic variable reports that consistent with Diouf *et al.* (2016), Gutsche and Zwergel (2016), and Wins and Zwergel (2016), we find that investor's past knowledge of EI relates positively to the probability of becoming stated adopters. This finding, along with the significantly positive coefficients on the 55+ age category (i.e., Baby Boomers), suggests that there is an urgent need for raising awareness of ethical investing in New Zealand, especially among the young. Indeed, RIAA and Mindful Money (2022)'s recent survey finds that compared to 18+ Generation Z and Millennials, the percentage of respondents that are familiar with EI terms is substantially higher among Baby Boomers. Apart from the higher knowledge base and awareness of EI, a possible explanation for the positive coefficient on the "55+" age group could be due to the documented positive

relation between age and risk aversion (Dohmen *et al.* 2011; Kurnianingsih *et al.* 2015). EI are generally perceived by retail investors to be less risky than traditional funds (Lewis & Mackenzie 2000a; Nilsson 2008; Jansson & Biel 2011; Dorfleitner & Utz 2014; Jansson *et al.* 2014; Bauer & Smeets 2015; Gutsche & Zwergel 2016; Wins & Zwergel 2016), and this low-risk perception associated with EI is in line with empirical evidence claiming that ethical considerations offer better risk protection (Verheyden *et al.* 2016; Shafer & Szado 2020; Ilhan *et al.* 2021), especially during crises and market downturns (Albuquerque *et al.* 2020; Broadstock *et al.* 2021; Yousaf *et al.* 2022). As we do not have any available data to measure and control for participants' risk attitudes, our results may indicate that older investors, who generally exhibit a lower level of risk tolerance, are more likely to invest in ethical funds. Further, many older people in New Zealand are thinking about the world they will leave behind them, and consequently have a strong interest in their funds not causing social or environmental harm. This is especially the case if they have grandchildren. It also explains the strong preference for exclusions for that age group, as shown in RIAA and Mindful Money (2022). Overall, apart from ***AGE_GROUP*** and ***KNOWLEDGE***, none of the socio-demographic variables shows any significance.

An examination of the behavioural variables shows that while the shift from exclusion to engagement has been a common theme in ethical investing in recent years (Scholtens & Sievänen 2013; Goodman *et al.* 2014; Scholtens 2014; Kolstad 2016), we find strong evidence that ethical investors in New Zealand have a strong preference for exclusion over engagement. The positive and significant coefficient on ***EXCLUSION*** suggests that ethical investors in New Zealand do not buy the "engagement" concept. Instead, they want to see their investments aligned with their values and don't want their money invested in companies they see are causing harm. Engagement is easier said than done. If NZ EI providers were to include engagement as part of their ESG agenda, they would need to provide more evidence on how

their organisations have been actively engaging with ethically problematic firms and show clients their achievements on a regular basis. More education about the importance of engagement is also needed in the New Zealand context.

The attitudinal variables report that consistent with Gutsche and Zwergel (2016), investors that have a higher level of trust in EI are more likely to become stated adopters. We also document significant and positive coefficients on "environmental considerations" and "perceived consumer effectiveness on environmental outcomes". Consistent with Siemroth and Hornuf (2021), similar results cannot be found on social-related variables. In contrast with Pérez-Gladish *et al.* (2012), who found Australian ethical investors to be less focused on environmental issues but are instead more concerned with social and health issues, our results suggest environmental concerns are the real discriminant in New Zealand. Thus, fund managers should consider prioritizing environmental themes when promoting EI products in New Zealand. Overall, in line with Wins and Zwergel (2016) and Siemroth and Hornuf (2021), we find that investors' EI adoption is largely driven by behaviours/attitudes rather than socio-demographic characteristics.

[Insert Table 4 here]

To better understand the incremental effect of changes in the factors affecting investor EI adoption decisions, we estimate the average marginal effects (AMEs) for each explanatory variable (compared to the base category) for regression model (4) which contains all predictors. The results are reported in Table 4.[31]

Investors' EI knowledge ranks the highest among all factors in predicting the additional increase in the probability of becoming stated adopters. Compared to the base category, where survey participants have no EI knowledge, having heard of EI and can explain additively

[31] Note that we chose to use average marginal effect (AME) over marginal effect at mean (MEM). With discrete predictors, taking the mean is not a very meaningful option, as it would give us results that do not apply to any observation in our dataset, and generally not to any possible combination of values that could ever be observed in reality.

increases investors' probability of being stated adopters by 25.5 percentage points. The large, significant and positive probability increase is followed by investors' trust in EI. Compared to those who distrust EI, investors who trust enjoy an 11.2 percent increase in their probability of becoming stated adopters. Investors' age also has a role to play - compared to 18+ Gen Z and Millennials, Baby Boomers are 11.0 percent more likely to become stated adopters. High perceived consumer effectiveness on environmental outcomes and high PCA score on environmental considerations additively increase investors' probability of becoming stated adopters by 10.8 and 9.8 percentage points, respectively. Last but not least, investors that prefer exclusion over engagement are 9.7 percent more likely to have purchased EI products.

[Insert Table 5 here]

We further explore whether certain investors' characteristics combinations lead to a higher probability of adopting EI. In unreported results, we find that while the exclusion effect (i.e., exclusion – engagement) is positive and significant for, say, investors of all age groups, the differences between each age group are not showing any statistical significance. The insignificant result holds for all combinations between ***EXCLUSION*** and other explanatory variables, except when ***EXCLUSION*** is intersected with ***KNOWLEDGE***. As shown in Table 5 Panel A, compared to those with no EI knowledge, the exclusion effect additively increases investors' probability of adopting EI by 5.3 percent for those that have sufficient EI knowledge. As shown Panel B, the knowledge effect (i.e., sufficient EI knowledge – no EI knowledge) is stronger for Baby Boomers (a 4.2 and 5.9 percent increase in the probability of adopting EI compared to Millennials/18+ Generation Z and Generation X, respectively), investors that prefer exclusion over engagement (a 5.3 percent increase in probability compared to those that prefer engagement), obtained EI knowledge via non-independent qualified information sources (a 6.0 percent increase in probability compared to those that rely on independent qualified information sources), have high environmental considerations (a 4.4 percent increase in

probability compared to those whose environmental considerations are low), have high perceived consumer effectiveness on environmental outcomes (a 5.2 percent increase in probability compared to those that perceive low consumer effectiveness on environmental outcomes), and for investors that trust (a 5.0 percent increase in probability compared to those that distrust EI).

The finding that investors who get financial information (including EI knowledge) and advice from non-independent qualified, compared to those that rely on independent qualified information sources, are more likely to adopt is quite concerning. This is because non-independent information sources, such as financial advisors, KiwiSaver providers, bankers, and/or other non-KiwiSaver financial service providers, may be involved in greenwashing activities due to the drastically increased demand for green investment products, the lack of consistent and quality ESG data, and their lack of expertise (Cowell & Weir 2020).[32] In a recent study, Liang *et al.* (2020) observe that greenwashing hedge funds underperform both genuinely green funds and brown funds, yet enjoy substantial financial gains from engaging in such activities - this provides incentives for asset managers and other financial practitioners to indulge in greenwashing activities by, say, rebranding their existing funds with an ESG label without altering their fundamental investment methodology (Cowell & Weir 2020). Further, the authors claim that investors do not seem to be able to differentiate between greenwashing funds and real-green funds – this is even more problematic, as such behaviour may affect investor welfare (Liang *et al.* 2020), investor's confidence in EI products, and the EI market as a whole (Delmas & Burbano 2011). We believe it is important to improve both the quality and the quantity of independent information sources, and to promote existing independent qualified ESG investing platforms such as RIAA and Mindful Money, so that investors could be better

[32] See Sustainable investing: Fast-forwarding its evolution (KPMG)

informed of recent investment trends and equipped with the knowledge to spot and avoid greenwashers.

We also observe that the environmental consideration effects (high minus low) tend to be stronger among Baby Boomers (a 1.6 and 2.2 percentage increase in probability compared to Millennials/18+ Generation Z and Generation X, respectively), investors with sufficient EI knowledge (a 4.4 and 3.2 percentage increase in probability compared to those with no EI knowledge and very limited EI knowledge, respectively), and investors with high PCE on environmental outcomes (a 1.9 percent increase in probability compared to those that have a low PCE on environmental outcomes). Similarly, the perceived consumer effectiveness effects (high minus low) are more evident for Baby Boomers as compared to Generation X (a 2.7% increase) and/or for investors with sufficient EI knowledge (as stated above); and the trust effects (trust minus distrust) lead to an additive increase in the probability of EI adoption for Baby Boomers (a 1.8 and 2.5 percentage increase in probability compared to Millennials/18+ Generation Z and Generation X, respectively) and/or for investors with sufficient EI knowledge (a 5.0 and 3.6 percentage increase in probability compared to those with no EI knowledge and very limited EI knowledge, respectively).

5.2.2 Determinants of Perception of EI Return and Willingness to Sacrifice

[Insert Table 6 here]

[Insert Table 7 here]

The determinants of perception of EI return and investor willingness to give up return are examined in Table 6 using ordered probit regression, and the average marginal effects are given in Table 7. We expect the direction of explanatory variables to be broadly in line with the hypotheses developed for EI adoption (See Section 3). Consistent with recent analyst reports[33],

[33] See Coronavirus: How ESG scores signalled resilience in the Q1 market downturn (AXA), Sustainable investing: Resilience amid uncertainty (BlackRock) Ethical funds perform well through Covid economic crisis, Putting sustainability to the test: ESG outperformance amid volatility (Fidelity International), (Mindful Money)

academic evidence (Albuquerque *et al.* 2020; Omura *et al.* 2020; Broadstock *et al.* 2021; Yousaf *et al.* 2022), and the 2020 RIAA report (Boele & Bayes 2020),[34] we find that stated adopters have had a good return experience from EI and are 15.6 percent more likely to believe that EI generates much better returns in the long run. The positive coefficient on ***EXCLUSION*** is in line with Bauer *et al.* (2021), who document that a larger proportion of survey respondents expect better returns from portfolio screening than from extra engagement. Consistent with RIAA and Mindful Money (2022), we observe that Baby Boomers tend to hold a more pessimistic view toward EI's long-term performance, and are 15.6 percent more likely to perceive EI underperformance, compared to younger Kiwis. Perceiving high consumer effectiveness on social outcomes, having high environmental considerations, and living in urban areas additively increase investors' probability of perceiving much better EI returns by 10.8, 5.9 and 5.6 percentage points, respectively.

Contrary to Lewis and Mackenzie (2000a) and Wins and Zwergel (2016)'s findings, stated adopters are NOT more willing to purchase EIs if they underperform traditional investments. The insignificant coefficient on ***STATED_ADOPTERS*** could be attributed to the construction of the variable i.e., the base category containing both potential adopters and conventional investors. From Table 2, one could see that while the percentage of stated/ potential adopters willing to sacrifice returns is substantially high compared to conventional investors, there is not much difference between stated adopters and potential adopters. We also find investors that perceive high consumer effectiveness on social outcomes, prefer exclusion strategies over engagement, have limited EI knowledge, and possess high environmental considerations stated a higher willingness to sacrifice returns in favour of ethical considerations (with a 14.8%,

How Does European Sustainable Funds' Performance Measure Up? (Morningstar) MSCI ESG Indexes during the coronavirus crisis (MSCI), Covid-19 and the performance of responsible investments (RIAA), Why companies with stronger ESG credentials should be expected to underperform…but won't (Schroders)

[34] The 2020 RIAA report claims New Zealand responsible investments multi-sector growth fund outperformed the market benchmark (i.e., Morningstar's multisector KiwiSaver index) for the 1-year, 3-year and 5-year time horizons.

10.9%, 10.8% and 9.0% increase in probability compared to the baseline categories, respectively). While Baby Boomers are more likely to have purchased EI funds, due to their negative attitudes towards EI returns, they tend to be less prepared to invest in a scheme that contains *only* firms that create positive benefits for society and the environment. One possible explanation here is that Baby Boomers are risk-driven, they invested in EI for diversification and risk reduction purposes rather than for value (i.e., positive returns) or values reasons (i.e., making a positive change to the world).

6. Discussion and Conclusion

Our study uses the survey data from the 2020 Mindful Money and RIAA survey to examine what factors influence the decision of New Zealanders to invest ethically. We also investigate how investor type is associated with an individual's perception of EI returns and willingness to sacrifice returns to meet higher ethical requirements.

We report a higher uptake of investment in EI for individuals aged 65 or older. This may be driven by risk aversion and the "low risk" perceptions associated with ethical funds by the retired population. While older investors are more likely to have purchased EI funds, they are less prepared to invest in schemes that contain only firms that create positive benefits for society and the environment, due to negative attitudes towards EI long-term performance. It seems that even though ethical investing is supported, returns on investment are still important to this group of investors' investment decisions.

Overall, our findings show that ethical investors in New Zealand are more concerned with environmental issues rather than social issues and perceive high consumer effectiveness on environmental outcomes. In addition, ethical investors currently do not adhere to the "engagement" concept as a vehicle for promoting more ethical investment choices. Rather, New Zealanders seem to be more comfortable with having fund managers remove the choices

that do not align with their values from the portfolio mix. Further, as a country, there is an urgent need to increase the awareness of ethical investing in New Zealand and this is especially critical amongst the younger generation. Finally, EI adopters are much more likely to perceive better returns from EI than potential adopters and conventional investors, suggesting that those that claim to have adopted EI have had a good return experience. Surprisingly, stated adopters are not values-driven i.e., they are not willing to sacrifice returns to invest ethically if need be.

Overall, our findings support several key policy outcomes. First, the results emphasise the importance of investor information and the need to increase the quality and quantity of independent qualified information sources to prevent potential greenwashing. The EI industry can also promote existing independent qualified ESG investing platforms, such as RIAA and Mindful Money, as resources to better inform and equip investors with the knowledge to identify and avoid greenwashed investment products. Second, EI decisions were driven for the most part by environmental concerns. If the EI community wants to increase the dollar value of EI, there needs to be a deliberate effort to provide credible information to raise investors' environmental consciousness. Third, our results show very clearly that ethical investors in New Zealand have a strong preference to exclude non-EI choices rather than engaging with firms currently not meeting acceptable ethical standards. Portfolio managers need to clearly demonstrate how their investment choices are excluding unethical environmental and social practices to attract greater investor support. Finally, our results suggest that stated adopters tend to be value- rather than values-driven. Thus, financial performance is critical to the investment decision.

This study has some limitations. First, Mindful Money and RIAA have run the annual responsible investment survey since 2018. The 2020 survey was not originally designed for our project; thus, our hypothesis and variable construction are partly driven by available data. The survey does not include all the socio-demographic, behavioural and attitudinal variables that

have been used in prior studies.[35] As a result, we are not able to control for these variables in our regression models. This means that the results may suffer from omitted variable bias.

Another concern is around the temporality and causality issues that are difficult to resolve. This study seeks to understand how investors' demographic characteristics, behaviours and attitudes today affect their EI decisions in the future. However, investors' demographic information, their attitudes and certain behaviours were measured at the time when the investor completed the survey, whereas investor type represents either an investor's past behaviour (for the stated adopter group) or an investor's current self-assessed willingness to become a potential adopter/remain as a conventional investor. This study uses investors' current demographic, behavioural and attitudinal variables as proxies for their past characteristics. We understand this approach may not be ideal and may lead to biased results, but there is nothing

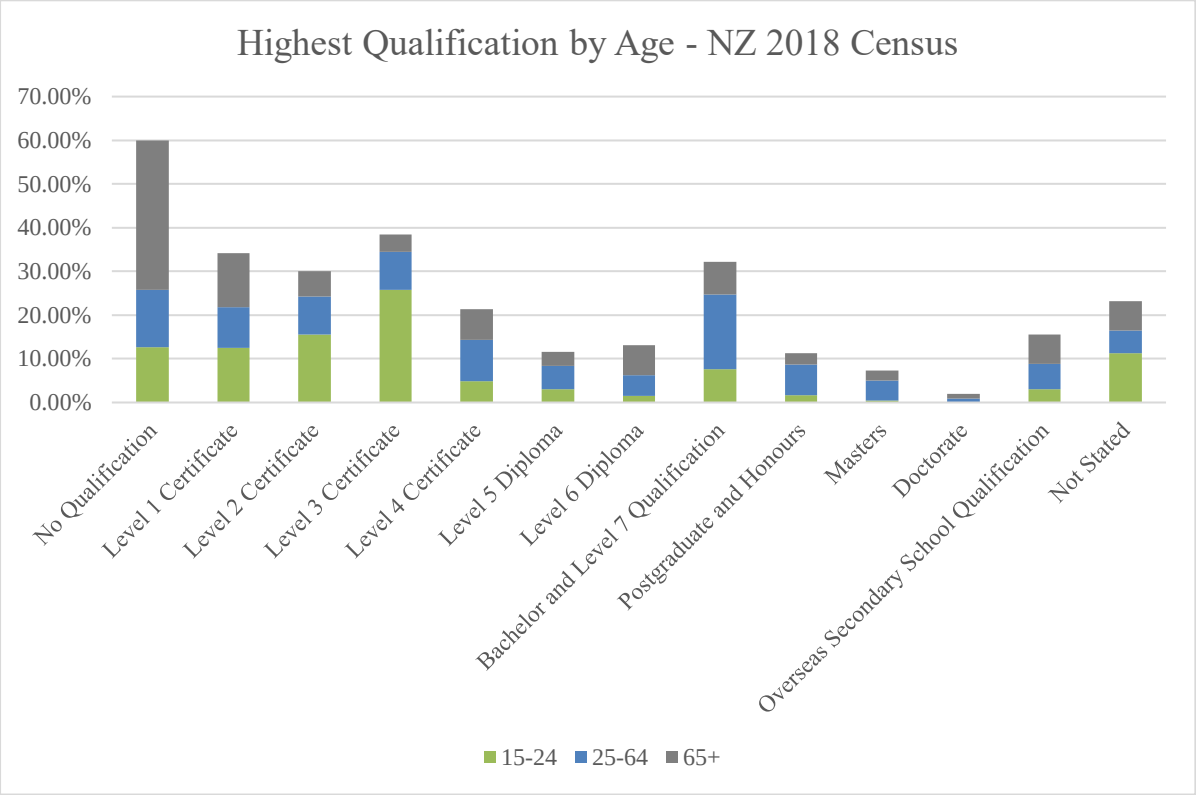
[35] For instance, we couldn't find corresponding questions for some important explanatory variables that have been widely used in past literature, including socio-demographic variables such as job occupation or employment status (Beal & Goyen 1998; Lewis & Mackenzie 2000a; Tippet & Leung 2001; Williams 2007; Junkus & Berry 2010; Berry & Junkus 2013; Escrig‐Olmedo *et al.* 2013; Diouf *et al.* 2016; Hoffmann *et al.* 2019), marital status (Beal & Goyen 1998; Junkus & Berry 2010; Pérez-Gladish *et al.* 2012; Berry & Junkus 2013; Peifer 2014; Wins & Zwergel 2016), parenthood (Pérez-Gladish *et al.* 2012; Wins & Zwergel 2016), religion (Lewis & Mackenzie 2000a; Williams 2007; Pérez-Gladish *et al.* 2012; Peifer 2014), altruism (McLachlan & Gardner 2004) and/or self-transcendent orientation (Jansson & Biel 2011; Jansson *et al.* 2014), political stance (Lewis & Mackenzie 2000a; Hoffmann *et al.* 2019; Anderson & Robinson 2021; Bauer *et al.* 2021), wealth (Beal & Goyen 1998; Dorfleitner & Utz 2014; Bauer & Smeets 2015; Gutsche & Zwergel 2016; Rossi *et al.* 2019), financial literacy (Pérez-Gladish *et al.* 2012; Borgers & Pownall 2014; Bauer & Smeets 2015; Riedl & Smeets 2017; Anderson & Robinson 2021) and environmental literacy (Anderson & Robinson 2021); behavioural and attitudinal variables such as smoking and/or drinking behaviour (Borgers & Pownall 2014), voluntary activities (Rosen *et al.* 1991; Dorfleitner & Utz 2014; Wins & Zwergel 2016), charity donations (Rosen *et al.* 1991; Nilsson 2009), whether the investor punish unethical firms as a consumer (Rosen *et al.* 1991; Vyvyan *et al.* 2007; Williams 2007), composition of investment portfolio (Dorfleitner & Utz 2014; Bauer & Smeets 2015), portfolio diversification (Beal & Goyen 1998; Tippet & Leung 2001; Nilsson 2009), investment horizon (Nilsson 2009; Pérez-Gladish *et al.* 2012; Dorfleitner & Utz 2014; Riedl & Smeets 2017), long-term focus in investments (Beal & Goyen 1998; Nilsson 2009; Pérez-Gladish *et al.* 2012), trading frequency (Nilsson 2009; Riedl & Smeets 2017), number of years as an investor (Nilsson 2009), investment management style (Nilsson 2009; Diouf *et al.* 2016), risk tolerance (Rosen *et al.* 1991; Nilsson 2009; Pérez-Gladish *et al.* 2012; Borgers & Pownall 2014; Jansson *et al.* 2014; Bauer & Smeets 2015; Diouf *et al.* 2016; Riedl & Smeets 2017; Hoffmann *et al.* 2019), investment confidence (Nilsson 2009; Jansson *et al.* 2014), perception of ethical investments' risk compared to traditional investments (Lewis & Mackenzie 2000a; Nilsson 2008; Jansson & Biel 2011; Escrig‐Olmedo *et al.* 2013; Dorfleitner & Utz 2014; Jansson *et al.* 2014; Bauer & Smeets 2015; Gutsche & Zwergel 2016; Wins & Zwergel 2016; Riedl & Smeets 2017), perception of ethical investments' fees (Vyvyan *et al.* 2007; Haigh 2008; Pérez-Gladish *et al.* 2012; Gutsche & Zwergel 2016), relative importance of performance vs. fee vs. size/age/reputation when choosing a fund (Vyvyan *et al.* 2007; Pérez-Gladish *et al.* 2012), relative importance of non-financial issues (e.g., ESG) vs. financial issues (e.g., risk, return, liquidity, fee) when making investment decisions (Vyvyan *et al.* 2007; Williams 2007; Cheah *et al.* 2011; Escrig‐Olmedo *et al.* 2013; Dorfleitner & Utz 2014; Wins & Zwergel 2016), relative importance of risk vs. return vs liquidity when making investment decisions (Dorfleitner & Utz 2014), and investors' perceived knowledge of their financial advisors (Diouf *et al.* 2016).

much we can do given that the survey contains only cross-sectional data and we do not have suitable instruments for endogenous predictors.

Finally, respondents may have identified themselves as adopters of EI if they have purchased investment products that are claimed to be “ethical”. However, it is hard for them to tell whether these funds are genuinely green or not (Liang *et al.* 2020). Hence, there is a risk that people may have overstated their EI participation.

Figures

Figure 1



Tables

Table 1 – Mindful Money/RIAA Survey Data vs. New Zealand 2018 Census

Panel A: **Age and Region**						
Age	**18-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65+**
Mindful Money	12.93%	16.19%	18.07%	18.26%	16.88%	17.67%
NZ 2018 Census	12.19%	18.40%	16.32%	17.52%	15.68%	19.89%
Region	**Auckland**	**Wellington**	**Other North Island**	**Canterbury**	**Otago**	**Other South Island**
Mindful Money	33.46%	11.06%	32.08%	13.13%	4.94%	5.33%
NZ 2018 Census[36]	33.45%	10.79%	32.26%	12.76%	4.79%	5.95%
Panel B: **Gender, Education, Urban Domicile, and Annual Household Income**						
	Male	**Female**	**No Uni Degree**	**Uni Degree**	**Postgrad Degree**	**Rural**	**Urban & Suburban**
Mindful Money	47.78%	51.73%	57.10%[37]	28.20%[31]	14.70%[31]	12.83%	87.17%
NZ 2018 Census	48.77%	51.23%	75.18%[38]	14.63%[32]	10.19%[32]	15.87%[39]	84.13%[33]
INCOME	**< $20K**	**$20K - $30K**	**$30K – 50K**	**$50K - $70K**	**$70K - $100K**	**$100K - $150K**	**> $150K**
Mindful Money[31]	6.75%	9.04%	17.85%	18.19%	18.76%	17.96%	11.44%
NZ 2018 Census[40]	8.92%	9.90%	14.76%	13.40%	15.87%	19.33%	17.83%

[36] As a percentage of total excluding Area Outside Region (AOR)
[37] As a percentage of 18+ total stated
[38] As a percentage of 15+ total stated
[39] As a percentage of the total population
[40] As a percentage of 0+ total stated

Table 2 – Percentage of Response for Binary/Ordinal/Categorical Variables

Descriptive for Binary, Ordinal and Categorical Variables		Stated Adopters		Potential Adopters		Conventional Investors		Non-Adopters (aka Potential/ Conv.)		% Diff Stated vs. Potential	% Diff Stated vs. Conv.	% Diff Stated vs. Non-Adopters
		Freq.	Perc.	Freq.	Perc.	Freq.	Perc.	Freq.	Perc.			
AGE_GROUP	Millennials and 18+ Gen Z (18-39)	73	33.641	251	48.084	16	17.391	267	43.485	-14.444	16.249	-9.845
	Gen X (40-54)	55	25.346	153	29.310	26	28.261	179	29.153	-3.965	-2.915	-3.807
	Baby Boomers (55+)	89	41.014	118	22.605	50	54.348	168	27.362	18.408	-13.334	13.652
	Total	**217**	**100.000**	**522**	**100.000**	**92**	**100.000**	**614**	**100.000**			
FEMALE	Male	113	52.558	210	40.462	67	72.826	277	45.336	12.096	-20.268	7.222
	Female	102	47.442	309	59.538	25	27.174	334	54.664	-12.096	20.268	-7.222
	Total	**215**	**100.000**	**519**	**100.000**	**92**	**100.000**	**611**	**100.000**			
UNIVERSITY	No university degree	117	55.189	268	52.039	57	63.333	325	53.719	3.150	-8.144	1.470
	University or postgraduate qualification	95	44.811	247	47.961	33	36.667	280	46.281	-3.150	8.144	-1.470
	Total	**212**	**100.000**	**515**	**100.000**	**90**	**100.000**	**605**	**100.000**			
KNOWLEDGE	Never heard of EI or not sure	45	20.737	219	41.954	35	38.043	254	41.368	-21.217	-17.306	-20.631
	Heard of EI but cannot explain	54	24.885	168	32.184	18	19.565	186	30.293	-7.299	5.320	-5.408
	Heard of EI and can explain	118	54.378	135	25.862	39	42.391	174	28.339	28.516	11.987	26.039
	Total	**217**	**100.000**	**522**	**100.000**	**92**	**100.000**	**614**	**100.000**			
INCOME_GROUP	Less than $50,000	51	26.563	134	29.130	28	38.889	162	30.451	-2.567	-12.326	-3.888
	$50,001-$100,000	69	35.938	179	38.913	26	36.111	205	38.534	-2.975	-0.173	-2.596
	$100,001 and above	72	37.500	147	31.957	18	25.000	165	31.015	5.543	12.500	6.485
	Total	**192**	**100.000**	**460**	**100.000**	**72**	**100.000**	**532**	**100.000**			
URBAN	Rural or Suburban	145	66.820	353	67.625	62	67.391	415	67.590	-0.805	-0.571	-0.770
	Urban	72	33.180	169	32.375	30	32.609	199	32.410	0.805	0.571	0.770
	Total	**217**	**100.000**	**522**	**100.000**	**92**	**100.000**	**614**	**100.000**			
INFO_SOURCE	Neither	25	11.521	70	13.410	33	35.870	103	16.775	-1.889	-24.349	-5.254
	Independent qualified only	25	11.521	95	18.199	15	16.304	110	17.915	-6.678	-4.783	-6.394
	Non-independent but qualified only	47	21.659	100	19.157	23	25.000	123	20.033	2.502	-3.341	1.626
	Both	120	55.300	257	49.234	21	22.826	278	45.277	6.066	32.474	10.023
	Total	**217**	**100.000**	**522**	**100.000**	**92**	**100.000**	**614**	**100.000**			
EXCLUSION	Engagement	22	11.168	68	15.385	23	38.983	91	18.164	-4.217	-27.815	-6.996
	Exclusion	175	88.832	374	84.615	36	61.017	410	81.836	4.217	27.815	6.996
	Total	**197**	**100.000**	**442**	**100.000**	**59**	**100.000**	**501**	**100.000**			
SEE_SOC	Low	68	31.336	150	28.736	17	18.478	167	27.199	2.601	12.858	4.138
	Moderate	90	41.475	212	40.613	51	55.435	263	42.834	0.862	-13.960	-1.359
	High	59	27.189	160	30.651	24	26.087	184	29.967	-3.462	1.102	-2.778
	TOTAL	**217**	**100.000**	**522**	**100.000**	**92**	**100.000**	**614**	**100.000**			
SEE_ENV	Low	61	28.111	181	34.674	64	69.565	245	39.902	-6.564	-41.455	-11.792
	Moderate	59	27.189	171	32.759	20	21.739	191	31.107	-5.570	5.450	-3.919
	High	97	44.700	170	32.567	8	8.696	178	28.990	12.133	36.005	15.710
	TOTAL	**217**	**100.000**	**522**	**100.000**	**92**	**100.000**	**614**	**100.000**			
PCE_S	Low	52	23.963	187	35.824	75	81.522	262	42.671	-11.861	-57.559	-18.708
	High	165	76.037	335	64.176	17	18.478	352	57.329	11.861	57.559	18.708
	Total	**217**	**100.000**	**522**	**100.000**	**92**	**100.000**	**614**	**100.000**			
PCE_E	Low	69	31.797	239	45.785	76	82.609	315	51.303	-13.988	-50.812	-19.506

	High	148	68.203	283	54.215	16	17.391	299	48.697	13.988	50.812	19.506
	Total	**217**	**100.000**	**522**	**100.000**	**92**	**100.000**	**614**	**100.000**			
	Distrust	51	25.628	143	30.753	46	54.118	189	34.364	-5.125	-28.490	-8.736
TRUST	Neither trust nor distrust	92	46.231	228	49.032	31	36.471	259	47.091	-2.801	9.760	-0.860
	Trust	56	28.141	94	20.215	8	9.412	102	18.545	7.926	18.729	9.596
	Total	**199**	**100.000**	**465**	**100.000**	**85**	**100.000**	**550**	**100.000**			
	Much worse or worse	24	11.060	100	19.157	57	61.957	157	25.570	-8.097	-50.897	-14.510
PERC_RETURN	Better	136	62.673	371	71.073	31	33.696	402	65.472	-8.400	28.977	-2.799
	Much better	57	26.267	51	9.770	4	4.348	55	8.958	16.497	21.919	17.309
	Total	**217**	**100.000**	**522**	**100.000**	**92**	**100.000**	**614**	**100.000**			
	No	9	4.762	33	7.383	31	47.692	64	12.500	-2.621	-42.930	-7.738
WILLINGNESS	Yes, given return is the same	139	73.545	320	71.588	34	52.308	354	69.141	1.957	21.237	4.404
	Yes, even if return is lower	41	21.693	94	21.029	0	0.000	94	18.359	0.664	21.693	3.334
	Total	**189**	**100.000**	**447**	**100.000**	**65**	**100.000**	**512**	**100.000**			

Table 3 – Probit Regression Results

	Demographics Only	Demographics + Behavioural	Demographics + Attitudinal	All Predictors
Age group (Base: Millennials and 18+ Gen Z (18-39))				
Gen X (40-54)	0.039	-0.000	-0.046	-0.114
	(0.773)	(0.998)	(0.758)	(0.472)
Baby Boomers (55+)	0.393***	0.332**	0.439***	0.363**
	(0.003)	(0.019)	(0.002)	(0.019)
Gender (Base: Male)				
Female	0.100	0.018	0.067	-0.007
	(0.377)	(0.885)	(0.595)	(0.956)
Education (Base: No university degree)				
University or postgraduate qualification	-0.151	-0.141	-0.209*	-0.189
	(0.193)	(0.258)	(0.095)	(0.162)
EI knowledge (Base: Never heard of EI or not sure)				
Heard of EI but cannot explain	0.295**	0.161	0.289*	0.179
	(0.038)	(0.302)	(0.065)	(0.296)
Heard of EI and can explain	0.837***	0.829***	0.829***	0.849***
	(0.000)	(0.000)	(0.000)	(0.000)
Annual household income (Base: Less than $50,000)				
$50,001-$100,000	-0.002	-0.027	-0.029	-0.062
	(0.986)	(0.847)	(0.841)	(0.686)
$100,001 and above	0.140	0.158	0.158	0.167
	(0.323)	(0.306)	(0.304)	(0.309)
Type of area that the respondent lives in (Base: Rural or suburban)				
Urban	0.074	0.052	0.100	0.117
	(0.518)	(0.677)	(0.413)	(0.377)
Preferred investment strategy (Base: Engagement)				
Exclusion		0.450***		0.361**
		(0.009)		(0.047)
Sources of information used when getting financial information or advice (Base: Neither independent qualified nor non-independent qualified)				
Independent qualified		-0.239		-0.112
		(0.296)		(0.663)
Non-independent but qualified		0.195		0.355
		(0.337)		(0.128)
Both		0.135		0.103
		(0.457)		(0.632)
Social considerations (Base: Low)				
Moderate			-0.043	-0.012
			(0.750)	(0.935)
High			0.033	0.018
			(0.831)	(0.911)
Environmental considerations (Base: Low)				
Moderate			0.104	0.112
			(0.478)	(0.488)
High			0.310**	0.336**
			(0.033)	(0.038)
Perceived consumer effectiveness on social outcomes (Base: Low)				
High			0.110	0.105
			(0.489)	(0.543)
Perceived consumer effectiveness on environmental outcomes (Base: Low)				

High			0.385**	0.377**
			(0.012)	(0.021)
Trust in EI (Base: Distrust)				
Neither trust nor distrust			0.162	0.215
			(0.221)	(0.137)
Trust			0.341**	0.385**
			(0.032)	(0.023)
Constant	-1.266***	-1.566***	-1.802***	-2.157***
	(0.000)	(0.000)	(0.000)	(0.000)
N	712	606	644	555
Pseudo R^2	0.075	0.096	0.129	0.148

p-values in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4 – Average Marginal Effects (AMEs) Using Equation (4) – Compared to Base Category

	Probability	p-value
Age group (Base: Millennials and 18+ Gen Z (18-39))		
Gen X (40-54)	-0.031	(0.468)
Baby Boomers (55+)	0.110**	(0.021)
Gender (Base: Male)		
Female	-0.002	(0.956)
Education (Base: No university degree)		
University or postgraduate qualification	-0.054	(0.156)
EI knowledge (Base: Never heard of EI or not sure)		
Heard of EI but cannot explain	0.044	(0.292)
Heard of EI and can explain	0.255***	(0.000)
Annual household income (Base: Less than $50,000)		
$50,001-$100,000	-0.017	(0.686)
$100,001 and above	0.049	(0.307)
Type of area that the respondent lives in (Base: Rural or suburban)		
Urban	0.034	(0.379)
Preferred investment strategy (Base: Engagement)		
Exclusion	0.097**	(0.032)
Sources of information used when getting financial information or advice (Base: Neither independent qualified nor non-independent qualified)		
Independent qualified	-0.030	(0.665)
Non-independent but qualified	0.105	(0.116)
Both	0.029	(0.626)
Social considerations (Base: Low)		
Moderate	-0.003	(0.935)
High	0.005	(0.911)
Environmental considerations (Base: Low)		
Moderate	0.031	(0.489)
High	0.098**	(0.039)
Perceived consumer effectiveness on social outcomes (Base: Low)		
High	0.030	(0.541)
Perceived consumer effectiveness on environmental outcomes (Base: Low)		
High	0.108**	(0.019)
Trust in EI (Base: Distrust)		
Neither trust nor distrust	0.060	(0.133)
Trust	0.112**	(0.027)

p-values in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5 – Intersection Average Marginal Effects (AMEs) [Dependent Variable: Investor Type]

Panel A: Pairwise exclusion effect (engagement as base outcome)		
Panel A1: Engagement * EI knowledge		
Exclusion - Engagement		
Limited EI knowledge - No EI knowledge	0.013	0.356
Sufficient EI knowledge - No EI knowledge	0.053*	0.088
Sufficient EI knowledge - Limited EI knowledge	0.040	0.101
Panel B: Pairwise knowledge effect (no EI knowledge as base outcome)		
Panel B1: EI Knowledge * Age group		
Limited EI knowledge - No EI knowledge		
Gen X - Millennials and 18+ Gen Z	-0.004	0.559
Baby Boomers - Millennials and 18+ Gen Z	0.013	0.331
Baby Boomers - Gen X	0.017	0.324
Sufficient EI knowledge - No EI knowledge		
Gen X - Millennials and 18+ Gen Z	-0.017	0.482
Baby Boomers - Millennials and 18+ Gen Z	0.042**	0.026
Baby Boomers - Gen X	0.059**	0.014
Panel B2: EI Knowledge * Exclusion		
Limited EI knowledge - No EI knowledge		
Exclusion vs Engagement	0.013	0.356
Sufficient EI knowledge - No EI knowledge		
Exclusion vs Engagement	0.053*	0.088
Panel B3: EI Knowledge * Sources of information		
Limited EI knowledge - No EI knowledge		
Independent qualified vs Neither	-0.004	0.681
Non-independent but qualified vs Neither	0.012	0.4

Both vs Neither	0.004	0.668
Non-independent but qualified vs Independent qualified	0.016	0.341
Both vs Independent qualified	0.008	0.428
Both vs Non-independent but qualified	-0.009	0.386
Sufficient EI knowledge - No EI knowledge		
Independent qualified vs Neither	-0.017	0.664
Non-independent but qualified vs Neither	0.043	0.182
Both vs Neither	0.014	0.643
Non-independent but qualified vs Independent qualified	0.060*	0.062
Both vs Independent qualified	0.031	0.283
Both vs Non-independent but qualified	-0.028	0.119
Panel B4: EI Knowledge * Environmental considerations		
Limited EI knowledge - No EI knowledge		
Moderate environmental considerations - Low environmental considerations	0.004	0.571
High environmental considerations - Low environmental considerations	0.012	0.354
High environmental considerations - Moderate environmental considerations	0.008	0.4
Sufficient EI knowledge - No EI knowledge		
Moderate environmental considerations - Low environmental considerations	0.016	0.495
High environmental considerations - Low environmental considerations	0.044*	0.066
High environmental considerations - Moderate environmental considerations	0.028	0.194
Panel B5: EI Knowledge * PCE on environmental outcomes		
Limited EI knowledge - No EI knowledge		
High PCE on environmental outcomes - Low PCE on environmental outcomes	0.014	0.338
Sufficient EI knowledge - No EI knowledge		
High PCE on environmental outcomes - Low PCE on environmental outcomes	0.052**	0.041
Panel B6: EI Knowledge * Trust		
Limited EI knowledge - No EI knowledge		
Neutral - Distrust	0.008	0.373

Trust - Distrust	0.014	0.327
Trust - Neutral	0.006	0.451
Sufficient EI knowledge - No EI knowledge		
Neutral - Distrust	0.03	0.161
Trust - Distrust	0.050**	0.031
Trust - Neutral	0.019	0.273
Panel C: Pairwise environmental considerations effect (low environmental considerations as base outcome)		
Panel C1: Environmental considerations * Age group		
Moderate environmental considerations - Low environmental considerations		
Gen X - Millennials and 18+ Gen Z	-0.002	0.628
Baby Boomers - Millennials and 18+ Gen Z	0.006	0.493
Baby Boomers - Gen X	0.008	0.498
High environmental considerations - Low environmental considerations		
Gen X - Millennials and 18+ Gen Z	-0.006	0.514
Baby Boomers - Millennials and 18+ Gen Z	0.016*	0.086
Baby Boomers - Gen X	0.022*	0.094
Panel C2: Environmental considerations * EI knowledge		
Moderate environmental considerations - Low environmental considerations		
Limited EI knowledge - No EI knowledge	0.004	0.571
Sufficient EI knowledge - No EI knowledge	0.016	0.495
Sufficient EI knowledge - Limited EI knowledge	0.012	0.493
High environmental considerations - Low environmental considerations		
Limited EI knowledge - No EI knowledge	0.012	0.354
Sufficient EI knowledge - No EI knowledge	0.044*	0.066
Sufficient EI knowledge - Limited EI knowledge	0.032*	0.072
Panel C3: Environmental considerations * PCE on environmental outcomes		
Moderate environmental considerations - Low environmental considerations		

High PCE on environmental outcomes - Low PCE on environmental outcomes	0.007	0.498
High environmental considerations - Low environmental considerations		
High PCE on environmental outcomes - Low PCE on environmental outcomes	0.019*	0.097
Panel D: Pairwise PCE on environmental outcomes effect (low PCE on environmental outcomes as base outcome)		
Panel D1: PCE on environmental outcomes * Age group		
High PCE on environmental outcomes - Low PCE on environmental outcomes		
Gen X - Millennials and 18+ Gen Z	-0.008	0.485
Baby Boomers - Millennials and 18+ Gen Z	0.02	0.142
Baby Boomers - Gen X	0.027*	0.096
Panel D2: PCE on environmental outcomes * EI knowledge		
High PCE on environmental outcomes - Low PCE on environmental outcomes		
Limited EI knowledge - No EI knowledge	0.014	0.338
Sufficient EI knowledge - No EI knowledge	0.052**	0.041
Sufficient EI knowledge - Limited EI knowledge	0.038**	0.049
Panel D3: PCE on environmental outcomes * Environmental considerations		
High PCE on environmental outcomes - Low PCE on environmental outcomes		
Moderate environmental considerations - Low environmental considerations	0.007	0.498
High environmental considerations - Low environmental considerations	0.019*	0.097
High environmental considerations - Moderate environmental considerations	0.012	0.226
Panel E: Pairwise trust effect (distrust EI as base outcome)		
Panel E1: Trust toward EI * Age group		
Neutral - Distrust		
Gen X - Millennials and 18+ Gen Z	-0.004	0.523
Baby Boomers - Millennials and 18+ Gen Z	0.011	0.202
Baby Boomers - Gen X	0.016	0.189
Trust - Distrust		

Gen X - Millennials and 18+ Gen Z	-0.007	0.496
Baby Boomers - Millennials and 18+ Gen Z	0.018*	0.099
Baby Boomers - Gen X	0.025*	0.078
Panel E2: Trust toward EI * EI knowledge		
Neutral - Distrust		
Limited EI knowledge - No EI knowledge	0.008	0.373
Sufficient EI knowledge - No EI knowledge	0.03	0.161
Sufficient EI knowledge - Limited EI knowledge	0.023	0.183
Trust - Distrust		
Limited EI knowledge - No EI knowledge	0.014	0.327
Sufficient EI knowledge - No EI knowledge	0.050**	0.031
Sufficient EI knowledge - Limited EI knowledge	0.036**	0.044

Table 6 – Ordered Probit Regression Results

	PERC_RETURN	*WILLINGNESS*
Investor type (Base: Conventional or interested investors)		
Stated adopters	0.677***	0.105
	(0.000)	(0.396)
Age group (Base: Millennials and 18+ Gen Z (18-39))		
Gen X (40-54)	-0.262*	-0.063
	(0.058)	(0.670)
Baby Boomers (55+)	-0.653***	-0.383***
	(0.000)	(0.005)
Gender (Base: Male)		
Female	0.126	-0.011
	(0.273)	(0.927)
Education (Base: No university degree)		
University or postgraduate qualification	-0.178	-0.082
	(0.105)	(0.486)
EI knowledge (Base: Never heard of EI or not sure)		
Heard of EI but cannot explain	-0.180	0.417***
	(0.150)	(0.004)
Heard of EI and can explain	-0.187	0.186
	(0.191)	(0.201)
Annual household income (Base: Less than $50,000)		
$50,001-$100,000	-0.141	-0.149
	(0.274)	(0.269)
$100,001 and above	-0.188	-0.140
	(0.197)	(0.355)
Type of area that the respondent lives in (Base: Rural or suburban)		
Urban	0.266**	0.188
	(0.023)	(0.116)
Preferred investment strategy (Base: Engagement)		
Exclusion	0.325**	0.473***
	(0.039)	(0.003)
Sources of information used when getting financial information or advice (Base: Neither independent qualified nor non-independent qualified)		
Independent qualified	-0.179	0.382*
	(0.375)	(0.068)
Non-independent but qualified	-0.074	-0.015
	(0.709)	(0.938)
Both	0.001	0.214
	(0.994)	(0.211)
Social considerations (Base: Low)		
Moderate	-0.072	-0.260*
	(0.561)	(0.053)
High	0.126	-0.165
	(0.365)	(0.249)
Environmental considerations (Base: Low)		
Moderate	0.001	0.072
	(0.997)	(0.629)
High	0.281**	0.342**

	(0.038)	(0.017)
Perceived consumer effectiveness on social outcomes (Base: Low)		
High	0.591***	0.616***
	(0.000)	(0.000)
Perceived consumer effectiveness on environmental outcomes (Base: Low)		
High	0.194	0.123
	(0.153)	(0.444)
Trust in EI (Base: Distrust)		
Neither trust nor distrust	-0.203	-0.011
	(0.106)	(0.929)
Trust	-0.023	0.151
	(0.877)	(0.340)
cut1	-0.563**	-0.432
	(0.044)	(0.143)
cut2	1.671***	1.989***
	(0.000)	(0.000)
N	555	499
Pseudo R^2	0.153	0.120

p-values in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7 – Average Marginal Effects (AMEs) After Ordered Probit Regressions – Compared to Base Category

		Perception of EI Return			Willingness to Sacrifice		
		Worse or much worse	**Better**	**Much better**	**No**	**Yes, given same return**	**Yes, even lower return**
Investor type (Base: Conventional investors or interested investors)							
Stated adopters	Probability	-0.138***	-0.018	0.156***	-0.015	-0.013	0.028
	p-value	(0.000)	(0.216)	(0.000)	(0.388)	(0.424)	(0.403)
Age group (Base: Millennials and 18+ Gen Z (18-39))							
Gen X (40-54)	Probability	0.054*	0.006	-0.060*	0.008	0.009	-0.017
	p-value	(0.065)	(0.335)	(0.052)	(0.674)	(0.664)	(0.668)
Baby Boomers (55+)	Probability	0.156***	-0.029**	-0.127***	0.059***	0.037**	-0.096***
	p-value	(0.000)	(0.046)	(0.000)	(0.007)	(0.010)	(0.004)
Gender (Base: Male)							
Female	Probability	-0.029	0.003	0.026	0.002	0.001	-0.003
	p-value	(0.274)	(0.385)	(0.272)	(0.927)	(0.927)	(0.927)
Education (Base: No university degree)							
University or postgraduate qualification	Probability	0.041	-0.004	-0.036	0.012	0.009	-0.021
	p-value	(0.105)	(0.271)	(0.106)	(0.487)	(0.491)	(0.487)
EI knowledge (Base: Never heard of EI or not sure)							
Heard of EI but cannot explain	Probability	0.040	-0.002	-0.038	-0.060***	-0.048***	0.108***
	p-value	(0.146)	(0.585)	(0.159)	(0.006)	(0.009)	(0.003)
Heard of EI and can explain	Probability	0.041	-0.002	-0.039	-0.030	-0.014	0.044
	p-value	(0.190)	(0.586)	(0.193)	(0.208)	(0.220)	(0.199)
Annual household income (Base: Less than $50,000)							
$50,001-$100,000	Probability	0.031	-0.001	-0.030	0.021	0.019	-0.040
	p-value	(0.269)	(0.653)	(0.281)	(0.264)	(0.293)	(0.273)
$100,001 and above	Probability	0.042	-0.003	-0.039	0.019	0.018	-0.037
	p-value	(0.196)	(0.488)	(0.200)	(0.357)	(0.361)	(0.355)
Type of area that the respondent lives in (Base: Rural or suburban)							
Urban	Probability	-0.059**	0.003	0.056**	-0.026	-0.024	0.050
	p-value	(0.019)	(0.537)	(0.028)	(0.111)	(0.149)	(0.123)
Preferred investment strategy (Base: Engagement)							
Exclusion	Probability	-0.080*	0.020	0.060**	-0.081**	-0.028***	0.109***
	p-value	(0.054)	(0.234)	(0.020)	(0.012)	(0.003)	(0.001)
Sources of information used when getting financial information or advice (Base: Neither independent qualified nor non-independent qualified)							
Independent qualified	Probability	0.042	-0.007	-0.035	-0.054*	-0.046*	0.100*
	p-value	(0.368)	(0.427)	(0.383)	(0.078)	(0.095)	(0.066)
Non-independent but qualified	Probability	0.017	-0.002	-0.015	0.003	0.001	-0.003
	p-value	(0.707)	(0.712)	(0.711)	(0.938)	(0.939)	(0.938)
Both	Probability	-0.000	0.000	0.000	-0.033	-0.020	0.053
	p-value	(0.994)	(0.994)	(0.994)	(0.243)	(0.131)	(0.190)
Social considerations (Base: Low)							
Moderate	Probability	0.017	-0.003	-0.014	0.037*	0.032*	-0.068*
	p-value	(0.559)	(0.555)	(0.563)	(0.061)	(0.060)	(0.052)
High	Probability	-0.028	0.001	0.027	0.022	0.023	-0.045
	p-value	(0.365)	(0.770)	(0.367)	(0.259)	(0.240)	(0.244)

Environmental considerations (Base: Low)							
Moderate	Probability	-0.000	0.000	0.000	-0.012	-0.006	0.017
	p-value	(0.997)	(0.997)	(0.997)	(0.628)	(0.636)	(0.629)
High	Probability	-0.062**	0.003	0.059**	-0.047**	-0.043**	0.090**
	p-value	(0.039)	(0.576)	(0.036)	(0.022)	(0.025)	(0.017)
Perceived consumer effectiveness on social outcomes (Base: Low)							
High	p-value	-0.148***	0.039**	0.108***	-0.097***	-0.051***	0.148***
	p-value	(0.000)	(0.040)	(0.000)	(0.001)	(0.001)	(0.000)
Perceived consumer effectiveness on environmental outcomes (Base: Low)							
High	Probability	-0.045	0.006	0.039	-0.018	-0.014	0.032
	p-value	(0.158)	(0.312)	(0.148)	(0.445)	(0.440)	(0.441)
Trust in EI (Base: Distrust)							
Neither trust nor distrust	Probability	0.046*	-0.005	-0.041	0.002	0.001	-0.003
	p-value	(0.098)	(0.218)	(0.118)	(0.929)	(0.930)	(0.929)
Trust	Probability	0.005	0.000	-0.005	-0.021	-0.020	0.040
	p-value	(0.877)	(0.908)	(0.877)	(0.331)	(0.366)	(0.344)

p-values in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8 - Difference-in-Difference Average Marginal Effects (AMEs) [Dependent Variable: Perception of Returns]

	Worse or much worse	**p-value**	**Better**	**p-value**	**Much better**	**p-value**
Panel A: Pairwise investor type effect (non-adopters as base outcome)						
Panel A1: Investor type * Age						
Stated adopters - Non-adopters						
Gen X - Millennials and 18+ Gen Z	-0.032*	0.074	0.064*	0.075	-0.032*	0.077
Baby Boomers - Millennials and 18+ Gen Z	-0.080***	0.000	0.162***	0.000	-0.082***	0.000
Baby Boomers - Gen X	-0.048**	0.012	0.098**	0.012	-0.050**	0.011
Panel A2: Investor type * Area type						
Stated adopters - Non-adopters						
Urban - Suburban or rural	0.031**	0.037	-0.063**	0.036	0.032**	0.035
Panel A3: Investor type * Preferred investment strategy						
Stated adopters - Non-adopters						
Exclusion - Engagement	0.038**	0.042	-0.077**	0.043	0.039**	0.045
Panel A4: Investor type * Environmental considerations						
Stated adopters - Non-adopters						
Moderate environmental considerations - Low environmental considerations	0.000	0.997	0.000	0.997	0.000	0.997
High environmental considerations - Low environmental considerations	0.033**	0.049	-0.066**	0.048	0.033**	0.047
High environmental considerations - Moderate environmental considerations	0.033*	0.059	-0.066*	0.059	0.033*	0.059
Panel A4: Investor type * PCE on social outcomes						
Stated adopters - Non-adopters						
High PCE on social outcomes - Low PCE on social outcomes	0.076***	0.001	-0.153***	0.001	0.077***	0.001

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Appendix

Table A1 – Explanatory Variables

Variable	Type	Definition	Question
Panel A: Socio-Demographic Variables			
AGE_GROUP	Ordinal	***AGE_GROUP*** takes the value of one if the respondent is aged 18 to 39 years (Millennials and 18+ Generation Z, aka adults), takes the value of two if the respondent is aged 40 to 54 years (Generation X, aka middle-aged adults), and takes the value of three if the respondent is aged 55 years and over (Baby Boomers, aka senior adults).	HidAge
FEMALE	Binary	***FEMALE*** takes the value of one if the respondent is a female, and zero otherwise.	FBC2
UNIVERSITY	Binary	***UNIVERSITY*** takes the value of one if the respondent has a university degree or a postgraduate qualification (e.g., honours, masters, doctorate, fellowship, postgraduate diploma), and zero otherwise.	Q19
KNOWLEDGE	Ordinal	***KNOWLEDGE*** takes the value one if the respondent's response to the question "*Have you heard of ethical investing (also referred to as responsible or sustainable investing)?*" is "no" or "don't know/not sure", takes the value two if the respondent chose "yes, but I am not sure what it is", and takes the value of three if the respondent chose "yes, and I could explain it".	Q3
INCOME_GROUP	Ordinal	***INCOME_GROUP*** takes the value of one if the respondent's annual household income is below $50,000, takes the value of two if the respondent's annual household income is between $50,001 and $100,000, and takes the value of three if the respondent's annual household income is above $100,000.	Q20
URBAN	Binary	***URBAN*** takes the value of one if the respondent lives in urban areas, and zero otherwise.	FBC2c
Panel B: Behavioural Variables			
EXCLUSION	Binary	Constructed based on respondents' answers to the question "*Is it more important for a KiwiSaver fund/ for an investment scheme or company*	Q8

		to…?". Wins and Zwergel (2016) claimed that from retail investors' perspective, exclusion strategies and inclusion strategies are "two sides of the same coin" to reach the same goal of building up an ethical investment portfolio. Thus, we combine negative screening and the "best in class" approach to create our variable of interest. ***EXCLUSION*** takes the value one if the respondent chose to "avoid the worst companies in any sector and include more of the companies with higher standards" or "avoid sectors that you don't agree with (such as tobacco, gambling, fossil fuel etc.)" or "avoid the worst companies in any sector", and zero otherwise. ***INFO_SOURCE*** takes the value of one if the respondent uses neither independent qualified nor non-independent qualified information sources when getting financial information or advice, takes the value of two if the respondent uses independent qualified but not non-independent qualified information sources, takes the value of three if the respondent uses non-independent qualified but not independent qualified information sources, and takes the value of four if the respondent uses both independent qualified and non-independent qualified sources of information. Independent qualified information sources include: (1) friends/ family who have relevant qualifications; (2) personal research (online, newsletters, magazines, news etc.); (3) government websites; (4) Mindful Money; (5) Mindful Money Fund Finder; (6) Responsible Investment Association of Australasia (RIAA); and (7) Responsible Returns. Non-independent but qualified information sources include: (1) accredited financial planner/ advisor; (2) accountant; (3) KiwiSaver provider; and (4) bank or other non-KiwiSaver financial services provider	
INFO_SOURCE	Categorical		Q15
Panel C: Attitudinal Variables			
SEE_SOC; SEE_ENV	Ordinal	The first column of Table A2 lists the eleven options for the question "*When thinking about your ideal investment fund, which of the following social and environmental issues do you find important?*". Principal component analysis (PCA) performed on tetrachoric correlations was used to capture investors' social, ethical and environmental concerns.	Q18

Eigenvalues for components 1 (***SEE_E***, explains 58.18% of the variance) and component 2 (***SEE_S***, explains 10.42% of the variance) were 6.40 and 1.15, respectively. The first principal component, ***SEE_E***, has relatively large positive associations with sustainable water, sustainable land management, environmentally sustainable buildings, zero waste, sustainable transport, native forests, and renewable energy, thus ***SEE_E*** is considered to be representative of investors' environmental considerations factor. The second principal component, ***SEE_S***, has the highest loadings from healthcare and medical products, investment in education, and affordable housing, thus it primarily measures investors' social considerations.

We then calculated the mean value and the standard deviation of the two PCA scores (i.e., ***SEE_E*** and ***SEE_S***). ***SEE_SOC*** takes the value of one if the survey respondent has relatively low social considerations i.e.,

$$SEE\_S_i \leq \sum_{i=1}^{N} SEE\_S_i - \sqrt{\frac{\sum_{i=1}^{N}(SEE\_S_i - \overline{SEE\_S}}{N}}$$

, takes the value of two if the survey respondent has moderate social considerations i.e.,

$$\sum_{i=1}^{N} SEE\_S_i - \sqrt{\frac{\sum_{i=1}^{N}(SEE\_S_i - \overline{SEE\_S}}{N}}) < SEE\_S_i < \sum_{i=1}^{N} SEE\_S_i + \sqrt{\frac{\sum_{i=1}^{N}(SEE\_S_i - \overline{SEE\_S}}{N}}$$

, and takes the value of three if the survey respondent has high social considerations i.e.,

$$SEE\_S_i \geq \sum_{i=1}^{N} SEE\_S_i + \sqrt{\frac{\sum_{i=1}^{N}(SEE\_S_i - \overline{SEE\_S}}{N}}$$

		Similarly, ***SEE_ENV*** takes the value of one if the survey respondent has relatively low environmental considerations, takes the value of two if the survey respondent has moderate environmental considerations, and takes the value of three if the survey respondent has high environmental considerations.	
PCE_S	Binary	***PCE_S*** (perceived consumer effectiveness on social outcomes) takes the value of one if the respondent "strongly agrees" or "agrees" with the statement "My investment decisions can influence societal health and wellbeing", and zero otherwise.	Q12_1
PCE_E	Binary	***PCE_E*** (perceived consumer effectiveness on environmental outcomes) takes the value of one if the respondent "strongly agrees" or "agrees" with the statement "My investment decisions can influence climate change", and zero otherwise.	Q12_2
TRUST	Ordinal	***TRUST*** takes the value of one if the respondent "strongly agrees" or "agrees" with the statement "*I don't believe the claims made by funds describing their offer as 'responsible', 'sustainable' or 'ethical'*", takes the value of two if the respondent chose "neither agree nor disagree", and takes the value of three if the respondent chose "disagree" or "strongly disagree".	Q10_8

Table A2 – Principal Component Analysis for the Construction of Two SEE Variables

	SEE_E	***SEE_S***
Renewable energy	**0.3053**	-0.2174
Environmentally sustainable buildings	**0.3265**	-0.1762
Affordable housing	0.2543	**0.4092**
Sustainable transport	**0.3145**	-0.0762
Investment in education	0.2582	**0.5076**
Investment in social & community infrastructure	0.3016	0.2015
Sustainable water (supply, use and quality)	**0.3312**	-0.1605
Sustainable land management (including agriculture)	**0.3283**	-0.2451
Native forests	**0.3062**	-0.2029
Healthcare and medical products	0.2527	**0.5098**
Zero waste and other sustainable practices	**0.3224**	-0.2515