In Holdings We Trust: Uncovering the ESG Fund Lemons

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Using a novel survey of retail global equity funds offered in Australasia, we provide new insights into the evolving landscape of responsible investing (RI) and potential greenwashing. Our analysis has three components. First, we surveyed asset managers to elicit an understanding of how and why they integrate ESG information into investment decisions. We found that RI was primarily driven by performance and fund flow focused *value*, rather than ethical *values*. Further, we found that climate change themes were prioritised within the investment process, relative to other ESG sub-themes. Second, we compared survey responses to portfolio holdings data to evaluate whether fund managers were as environmentally responsible as they claimed to be. Surprisingly, we found that portfolio carbon intensity was significantly higher for respondents that were members of a climate initiative, and not significantly different for those that prioritised climate change themes or engaged in a decarbonisation strategy. The divergence between words and actions appears to be consistent with greenwashing funds ('lemons') seeking responsible investment flows without 'walking the talk'. Third, we evaluated the determinants of carbon and ESG performance across our entire sample of survey respondents and non-respondents. We found that the ESG named funds had similar emissions intensities and inconsistent ESG performance, across three major external rating providers, relative to non ESG named funds.

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1. Introduction

The non-financial dimensions of corporate performance have been subject to greater public scrutiny in recent periods. Concerned with climate change, product safety issues, poor working conditions, and corporate scandals, among other issues, stakeholders are urging companies to address their impact within environmental, social, and governance (ESG) contexts (Baldini et al., 2018). Consequently, responsible investment strategies have been adopted rapidly within the fund management industry and the global asset management industry over recent periods (Alda, 2020; Amel-Zadeh & Serafeim, 2018; van Duuren et al., 2016). In addition to financial performance, RI integrates ESG considerations into investment decisions to holistically evaluate all dimensions of corporate performance (Sandberg et al., 2009). Recently, demand for assets with superior ESG performance has been unprecedented. Between 2019 and 2021, sustainable-labelled investments in Australasia have more than doubled (Kennaway, 2021). Globally, stated responsible investments in 2020 reached US$35.3 trillion in assets, representing over 36% of all professionally managed assets (GSIA, 2020). Correspondingly, an increasing number of institutions are publicly pledging their commitment to incorporate ESG criteria into investment decisions, such as through signing up to the United Nations Principles of Responsible Investment (UNPRI) (Brandon et al., 2021).

Within the asset management industry, the rapid growth of responsible investments has been driven by the creation of new ESG focused funds in addition to the 'green rebranding' of existing conventional funds (Morningstar, 2021). In response to the surge in funds that have been labelled as 'ethical' or 'sustainable', global regulators are increasing their scrutiny of such classifications. In the United States, a review conducted by the Securities and Exchange Commission found that some funds were misleading consumers by not adhering to their ESG policies (Chin, 2021). Recently, the European Commission introduced standards for the eco-labelling of investment vehicles through a taxonomy for responsible investment (Schwartzkopff, 2021). In New Zealand, the Financial Markets Authority has developed a disclosure framework for integrated financial products (FMA, 2020), while upcoming legislation will mandate climate-related financial disclosures for investment schemes with more than $1 billion in assets under management (Ministry for the Environment, 2021). Following suit, the Australian Securities and Investments Commission has recently engaged a review of the 'sustainable' products offered by its fund management industry (Kennaway, 2021). Clearly, there are concerns surrounding the substance and transparency of RI claims, and consequently, a stream of literature focussed on institutional 'greenwashing' has emerged.

To capitalise on the growing ESG investment market, funds that greenwash present themselves in such a manner that they appear more responsible than they truly are (Brandon et al., 2021; Liang et al., 2020). Recent studies have highlighted that institutions are signalling their commitment to RI without exhibiting better ESG performance than their uncommitted peers, particularly in the U.S. (Brandon et al., 2021; Liang et al., 2020; Kim & Yoon, 2020). If investors cannot differentiate between greenwashing funds ('lemons') and genuine responsible funds, this information failure is an example of adverse selection, which may negatively impact investor welfare (Akerlof, 1970).

This paper investigates the ESG strategies and performance of global equity funds available to Australian and New Zealand retail investors. First, we surveyed 105 asset managers to elicit an understanding of how and why they integrate ESG information into investment decisions, obtaining 44 usable responses. Second, we compared survey responses with portfolio holdings data to evaluate the stated and actual carbon performance of fund managers. Finally, we investigated the determinants of carbon and ESG performance across our entire sample of survey respondents and non-respondents. To measure carbon and ESG performance, we calculated value-weighted portfolio carbon intensities and ESG scores using recent portfolio holdings data. To address the emerging issue of divergent ESG ratings (Berg et al., 2019), we utilised three leading ESG rating providers in our analysis: Refinitiv, MSCI, and Sustainalytics.

Through our survey, we highlighted the wide adoption of RI strategies practised by global equity funds available in Australasia, which has been primarily motivated by performance-focused *value*, rather than ethical *values*. The divergence between value and values was emphasised for funds with U.S-based headquarters. We documented that the most common RI approaches were integrating ESG considerations into fundamental analysis, negative screening/exclusions, and active ownership of portfolio companies. Within the investment process, funds with U.S. headquarters tended to prioritise environmental themes, which have objective data and strong links to performance through rising stakeholder emphasis (Credit Suisse, 2021; Climate Action 100+, 2020; Trinks et al., 2020; TCFD, 2017). In contrast, funds with Australasian headquarters tended to equally prioritise environmental, social, and governance themes. Across various ESG subthemes, fund managers tended to place the highest importance on climate change, followed by corporate behaviour. Despite this, the number of respondents that responded with their portfolio-level carbon intensities was very low.

Through our comparison of portfolio holdings data to survey responses, we highlighted a divergence between the stated and actual carbon performance of respondents. We found that portfolio carbon intensity was significantly higher for respondents that were members of a climate-related initiative (such as the Climate Action 100+, Net Zero Asset Managers, and the Investor Group on Climate Change), and not significantly different for respondents that placed a high level of importance on climate change in their response to the survey, or those that had a portfolio decarbonisation strategy. This finding appears to be consistent with greenwashing, rather than being a consequence of active engagement. To attract responsible investment flows, funds are overstating their environmental commitments without 'walking the talk'. This result has significant implications for investor welfare and highlights that regulatory intervention may be required to address the adverse selection problem caused by ESG 'lemons' (greenwashing funds).

In the final part of our analysis, we found that the carbon and ESG performance of our survey respondents was not significantly different to that of the non-respondents. This provides evidence that our survey is robust to self-selection bias. Alongside this, we found that the ESG performance of ESG named funds was only significantly higher, relative to non-ESG named funds, when using external ratings from MSCI and Sustainalytics, but not Refinitiv. This prompts further discussion into the divergence of different ESG ratings, which is driven by the different scope, measurement, and weighting methodologies of the providers (Berg et al., 2019).

This paper contributes to the RI literature, building from key institutional investor surveys that examine the ESG motivations and strategies of asset managers (Amel-Zadeh and Serafeim, 2018; van Duuren et al., 2016). Our analysis provides updated insights into the evolving landscape of RI, and we present novel findings relating to the importance placed by global equity funds on various ESG issues. This paper also contributes to the emerging asset management literature on greenwashing. While complementing many of the recent working papers in this field of research (Brandon et al., 2021; Raghunandan & Rajgopal, 2021; Liang et al., 2020; Kim and Yoon, 2020), this paper exhibits several key differences. Specifically, we addressed fund-level heterogeneity through our own survey of global equity funds, comparing survey responses to measures of actual carbon performance. In contrast to other studies, we focused on the Australasian context, given the recent explosion of ESG assets and investment flows in that region (RIAA, 2021a; RIAA, 2021b), which has not received attention within the academic literature. Finally, we focused on funds that are available to retail investors, given

that this investor type is more likely to fall for the obfuscation that is associated with greenwashing (Carlin & Manso, 2011; deHaan et al., 2021).

The remainder of this paper is structured as follows. Section 2 contains the Literature Review. Section 3 outlines the Data and Methodology, while Section 4 details the Survey Descriptive Results. We address the Stated vs. Actual Carbon Performance in Section 5, and the Determinants of Carbon and ESG Performance in Section 6. Finally, Section 7 presents the Conclusion.

2. Literature Review

2.1 Responsible Investing

Among fund managers, approaches to ESG vary significantly and can include exclusion-based screening, best-in-class screening, decarbonisation, thematic investing, quantitative ESG factor investing, direct engagement with companies, and the incorporation of ESG risks into financial valuations (RIAA, 2021a).[3] RI approaches are not mutually exclusive, and a full ESG integration strategy seeks to identify risks and exploit opportunities while evaluating ESG factors throughout the entire investment process (Eccles et al., 2017). A recent body of literature has highlighted that ESG considerations are not only being incorporated by institutions that explicitly label themselves as socially responsible, but also by 'conventional' fund managers (van Duuren et al., 2016; Amel-Zadeh & Serafeim, 2018; Alda, 2020). Potential explanations for this include the evolving role of fiduciary duty to also consider material non-financial information (Waygood et al., 2009), the improved ability to mitigate risks (Boubaker et al., 2020), the opportunity to generate higher financial returns (Albuquerque et al., 2019; Revelli, 2017), and finally, stakeholders' demand for responsible investments (Kim & Yoon, 2021; Bauer et al., 2021; Alda, 2020). Through their survey of mainstream investment organisations, which represented 43% of the total global assets under management in 2015, Amel-Zadeh and Serafeim (2018) investigated the motivations behind ESG investing. In their results, most respondents chose to incorporate ESG considerations into investment decisions because they were financially material to investment performance (value). In comparison, a much smaller proportion of respondents chose to consider such information because they considered it their ethical responsibility to do so (values). While ESG investing approaches differed greatly across institutions, the study found that the most common techniques were incorporating ESG information into financial valuations, engaging with firms to make positive

[3] A full list of definitions for these approaches can be found in Appendix 1.

change, and defining the investment universe through negative screening. Within the Australasian context, these approaches have also been documented as being dominant among Australian and New Zealand fund managers (RIAA, 2021a; RIAA 2021b). Alongside this, a survey conducted by van Duuren et al. (2016) investigated the ESG strategies of international fund managers. In their analysis, they highlighted similarities between ESG investing and fundamental investing, given that ESG investors tended to focus on company-level analysis over industry-level analysis. Out of the three ESG dimensions, fund managers were most focused on governance factors, emphasising the importance of quality management over other social and environmental issues. Both Amel-Zadeh and Serafeim (2018) and van Duuren et al. (2016) found significant differences in the geographic perceptions of ESG investing between the United States and Europe. For example, they found that U.S.-based fund managers tended to be more sceptical about the social benefits of RI, while European-based managers were more likely to view ESG integration as their ethical responsibility. In the U.S., there is an ongoing regulatory debate around whether RI falls within the scope of fiduciary duty for institutional investors (Brandon et al., 2021). In this paper, we extended the prior analysis to also investigate institutions that are available to Australia and New Zealand retail investors and compared the approaches of funds that have Australasian-based headquarters to those based in the U.S. and other regions.

Through his literature review, Cappucci (2018) evaluated the incorporation of RI strategies among fund managers, proposing an 'ESG investing paradox'. While many fund managers touted their ESG capabilities, they tended to fall short of their commitment to full ESG integration, often only implementing half-measures. For example, a survey conducted by Eccles et al. (2016) found that only 21% of institutional investors incorporated a strategy of full ESG integration. Similarly, van Duuren et al. (2016) found that fund managers preferred to incorporate ESG information through modified inputs such as company analysis (81%) and external ratings (45%) over raw ESG data (30%), implying that they did not truly integrate ESG into their bottom-up fundamental analysis (Cappucci, 2018). Notably, voluntary surveys often overstate true ESG integration strategies given that ESG underperformers are less likely to respond. While the adoption of RI strategies has expanded rapidly within the fund management industry, the movement has arguably been diminished by managers who focus solely on exclusions. Statman (2020) argued that these institutions are 'waving banners', promoting their social conscience while "doing nothing to enhance the utilitarian, expressive and emotional benefits of others" (p.g. 23). Under this interpretation, funds that divest from

fossil fuel firms are merely selling them to other investors. In contrast, Heinkel et al. (2001) argued that divestments place downward pressure on stock valuations, which increases the costs of raising capital. Within the Australasian context, negative screening is widely incorporated, with tobacco production and controversial weapons being the most frequently excluded sectors as traditional non-sin screening (RIAA, 2021a; RIAA, 2021b). There are various potential explanations for the 'ESG investing paradox'. For example, institutions are limited in their ability to integrate ESG factors given a lack of standards that govern ESG reporting (Amel-Zadeh & Serafeim, 2018). Similarly, they are constrained by a lack of high-quality company data and cross-company comparability (Eccles et al., 2016). According to Cappucci (2018), many fund managers also face misaligned incentives given that the investment performance of managers is typically measured in 1-, 3-, and 5- year time horizons, while many of the benefits of ESG investments are likely to materialise beyond these. Finally, while processed ESG ratings play a crucial role in guiding a fund's portfolio allocations, several studies have highlighted a divergence in external ESG ratings between different providers (Chatterji et al., 2016; Berg et al., 2019). This is because different providers measure and weigh ESG issues differently, as well as have varying scopes of what to measure and aggregate (Berg et al., 2019). This is a consequence of the lack of generally accepted ESG standards. For example, some providers may consider activities such as lobbying to be a relevant ESG issue, while others may not. According to Berg et al. (2021), ESG data tends to be gathered from firm Corporate Social Responsibility (CSR) reports, regulatory filings, modelled data, questionnaires, and the media. For example, the measurement of a firm's product safety could be based on the information provided in a CSR report, media reports about the firm, or complaints made to the regulator. Hence, a provider's choice of measurement may lead to divergent assessments of performance, which decreases the reliability of the ratings. More transparent ESG rating provider methodologies could help elevate some of the issues as investors/managers can choose a provider that aligns with their values/goals. Further, the development of disclosure standards, taxonomies of sustainable activities, and spatial finance data as well as more providers may help alleviate some of these issues.

Several research papers have investigated the relationship between firm ESG performance and empirical stock returns. However, many studies rely on external ESG ratings as their proxy for performance, leading to inconsistent conclusions given the divergence bias discussed above. For example, some studies found that firms with better ESG performance had higher stock returns (Albuquerque et al., 2019; Lins et al., 2017) while some found that they had lower stock

returns (Chava, 2014; El Ghoul et al., 2011). Despite this, the modern financial landscape now recognises that ESG risks can cause substantial losses for both investors and lenders. For example, climate risks may reduce the value of a firm's assets, driven by physical damage from weather events or the stranding of assets due to the global energy transition (Chenet, 2021). Alongside this, reputational risks may lead to litigation costs and lower operating performance for firms. Earnings may be permanently reduced if consumers choose to boycott firms that act unethically (Tamayo-Torres et al., 2019). Given this, a series of recent literature has established a positive relationship between CSR and creditworthiness (Jiraporn et al., 2014), access to finance (Cheng et al., 2013), and a negative relationship between CSR and default risk (Boubaker, 2020). These studies support the incorporation of ESG considerations as a risk-mitigation strategy.

2.2 Greenwashing

The rise in financial products branded as 'ethical' or 'responsible' has prompted global regulators, such as those in the U.S., Europe, Australia, and New Zealand, to review their asset management industries. Within the U.S., the Securities Exchange Commission recently found evidence that funds were not adhering to their own ESG claims (Chin, 2021), while the European Commission adopted a taxonomy for responsible investment to address the sustainable labelling of investment products (Schwartzkopff, 2021). Consequently, an emerging stream of literature has investigated asset manager 'greenwashing', where institutions overstate their commitment to RI (Liang et al., 2020; Kim & Yoon, 2020; Brandon et al., 2021). By appearing more responsible than they truly are, greenwashing enables funds to profit from the increased demand for ESG investing (Brandon et al., 2021). Investors may not be able to differentiate between greenwashing funds and genuine responsible funds because they suffer from asymmetric information, where fund managers possess more private information about the quality of their ESG claims. This may be emphasised for retail investors who are more likely to fall for the obfuscation that is associated with greenwashing (Carlin & Manso, 2011; deHaan et al., 2021). Consequently, this may create an adverse selection problem that drives genuine funds out of the market, leaving only ESG 'lemons' (greenwashing funds), to the detriment of investor welfare (Akalof, 1970).

Corresponding to the significant rise in signatories to the Principles of Responsible Investment (PRI), recent studies have evaluated whether member institutions are fulfilling their ESG commitments or merely using their status to attract socially conscious investment flows.

Through their analysis of global hedge funds, Liang et al. (2020) found that one-fifth of PRI signatories had portfolio ESG scores that fell below the median score for all hedge funds in the sample. Despite possessing relatively low ESG scores, most of these signatories promoted ESG-related terminology on their websites and were 92.9% likely to exhibit low ESG scores in the following year, consistent with greenwashing. Furthermore, an analysis of U.S. active fund managers by Kim and Yoon (2020) highlighted that PRI signatories did not exhibit material improvements in their fund-level ESG performance post endorsement. However, they found that flows into signatory funds increased significantly regardless of prior ESG performance, suggesting that U.S. institutions were using their PRI status to capitalise on the growing responsible investment market. While both studies found evidence of greenwashing, they treated PRI signatories as a homogenous group of investors, failing to address the heterogeneity in the type and intensity of ESG investing strategies implemented.

To overcome the issue of institutional heterogeneity, Brandon et al. (2021) compared equity portfolio holdings data to a survey of the RI strategies of global institutions. This enabled the researchers to examine whether stated RI strategies lead to better portfolio-level ESG outcomes, applying a similar intuition to our study. In their methodology, institutions were placed into groups based on their reported level of commitment: (1) full ESG incorporation into 100% of their equity assets under management (AUM); (2) partial ESG incorporation; and (3) no reported ESG incorporation. To address the widely cited divergence in ESG ratings, Brandon et al. (2021) used an average of three external ESG providers when analysing an institution's actual ESG performance. In their results, they highlighted significant disparities between U.S. and non-U.S. signatories, reinforcing the findings by Amel-Zadeh and Serafeim (2018) and van Duuren et al. (2016). For example, U.S.-domiciled PRI signatories who reported partial or full ESG integration did not obtain better portfolio ESG scores than non-PRI institutions, while non-U.S. signatories did obtain better scores than non-signatories. Consistent with greenwashing, U.S.-domiciled PRI signatories who reported no ESG incorporation obtained significantly worse portfolio ESG scores than non-PRI institutions (Brandon et al., 2021).

While evaluating greenwashing, Brandon et al. (2021), Liang et al. (2020) and Kim and Yoon (2020) conducted analysis at the institution level. Like our study, Raghunandan and Rajgopal (2021) analysed greenwashing at the fund level. They evaluated whether self-labelled ESG mutual funds in the U.S. make stakeholder-friendly investments. Rather than using portfolio-level ESG scores, they measured a fund's performance through a series of weighted-average environmental, social and governance metrics. Their results highlighted that ESG funds had

significantly more labour and environmental law violations, alongside a higher CO2 emissions intensity, relative to the non-ESG funds issued by the same asset manager in the same year. Raghunandan and Rajgopal (2021) argued that this result was consistent with ESG funds being more "concerned about the existence of firm disclosures rather than the content of the information being disclosed" (p.g. 3). Like Raghunandan and Rajgopal (2021), this paper also uses our own calculated portfolio carbon intensity metrics, rather than relying solely on external ESG ratings for our analysis.

As discussed in Delmas and Burbano (2011), an organisation's tendency to greenwash corresponds to their consumer-, investor-, and competitor-induced incentives, firm-level characteristics, and most notably, the regulatory environment that they operate in. External market drivers such as investor demand for sustainable investments have placed pressure on 'brown' institutions to overstate their commitment to RI, particularly when there are no regulatory consequences (Delmas and Burbano, 2011). Among institutions, the competitive landscape is converging - more organisations are modelling themselves as sustainable leaders to appear legitimate and reputable among various stakeholders, even if they truly are not (Delmas and Burbano, 2011). Finally, firm-level characteristics such as incentive structures and ethical climate are relevant determinants. Until recently, institutional greenwashing has been characterised by limited regulation and uncertain enforcement, allowing funds to profit from the expanding ESG market while simultaneously avoiding punitive consequences. However, recent investor welfare concerns have prompted regulators to intensify their scrutiny of such practices (Schwartzkopff, 2021; Chin, 2021; Kennaway, 2021).

To measure greenwashing, academic studies control for the common fund-level characteristics that drive ESG performance. In a matched sample of conventional and SRI funds, Alda (2021) found that fund size, turnover, and expense ratios were positively related to ESG scores, while fund age was negatively related. Under a Legitimacy Theory perspective, larger funds are more visible to stakeholders, and face greater pressures to act with transparency (Singh et al., 1986). Other fund-level controls within the literature include risk and return, manager experience, and finally, the region of an institution's headquarters (Alda, 2021; Raghunandan & Rajgopal, 2021; Brandon et al., 2021). Specifically, evidence suggests that institutional investors tend to incorporate more sustainable practices when regions have high environmental and social norms, particularly in European countries (Dyck et al., 2019). Under the 'Institutional Theory' perspective, divergent social structures such as the cultural system, labour system and political

system can heavily influence an institution's ethical behaviour given varying levels of corporate monitoring (Campbell, 2007).

3. Data and Methodology

3.1 Primary Data: Survey Design

Following our review of the RI literature, we developed a survey to understand the ESG motivations and strategies of global equity funds available to Australian and New Zealand retail investors. Several key questions were inspired or adapted from the existing literature (Amel-Zadeh and Serafeim, 2018; van Duuren et al., 2016; Krueger et al., 2020), alongside our own novel contributions. The draft version of the survey received feedback from leading academic researchers and our external partners at Morningstar, MyFiduciary and Saturn Advice. We also solicited feedback from an asset management institution to ensure that the questions were appropriate for practitioners. Based on this feedback, we redrafted, added, and removed survey questions. The final version of the survey contained a total of 36 questions (see Appendix 2). However, aware of the potential for survey fatigue, we designed a survey using 'branching logic', where some questions were only displayed conditional on their previous responses (see Figure 1).

The final version of the survey received approval from the University of Otago Human Ethics Committee. It was added to the internet-based survey instrument Qualtrics and was sent out to 105 institutions via email on the 24th of September 2021. Our initial sample was constructed by our external team partners from Morningstar and MyFiduciary, who identified the names and contact details of institutions that offered global equity funds to Australian and New Zealand retail investors. Any non-respondents were sent reminders to complete the survey on the 26th of October and the 6th of November and the survey formally closed on the 12th of November 2021. We received 44 eligible responses, reflecting an overall response rate of 41.9%. However, given that one institution outsources the management of its global equity fund, there are only 43 eligible responses for the fund-level analysis. Compared to other academic surveys in finance and accounting that were distributed via email (Amel-Zadeh and Serafeim, 2018; Dichev et al., 2013; Graham et al., 2005), our response rate was significantly higher.

Given the nature of this study, all respondents were required to disclose the name of their institution and relevant global equity fund. To test whether institutions 'walk the talk', all responses were required to be identifiable so that they could be matched to the portfolio holdings data. However, to ensure anonymity, the research team emphasised that it would not identify any respondent or respondent firm in any report or published papers arising from this project. The survey contained a range of question types including text entry, multiple-choice, and constant sum (point allocation) questions. Multiple-choice questions were accompanied with free text response options to provide information and clarification on responses, which would be referenced for additional context in the analysis. Constant sum questions directed respondents to allocate one hundred points between various alternatives to establish relative weightings (Mühlbacher and Botschen, 1988).

Referring to Figure 1, the survey began by asking institution-level demographic questions. For example, we asked for the respondent's job title, the institution's size and headquarters location, level of ESG incorporation across the institution, ESG memberships, attainment of ESG capabilities, and finally the ESG motivations of the firm. The second part of the survey asked respondents to provide their institution's flagship retail ESG global equity fund. This could be a conventional global equity fund if an institution does not offer an ESG specific fund. Enabling respondents to choose their own flagship ESG fund is likely to bias the results against obtaining a 'greenwashing' conclusion, making any such results even more credible. The remainder of the survey asked questions relating to the fund provided. For example, we asked demographic questions relating to the fund size, average holding period, investment style, benchmark, and manager demographics. We then asked about the RI approaches incorporated, types of ESG data used, engagement strategies, and voting approaches. Next, we instructed respondents to weigh various ESG issues based on the importance that their fund places on them within the investment process. These ESG issues were identified based on a review of the common subthemes represented in various external ESG provider databases and white papers, such as Bloomberg, Refinitiv, and MSCI (Refinitiv, 2021; MSCI, 2020). Finally, we asked respondents to provide calculations that measure the carbon emissions intensity of their fund. The full survey can be found in Appendix 2.

In any survey, there is a risk that responses are strategic or untruthful (Krueger et al., 2020). This may be amplified when respondents are identifiable to researchers. However, given that our respondents were aware that their responses would be evaluated relative to objective portfolio holdings data, any untruthful responses would help us to establish evidence in favour

of greenwashing. It is possible that our survey suffered from self-selection bias, where our respondents were more likely to have higher ESG credentials relative to non-respondents. However, we evaluated this later in the paper and found that responding funds did not have significantly different portfolio carbon intensities or portfolio ESG scores relative to non-responding funds (see Sections 4.2 and 4.3)

3.2 Secondary Data

We obtained portfolio holdings data for our sample of global equity funds from our external partner at Morningstar. For survey respondents, we gathered holdings data on the specific fund provided by the individual institution in the survey (i.e., their self-identified flagship ESG fund). For non-respondents, we gathered holdings data based on the most ESG incorporated fund offered by the individual institution, as identified by our external partners at MyFiduciary and Morningstar. However, when an institution does not offer an ESG-specific global equity fund, the funds chosen by respondents, and those selected for non-respondents, could be general global equity funds. Of the 105 institutions in our sample, 78 funds had holdings data available in the Morningstar database. This includes 33 funds who had responded to our survey and 45 funds who did not respond. The holdings data was dated 30 June 2021, or as close to this as possible when unavailable.

To measure carbon performance, we obtained firm-level emissions data from Refinitiv Eikon. This data source has been employed for analysis in related studies (Liang et al., 2020; Dyck et al., 2019). For each security, we downloaded the reported and estimated Scope 1 and 2 CO2-equivalent emissions data measured in tonnes of CO2 equivalent (tCO2e) and total revenue data measured in millions of U.S. dollars.[4] The reported data is based on company filings, while estimated data is based on Refinitiv's carbon estimate models. We examined Scope 1 and 2 CO2 equivalent emissions intensity, which is a metric commonly used within the industry to measure a firm's emission efficiency (Garvey et al., 2018; Raghunandan & Rajgopal, 2021). In this calculation, emissions are scaled by revenues, allowing for a comparison between firms of different sizes. The carbon intensity for each stock i is defined in Equation (1) below:

$$Carbon\ Intensity_i = \frac{Scope\ 1\ \&\ 2\ CO2\ Equivalent\ Emissions_i\ (tCO2e)}{Total\ Revenue_i\ (\$USm)}, \qquad (1)$$

[4] Scope 1 refers to the greenhouse gas (GHG) emissions that occur from company-owned and controlled resources, such as manufacturing plants. Scope 2 refers to the indirect GHG emissions that are generated from the consumption of purchased energy, such as from a utility provider.

The carbon intensity calculation initially covered 74% of the securities on our aggregated list. For the remaining securities, we estimated the Scope 1 and 2 CO2 equivalent emissions intensity using industry averages based on GICS sector codes. Given a delay in reporting and data availability, carbon intensity figures were calculated for each security based on the fiscal year ending 2020. We acknowledge that this data slightly predates our portfolio holdings date of 30 June 2021. However, we assume that emission intensity figures are 'sticky' and are not materially different to those on the date of our holdings data. We also note that fund managers are likely to rely on predated data when making informed portfolio decisions, given the delayed reporting of emissions.

To measure the carbon efficiency of each fund in our sample, we calculated the value-weighted portfolio carbon intensity as in Equation (2).

$$Portfolio\ Carbon\ Intensity_j = \sum_{i=1}^{N_j} w_{i,j} \cdot Carbon\ Intensity_{i,j}, \qquad (2)$$

where, the $Portfolio\ Carbon\ Intensity_j$ quantifies the weighted average carbon intensity for fund j at the holdings date. The variable $w_{i,j}$ denotes the long-only value-weighting of stock i in fund j's portfolio. $Carbon\ Intensity_{i,j}$ is the Scope 1 and 2 carbon intensity of stock i in fund j's portfolio. N_j denotes the total number of stocks invested in fund j.[5] This metric was chosen as a proxy for the carbon performance of the global equity funds in our sample, given it measures the carbon efficiency of a fund.

Next, we analysed ESG performance, obtaining firm-level ESG scores based on the ISIN codes of the securities held by the 78 global equity funds. We attempted to overcome the issue of divergent ESG ratings by utilising three leading ESG providers in our analysis: Refinitiv, MSCI, and Sustainalytics. Refinitiv measures a company's relative ESG performance, commitment, and effectiveness (Refinitiv, 2021), scoring firms on a percentile scale from 0 ('poor') to 100 ('excellent'). MSCI measures a firm's resilience to long-term, financially relevant ESG risks (MSCI, 2020), scoring companies on a scale from 0 ('laggard) to 10 ('leader'). Finally, Sustainalytics measures the unmanaged risks of a company concerning ESG issues that are considered material (Garz et al., 2019), scoring firms on a scale from 0 ('negligible risk') to 40+ ('severe risk'). We inverted the Sustainalytics scores for our regressions analyses to ensure

[5] Despite using long-only portfolio positions in our calculation, our results are almost identical when calculating net-positions, given the lack of short positions in the sample of portfolio holdings.

that a higher score implies better ESG performance and coefficients are comparable. Based on the available data, Refinitiv ESG scores cover 76% of the securities on our aggregated list, while MSCI and Sustainalytics ESG scores have data coverage of 78% each. Due to data availability, we also obtained ESG rating data based on the fiscal year ending 2020, assuming that ESG scores are not materially different to the date of our fund holdings data. As above, we noted that fund managers are likely to rely on predated ESG data when making portfolio decisions.

For each fund, we calculated the value-weighted portfolio ESG Score as in Equation (3).

$$Portfolio\ ESG\ Score_j = \sum_{i=1}^{N_j} w_{i,j} \cdot ESG\ Score_{i,j}, \qquad (3)$$

where $Portfolio\ ESG\ Score_j$ quantifies the weighted average Refinitiv, MSCI or Sustainalytics ESG score for fund j at the holdings date. The variable $w_{i,j}$ represents the normalised long-only value-weighting of stock i in fund j's portfolio. For each fund j, individual weightings have been normalised (rescaled) based on the holdings that have available ESG ratings. This method is commonly used by fund ESG rating providers to address missing data that is difficult to estimate (MSCI, 2021; Barr et al., 2021). $ESG\ Score_{i,j}$ is the Refinitiv, MSCI or Sustainalytics ESG Score of stock i in fund j's portfolio. N_j denotes the total number of stocks invested in fund j. A higher weighted-average ESG Score indicates that a fund has relatively better ESG performance, as measured by our three different rating providers (including our inverted Sustainalytics scores).

Finally, we utilised the Morningstar Direct database to gather portfolio-level data for our sample of global equity funds to use in regression analysis. For example, we obtained data relating to the institution's location of headquarters, fund style, size, management fees, fund age, 12-month financial performance and volatility. This data, which is consistent across survey respondents and non-respondents, were used in our subsequent analysis.

3.3 Determinants of Respondent Carbon Performance

In this section, we analysed the drivers of carbon performance of our survey. To do this, we integrated survey responses into OLS regression analysis to address the heterogeneity between different funds. However, as we only had holdings data for 33 responding funds, this limits the

number of explanatory variables that we could use in our analysis. Consequently, caution should be maintained given that our models lack a complete set of fund-level controls. To overcome this concern, we individually rotated each variable of interest with various sets of control variables. We analysed the determinants of portfolio carbon intensity for respondents in Equations (4) and (5).[6]

$$Portfolio\ Carbon\ Intensity_j = \beta_0 + \beta_1 X_j + \beta_2 Headquarters_j + \beta_3 ESG\ Name_j + \varepsilon_j, \quad (4)$$

$$Portfolio\ Carbon\ Intensity_j = \beta_0 + \beta_1 X_j + \beta_2 Style_j + \beta_3 Ln(Size)_j + \varepsilon_j, \quad (5)$$

Here, we tested various explanatory variables individually, represented by X_j, after controlling for $Headquarters_j$ and $ESG\ Name_j$ in Equation (4), and $Style_j$ and $Ln(Size)_j$ in Equation (5). $Headquarters_j$ is a categorical variable that reflects the region of the institution's headquarters for fund j. $ESG\ Name_j$ is a binary variable equal to one if fund j has an ESG-related name, and zero otherwise. $Style_j$ is a categorical variable that reflects the investment style of fund j. This compares Value and Growth investment styles relative to Blend styles. Ln($Fund\ Size_j$) represents the natural logarithm of net assets (USD $m). All control variables have been sourced from the Morningstar Direct database. X_j represents the following binary variables of interest: $Climate\ Initiative_j$ takes the value of one if the institution related to fund j is a member/signatory of a climate-related initiative (such as the Climate Action 100+, Net Zero Asset Managers, and the Investor Group on Climate Change) and zero otherwise. $Material\ to\ Financial\ Performance_j$ takes the value of one if fund j indicates that ESG information is material to investment performance and zero otherwise. $Ethical\ Responsibility_j$ takes the value of one if fund j view ESG considerations as an ethical responsibility and zero otherwise. $Decarbonization_j$ takes the value of one if fund j targets portfolio decarbonisation as a RI approach and zero otherwise. $Future\ Performance$ takes the value of one if fund j believes that ESG risks, although not yet priced, will soon impact investment performance and zero otherwise. $Engagement_j$ takes the value of one if fund j actively engages with its portfolio companies on ESG issues and zero otherwise. X_j also

[6] We also analysed the actual vs. stated ESG performance. However, these results lack statistical power. Relative to carbon intensity, portfolios had less ESG data coverage given that this data is hard to estimate. In addition to Equations (4) and (5), we also tested the results using different combinations of control variables. Results are available upon request.

represents the numeric variables $Environment\ Weighting_j$ and $Climate\ Change\ Weighting_j$, which reflects the relative importance placed by fund j on environment and climate change (weighted) themes, respectively (see Section 4.1.4). The explanatory variables represented by X_j, have been chosen to reflect the stated RI measures of each fund.

3.4 Determinants of Carbon and ESG Performance for all funds

Next, we estimated an OLS regression model to analyse the determinants of portfolio carbon intensity for our entire sample of 78 responding and non-responding funds in Equation (6).

$$\begin{aligned} Portfolio\ Carbon\ Intensity_j &= \beta_0 + \beta_1 Headquarters_j + \beta_2 Style_j + \beta_3 ESG\ Name_j \\ &+ \beta_4 \mathrm{Ln}(Fund\ Size_j) + \beta_5 Survey\ Respondent_j + \beta_6 Age_j \\ &+ \beta_7 Financial\ Performance_j + \beta_8 Volatility_j + \beta_9 Intensity\ Coverage_j \\ &+ \varepsilon_j \end{aligned} \quad (6)$$

where the explanatory variables $Headquarters_j$, $ESG\ Name_j$, $Style_j$, and $\mathrm{Ln}(Fund\ Size_j)$ have been defined above (see Section 3.3). $Survey\ Respondent_j$ is a binary variable equalling to one if fund j has responded to our survey, and zero otherwise. We employ other fund-level controls such as Age_j, $Financial\ Performance_j$, and $Volatility_j$, which represent the fund age (months), 12-month financial performance, and the standard deviation of the 12-month financial performance of fund j, respectively, at the respective date of holdings disclosure. All control variables have been sourced from Morningstar Direct. For consistency, variables that were self-reported by the respondents in our survey were replaced with those from the Morningstar Direct database for this analysis. Finally, $Intensity\ Coverage_j$ is defined as the percentage of fund j's gross weight that comes from securities with carbon intensity data available.[7]

Finally, to analyse the determinants of a fund's portfolio ESG score, we utilised an OLS regression model for the entire sample of respondents and non-respondents in Equation (7).

[7] We excluded funds that have an intensity coverage value of less than 70% from our regression analysis.

$$
\begin{aligned}
&Portfolio\ ESG\ Score_j \\
&\quad = \beta_0 + \beta_1 Headquarters_j + \beta_2 Style_j + \beta_3 ESG\ Name_j \\
&\quad + \beta_4 \mathrm{Ln}\big(Fund\ Size_j\big) + \beta_5 Survey\ Respondent_j + \beta_6 Age_j \\
&\quad + \beta_7 Financial\ Performance_j + \beta_8 Volatility_j + \beta_9 ESG\ Coverage_j \\
&\quad + \varepsilon_j
\end{aligned} \tag{7}
$$

Here, $ESG\ Coverage_j$ is a control variable that reflects the percentage of fund j's gross weight of securities with Refinitiv, MSCI, or Sustainalytics ESG data available.[8] All other control variables are consistent with those defined earlier in this paper.

The control variables used in Equations (6) and (7) have been adopted from the literature that analyses greenwashing at the fund level (Raghunandan & Rajgopal, 2021; Alda, 2020). Other variables of interest, such as the region of headquarters, stemmed from our review of the RI literature. Specifically, prior studies have found that U.S.-based institutions were more sceptical about the social benefits of ESG considerations (Amel-Zadeh & Serafeim, 2018; van Duuren et al. 2016), and were more commonly engaged in greenwashing (Brandon et al., 2021; Kim & Yoon, 2020).

4. Results

4.1 Survey Descriptive Results

4.1.1 Survey Summary Statistics

The left-hand panel of Table 1 reports the demographic characteristics of respondents and their associated institutions. Despite our Australasian investor focus, the responding institutions were diverse with headquarter locations spread among Australia (36%), New Zealand (27%), the U.S. (23%), the U.K. (5%) and other countries (9%). Among the responding institutions, 80% reported that they incorporated ESG considerations across all of their funds, while 20% reported that they did across some funds. This shows that ESG considerations have become more important since previous surveys, such as in Amel-Zadeh and Serafeim (2018), who found that 35% of respondents did not allocate any portion of their AUM to ESG-related investments. Our finding could be driven by the loose definition of ESG considerations. For example, some funds may believe classical Governance practices and traditional exclusions, such as pornography and tobacco, are ESG considerations. It may also reflect the growing

[8] We excluded funds that have an ESG coverage value of less than 70% from our regression analysis, as it is a common practice in the fund ratings industry (MSCI, 2021).

importance of ESG issues over time given that our survey was undertaken in 2021 while their survey was distributed in 2015.

[INSERT TABLE 1 HERE]

When asked how their institution builds ESG capabilities, most respondents indicated that they conducted in-house training (95%), while only a third (34%) used external training providers. We asked the respondents to report their institution's commitments to ESG initiatives. Most institutions were signatories of the PRI (91%), and just over half (59%) were members of at least one climate-related initiative such as the Carbon Disclosure Project (39%), Climate Action 100+ (30%), and the Investor Group on Climate Change (27%).

The right-hand side of Table 1 illustrates the characteristics of the flagship ESG global equity funds provided by respondents in the survey. Of the 43 funds, the median size was US$340 million, 91% were actively managed, and only one indicated that their lead portfolio manager was female (2%), highlighting a significant gender disparity. Over half of the funds (56%) had a holding period of two to five years, while the most popular investment style was quality (47%), followed by growth (37%) and fundamental strategies (35%).

For our subsequent analyses, we divided the sample into different groups to compare different demographic characteristics. We conditioned the survey responses based on (1) the region of the institution's headquarters (Australasia, US, and other); (2) the size of the global equity fund (greater than 50% of the median size and less than or equal to 50% of the median size), and; (3) whether the fund has an ESG-related name (yes and no).

4.1.2 Responsible Investing Motivations

Corresponding to the rise of RI strategies within the asset management industry, we assessed the key motivations of the institutions in our sample. Table 2 presents the survey responses to the question "Why does your institution consider ESG information when making investment decisions", where respondents could choose one or more alternatives that represented their institution. This question was adapted from Amel-Zadeh and Serafeim (2018).[9]

[INSERT TABLE 2 HERE]

[9] Respondents were allowed to provide text entry answers for reasons that were not included in this list.

Table 2 highlights that RI appears to be primarily driven by value rather than values Specifically, most respondents indicated that ESG risks are material to financial performance (81%), followed by growing client/stakeholder demand (74%). This result is consistent with the findings of Amel-Zadeh and Serafeim (2018). Fewer respondents cited having an ethical responsibility (51%) or encouraging positive change in individual companies (65%) as motivations for RI.

The divergence between performance-based *value* and ethical *values* as a motivation for RI is emphasised for the U.S. region in Column 3 of Table 2. While 89% of U.S. institutions used ESG information because it is material for financial performance, only 11% did so because it is their ethical responsibility. Across the regions, there is a large disparity in the proportion of respondents who selected 'We see it as an ethical responsibility'. We conducted a Chi-Square Test of Independence to assess the relationship between ethical responsibility and region of headquarters (comparing Australasia and the U.S. only due to sample size constraints). At the 1% level, we concluded that there is a significant relationship between the two variables (χ^2 (1, N=44) = 8.69, p = .003). Australasian institutions were more likely to view RI as their ethical responsibility, relative to U.S. institutions. These findings relate to both Amel-Zadeh and Serafeim (2018) and van Duuren et al. (2016) who found that US-based funds were more sceptical about ESG investing and more likely to adopt RI practices for performance-based reasons, in comparison to non-U.S. funds. This appears to be consistent with our results.

4.1.3 Responsible Investing Approaches

In Table 3, we assessed the responsible investment approaches adopted by the global equity funds provided by respondents (see Question 23 in Appendix 2, which was adapted from Amel-Zadeh and Serafeim (2018)). Definitions for RI approaches can be found in Appendix 1.

[INSERT TABLE 3 HERE]

The results in Table 3 reveal that the most common RI approach among respondents was incorporating ESG considerations into fundamental analysis (84%). Following this, 81% of funds negatively screened (excluded) stocks and 79% employed active engagement strategies with corporations on their ESG issues. Within the survey, only 37% of funds utilised best-in-class screening, which reflects a large divergence between positive and negative screening. Surprisingly, only 28% targeted the decarbonization of their portfolios. Compared to Amel-

Zadeh and Serafeim (2018), our respondents more widely incorporated RI approaches. This may indicate an increasing uptake in ESG adoption among fund managers since their 2015 survey was conducted, alongside our focus on the most ESG ambitious global equity funds.

Column 4 of Table 3 highlights that a significantly lower proportion of large funds incorporated ESG considerations into fundamental analysis relative to small funds, at the 5% level. This result is surprising, given that larger funds likely have more resources to integrate ESG information into financial forecasts and analysis. Column 7 highlights that screening approaches (both positive and negative) were significantly more common among ESG named funds, relative to non-ESG named funds, at the 5% level. While not significant, ESG named funds tended to utilise a greater variety of RI approaches such as thematic investment, portfolio overlay, quantitative ESG factor and decarbonisation, but also incorporated ESG factors into fundamental analysis less commonly.

4.1.4 ESG Theme Priority

Within RI, ESG considerations are broad and encompass many different themes, which may be treated with varying levels of importance within the investment process. Table 4 presents the relative weightings of ESG themes and subthemes by the funds in our sample. Using constant sum (point allocation) questions, respondents were asked to allocate 100 points between environmental, social and governance themes based on the importance placed by their fund in the investment process. This question was repeated for four environmental subthemes (climate change, pollution and waste, natural capital, and environmental opportunities), four governance subthemes (board composition, remuneration, corporate behaviour, and shareholder rights), and four social subthemes (supply chain and community, health and safety, product liability, and human capital management). By allocating 100 points between various alternatives, we could establish relative weightings. Unless stated otherwise, Table 4 reports the average (mean) weighting of each theme/subtheme.

[INSERT TABLE 4 HERE]

Panel A of Table 4 highlights that on average, the global equity funds in our survey placed the highest importance on environmental themes within the investment process, followed by governance and then social themes. This result differs from van Duuren et al. (2016) who found that fund managers were relatively more focused on governance factors relative to social and

environmental factors. Our result is likely attributable to the rising stakeholder and policymaker emphasis on Environmental issues, particularly climate change. However, the environmental weighting also had the largest variability among the distribution of the responses, reflected by the standard deviation of 0.15. It is likely that funds placed a lower importance on social themes given that the related metrics are more difficult to measure and less objective than environmental and governance issues.

In Panel A, we found that the distribution of ESG named and non-ESG named funds, with respect to the relative importance placed on environmental and governance themes, was significantly different at the 5% level. Specifically, ESG named funds placed a higher weighting on environmental themes and a lower weighting on governance themes, relative to non-ESG named funds. This fits with the traditional view that conventional asset managers value strong corporate governance given that it is essential for reducing agency problems (Picou & Rubach, 2006). In Panel A, our regional analysis highlighted that on average, funds with Australasian headquarters placed equal importance on environmental and governance themes when selecting investments, while funds with U.S. headquarters tended to provide a higher weighting for environment themes. Given that respondents with U.S. headquarters were primarily motivated by financial performance, it is likely that they prioritised environmental themes given that there is better data and stronger links to performance, relative to social themes, which is driven by rising consumer demand through climate change awareness (Credit Suisse, 2021; Climate Action 100+, 2020; Trinks et al., 2020; TCFD, 2017).

Panel B of Table 4 establishes the relative weightings of environmental, social and governance subthemes. On average, the most important environmental subtheme was climate change (0.35), followed by environmental opportunities (0.24). The most prioritised governance subtheme was corporate behaviour (0.34), followed by shareholder rights (0.23). Finally, the most important social subtheme was supply chain & community (0.28), followed equally by health & safety and product liability (0.24).

Panel C of Table 4 presents the weighted ESG subthemes, which have been ordered based on their overall level of importance. For each fund in our sample, we multiplied the weighting of each subtheme (as represented in Panel B) by the weighting of the associated theme (as represented in Panel A). Panel C highlights that on average, global equity funds in our sample placed the highest importance on climate change (0.15), followed by corporate behaviour (0.11), supply chain & community (0.09) and environmental opportunities (0.09). We noted

that these subthemes had considerably higher variability in their distribution of responses relative to other subthemes. On average, fund managers placed the least importance on natural capital (including biodiversity) within the investment decision making process, which is cause for concern as environmental hazards go far beyond climate change and are interconnected (Chandellier & Malacain, 2021). While fund managers tended to prioritise climate change, it is somewhat contradictory that few respondents engaged in portfolio decarbonisation as a RI approach (as shown in Table 3).

Panel C emphasises that ESG named funds shared a strong climate focus. In the investment process, they placed relatively greater importance on climate change themes, relative to non-ESG named funds, who addressed climate change and corporate behaviour with equal importance. Our regional analysis indicates that funds with U.S.- based headquarters ranked climate change as the most important subtheme, followed by environmental opportunities. Again, this is likely due to the strong thematic links to financial performance, which is prioritised in the U.S. In comparison, funds with Australasian headquarters ranked corporate behaviour first, followed by climate change.

4.1.5 Reported Portfolio Carbon Intensity

Rising stakeholder demand for addressing climate change coupled with improved stock-level data coverage has led many fund managers to measure their portfolio's exposure to emissions In Table 5, we present the reported weighted average portfolio carbon intensity of respondents' funds, with reference to Scope 1 and 2 emissions in Panel A, and Scope 1, 2 and 3 emissions in Panel B (see Question 34 and 35 in Appendix 2). Respondents were able to select that they used a different intensity measure or did not calculate this metric with the opportunity to explain their answer in free text.

[INSERT TABLE 5 HERE]

In Panel A of Table 5, only 49% of funds in the sample provided their Scope 1 and 2 portfolio carbon intensity, while a further 9% selected that they use a different intensity calculation. While ESG investing appears to be widely adopted across our sample of global equity funds, this result is surprising given that carbon exposure is a material ESG risk that can cause substantial losses for investors. Namely, assets may become stranded due to the global energy transition (Chenet, 2021). The proportion of ESG funds that provided their weighted average

carbon intensity was significantly higher than non-ESG funds at the 10% level, reflecting the larger importance placed on climate change themes in Section 4.1.4. Interestingly, some ESG named funds indicated that they did not calculate an emissions intensity metric, citing that "It is not a specific objective of the fund" or "We do not currently have any clients who have requested this information. However, we could calculate this if a client requested." Across the regions, respondents with Australasian headquarters lagged behind other funds in our sample with respect to reporting this information.

In Panel B, most respondents did not calculate Scope 1, 2 and 3 portfolio carbon intensity, with more than half citing data reliability and coverage issues with Scope 3 emissions. The nature of Scope 3 emissions, which result from the activities that are not controlled by the reporting corporate, can lead to double-counting, as two or more organisations may account for the same emissions. A significantly higher proportion of ESG named funds (68%) explained why they did not calculate this intensity measure at the 1% level, relative to non-ESG named funds (54%).

4.1.6 Further Survey Results

In Appendix 3, we also investigated the types of ESG data used by respondents, highlighting that fund managers more commonly incorporate analysis at the individual firm level rather than at the aggregated sector or country level. Appendix 4 details the types of active engagement approaches implemented, revealing that fund managers tended to prefer private interactions with firms first and only took public actions once private interventions fail. Finally, Appendix 5 highlights the types of ESG voting approaches used, finding that most respondents used proxy voting.

4.2 Determinants of Respondent Carbon Performance

Table 6 presents the fund summary statistics relating to the 33 survey respondents with available portfolio holdings data. The mean portfolio carbon intensity was 103.52 tonnes of CO2 equivalent per million USD of revenue, and there was significant variability across responding funds. Interestingly, the fund with the largest portfolio carbon intensity value had a climate-related name. For the responding funds, the mean weighted-average ESG score using Refinitiv data was 66.36, reflecting the 'Third Quantile' or an above-average ESG performance, 6.19 using MSCI data, reflecting the 'Average' category, and 21.51 using Sustainalytics data,

in the 'Medium' category of ESG risk. The mean age of the responding funds was approximately 8 years old.

[INSERT TABLE 6 HERE]

We compare the stated and actual Scope 1 and 2 portfolio carbon intensity of respondents in Figure 2. On average, the (few) funds who provided this metric in the survey are underreporting their portfolio's exposure to carbon-intensive firms. This is attributable to the severe underreporting by a select group of respondents. The divergence between stated and actual carbon performance is further emphasised in Table 7. After establishing the relative weightings of various ESG subthemes in Section 4.4, we rank each fund from one to thirty-three based on the level of importance they place on climate change during the investment process (from highest to lowest). Alongside this, we rank each fund from one to thirty-three based on the size of their actual portfolio carbon intensity (from lowest to highest). In Table 7, we highlight that some of the funds that place the highest importance on climate change themes have a relatively poor ranking concerning their carbon performance. Notably, the fund that places the greatest importance on climate change only has the 22nd lowest portfolio carbon intensity (out of the 33 responding funds), indicating that their portfolio is relatively more exposed to carbon-intensive firms than most other respondents. Across the 33 responding funds, stated and actual rankings have a correlation of –0.056, which highlights a negligible relationship between words and actions. These findings are likely driven by one of two possible reasons: On one hand, some respondents may be overstating their commitment to climate change to attract sustainable investment fund flows, consistent with greenwashing. On the other hand, funds that prioritise climate change themes may be actively engaging with their portfolio companies, which have higher emission intensities, to improve their carbon efficiency. Whether these funds engage actively is left for further research.

[INSERT TABLE 7 HERE]

Table 8 presents the results for the multilinear regression models in Equations (4) and (5), as defined in Section 3.3. The results in Table 8 highlight several interesting relationships. Firstly, respondents that actively engage with portfolio companies as a RI approach have a higher portfolio carbon intensity, at the 5% level of significance, relative to those that do not. In the investment process, fund managers face a choice of engaging with or divesting away from

environmentally damaging companies (Atta-Darkua et al., 2020). Intuitively, those that choose to engage wish to instil a positive environmental change into companies that are currently unsustainable.

Surprisingly, Table 8 highlights that portfolio emission intensity does not significantly differ for funds that place a high level of importance on climate change themes (*Climate Change Weighting*), and for funds that undertake a portfolio decarbonisation strategy *(Decarbonisation)*. These results appear to be counterintuitive, as one would expect that managers that truly value climate change, and those seeking to reduce their carbon footprint, will have relatively lower exposure to carbon-intensive companies. Another key finding is that the portfolio carbon intensity is higher when respondents are a member of a climate-related initiative (*Climate Initiative*), and this is significantly worse, at the 10% level, across the various regressions. This may indicate that institutions are joining climate initiatives to appear more sustainable without truly embracing sustainable investing approaches. Finally, portfolio carbon intensity is higher for those respondents that believe that ESG risks, although not yet priced, will soon impact investment performance at the 5% level of significance (*Future Performance*). Again, this is surprising given that carbon intensity is an objective dimension of ESG risk (De Spiegeleer et al., 2021). The above results are robust when employing financial year 2019 revenue data, to avoid the COVID impact on revenues.

[INSERT TABLE 8 HERE]

A recent survey of institutional investors by Krueger et al. (2020) found that larger, longer-term, and ESG-focused investors consider engagement and risk management to be a better method for addressing climate-related risks, relative to divestment. Hence, active engagement strategies may potentially explain some of the unintuitive findings above. To test whether the results above are driven by engagement, we conduct further analysis. Firstly, we rerun our regressions controlling for active engagement as a RI strategy, where $Engagement_j = 1$. To extend this analysis, we also create a new control variable $Activist\ Fund_j$, which looks beyond voting or holding private discussions with management, which most funds do (see Appendix 4). Specifically, $Activist\ Fund_j = 1$ if fund j indicated that they take legal action against management on ESG issues, submit shareholder proposals on ESG issues, or publicly criticise management on ESG issues, and 0 otherwise. We define activist funds as those who are demanding and proactively engage with management to create change. As with engagement, we also control for activist funds. Table 9 presents the results for these analyses.

[INSERT TABLE 9 HERE]

In Table 9, it is evident that our earlier results hold, even after controlling for actively engaging, and activist funds. Specifically, the portfolio carbon intensity does not significantly differ for funds that place a high level of importance on climate change themes, and for those that have a portfolio decarbonisation strategy. Hence, these results offer some evidence that funds are overstating their RI strategies, again hinting at greenwashing. Table 9 also highlights that portfolio carbon intensity is higher for the funds who are members/signatories of a climate initiative at the 5% level of significance. Notably, funds that practice engagement have higher emissions intensity, but activist funds do not. Given that we have controlled for engagement and activist funds, this result is consistent with greenwashing. Specifically, funds are signalling their commitment to global emission objectives to capitalise on the growing sustainable investment market, without 'walking the talk'. Given that retail investors are more likely to fall for the obfuscation associated with greenwashing (Carlin & Manso, 2011; deHaan et al., 2021), this information failure is an example of adverse selection, which may negatively impact investor welfare (Akerlof, 1970). The results in Table 9 are also robust when we incorporate our initial control variables (headquarters, style, ESG name, and size), alongside portfolio carbon intensity coverage.

4.3 Determinants of Carbon and ESG Performance

Next, we turned our attention to the carbon and ESG performance of global equity funds in our full sample of respondents and non-respondents. Table 10 presents the fund summary statistics relating to the 33 respondents and 45 non-respondents. Across the entire sample, the mean portfolio carbon intensity was 109.30 tonnes of CO2 equivalent per million USD of revenue, with a significant spread observed between funds. The mean weighted-average ESG score using Refinitiv data was 66.84, 6.22 using MSCI data, and 21.54 using Sustainalytics data. These scores were very similar to the respondent-only sample (refer to Section 5.1). Of the 78 funds, there were 23 ESG named funds, or 29% of the sample. The mean fund age was approximately 18 years old, which more than doubled that of the respondents-only sample. For the subsequent regression analyses, we required that at least 70% of a fund's gross weight came from securities with carbon intensity or ESG rating data available.

[INSERT TABLE 10 HERE]

Table 11 investigates the common fund-level characteristics that drive the carbon performance of global equity funds in our full sample, presenting the results to the multi-linear model in Equation (6) (see Section 3.4). Accounting for our sample size, we utilised two variations of the OLS regression model to test the effect of all explanatory variables of interest on portfolio carbon intensity.

[INSERT TABLE 11 HERE]

The results in Table 11 highlight that survey respondents did not have a significantly different portfolio carbon intensity relative to non-respondents. This is surprising, given our prior expectation that the respondents would be biased towards institutions that have a high awareness of ESG issues and risks, such as exposure to carbon-intensive companies. Alongside this, we noted that our survey respondents had a greater preference for addressing environmental themes within the investment process, on average, relative to previous surveys (van Duuren et al., 2016). Another interesting result from Table 11 is that portfolio carbon intensity was not significantly different for ESG named funds, relative to non-ESG named funds. This is surprising as the ESG named funds in our survey were more climate-focused, on average, relative to non-ESG labelled funds who placed a relatively high level of importance on governance and corporate behaviour themes.

In Table 11, it is evident that value style funds had a significantly higher portfolio carbon intensity relative to blend style funds at the 5% level. Value investing is a style that targets companies that trade at a significant discount to their intrinsic value and such investors tend to focus on the fundamental aspects of a company, including price-to-earnings multiples and free cash flow that can be used to pay out dividends. Hence, a potential explanation for the result above is that value-style funds were accumulating carbon-inefficient firms that are temporarily undervalued due to divestment. This interpretation is consistent with Heinkel et al. (2001), who argued that divestments place downward pressure on stock valuations, as higher discount rates are applied to future cash flows. Alongside this, firms within the oil, gas, and coal sectors have historically high yields relative to other equities, and their profitability is secure due to their ownership of extraction rights (Bullard, 2014). Consequently, such companies are likely to appeal to value investors when their prices are cheap, especially in the short investment horizon these managers operate within.

In this paper, our survey highlighted that RI was largely driven by performance-based expectations and stakeholder demand rather than by ethical motivations, particularly for

institutions based in the United States. Consequently, we assessed the portfolio carbon intensity by the region of headquarters. While the results in Table 11 indicate that asset managers with headquarters in the U.S. and other regions had higher portfolio carbon intensities, relative to those with Australasian headquarters, the results are not consistently significant across both variations of our model. Hence, there is insufficient evidence to conclude that portfolio carbon intensity is significantly different across the regions.

As a robustness check, we recalculated carbon intensity for each security using FY19 revenues (maintaining FY20 emissions) to account for the potential sales impact of the COVID-19 Pandemic. These results are presented in Appendix 7 and are consistent with the results above.

The final part of this analysis explores the determinants of ESG performance for our entire sample of global equity funds. Table 12 presents the results of the multi-linear regression model in Equation (7) (see Section 3.4). We investigated two variations of this model due to our sample size while testing all explanatory variables of interest on the portfolio-level ESG scores. In our analysis, we compared these models using portfolio ESG scores calculated from three different rating providers: Refinitiv, MSCI, and Sustainalytics. This attempts to overcome the noise attributable to each individual provider, given that they measure and aggregate ESG issues differently (Chatterji et al., 2016; Berg et al., 2019).

[INSERT TABLE 12 HERE]

Table 12 highlights the divergence in results when using different ESG providers. Utilising Refinitiv ratings, ESG named funds within our sample did not have significantly different portfolio ESG scores to non-ESG named funds. However, with MSCI ratings, ESG named funds had relatively higher portfolio ESG performance, and this is significant at the 5% or lower levels across the model variations. The result is similar for Sustainalytics data, which is significant at the 10% or lower levels. Globally, it is estimated that 60% of all retail investment into ESG funds has flowed into those that are built on MSCI's ratings (Simpson et al., 2021). This explains the significant and positive relationship between ESG named funds and MSCI portfolio scores. The MSCI methodology has been criticised given that "the ratings don't measure a company's impact on the Earth and society. In fact, they gauge the opposite: the potential impact of the world on the company and its shareholders" (Simpson et al., 2021, p.g. 1). Consequently, if regulations aimed at alleviating climate change do not threaten a company's bottom line, emissions are deemed irrelevant by MSCI within their framework

(Simpson et al., 2021), which may explain the surprising carbon intensity determinant results earlier.

Further inconsistencies between the different ESG providers can be observed in Table 12. For example, growth style funds had significantly lower portfolio ESG performance relative to blend style funds at the 1% level when using Refinitiv ratings. Growth investors are those who focus on capital appreciation, often looking for smaller companies with long term prospects. Such companies often lack coverage by ESG providers or are disadvantaged by the ESG rating size bias (Drempetic et al., 2019). Contrastingly, growth style funds had better portfolio ESG performance at the 5% level of significance, when using Sustainalytics data. A potential explanation is that growth funds are pursuing rapidly advancing industries that offer sustainable alternatives, such as green technologies. However, the differences observed between the Sustainalytics and Refinitiv scores are likely being driven by the noise associated with the individual rating methodologies. In Table 12, there is some evidence that asset managers with headquarters based in the U.S. had significantly higher portfolio Refinitiv and MSCI ESG scores, relative to those based in Australasia. Furthermore, those with headquarters in Europe and other regions had significantly higher Refinitiv ESG scores, relative to those based in Australasia. This may suggest that asset managers based in Australasia were trailing behind their international peers with respect to their externally measured ESG performance. However, this is not robust across all three rating providers and the Australasian funds had lower carbon intensities.

Finally, the results in Table 12 indicate that responding funds did not have a significantly different portfolio ESG performance relative to non-respondents, across all three ESG providers. As with portfolio carbon intensity, this result is surprising as we anticipated that respondents would be biased towards ESG 'adopters' with awareness of ESG issues and risks, relative to ESG 'sceptics'. Across the three ESG providers, the coverage of ESG scores within a portfolio is significantly and positively related to the portfolio-level score, despite our normalisation of asset weightings based on the available data. Missing data presents a key challenge when evaluating portfolio ESG performance, and this is an issue that could receive further attention within the literature.

In our analysis, we also investigated the non-normalised value-weighted portfolio ESG scores as a robustness check in Appendix 8. While producing similar results, we found that ESG

named funds did not have significantly different portfolio ESG performance, relative to non-ESG named funds, when using Sustainalytics ratings.

5. Conclusion

Through our survey of retail global equity funds offered in Australasia, we elicited an understanding of how and why asset managers integrate ESG information into the investment process. We provided insights into the underlying motivations behind RI, the types of information and investment approaches used, and finally, the relative importance placed by fund managers on various ESG issues. Next, we evaluated the stated and actual carbon performance of respondents, before assessing the determinants of carbon and ESG performance.

Our survey highlighted that RI was largely driven by expected *value* (performance-based expectations and client demand) rather than *values* (having an ethical responsibility to make a positive difference), particularly for institutions that are based in the United States. We documented that the top three RI approaches were incorporating ESG considerations into fundamental analysis, negative/exclusionary screening, and active engagement, consistent with previous literature (Amel-Zadeh & Serafeim, 2018) and industry reports (RIAA, 2021a; RIAA; 2021b). We found that funds with U.S. headquarters tended to place a relatively greater level of importance on environmental themes within the investment process, which have more objective data, and stronger links to financial performance (Credit Suisse, 2021; Climate Action 100+, 2020; Trinks et al., 2020; TCFD, 2017). In contrast, funds with Australasian headquarters prioritised environmental, social, and governance themes more equally. Across all ESG subthemes, fund managers tended to place the highest importance on climate change, followed by corporate behaviour. This was emphasised for ESG named funds, which share a strong climate focus. Among institutions, RI strategies are now being widely adopted into investment decisions. However, the magnitude of these changes is not yet clear, particularly when many managers are not even measuring portfolio carbon intensity.

We documented a divergence between the stated and actual carbon performance of respondents, highlighting that fund managers were overstating their commitment to global emission objectives, without 'walking the talk'. We found that portfolio carbon intensity was significantly higher for respondents that were members of a climate initiative, and not significantly different for those that prioritised climate change themes or engaged in a decarbonisation strategy. This finding does not appear to be driven by actively engaging or activist funds, rather, it is consistent with greenwashing funds seeking to attract responsible

investment flows. This is concerning for retail investors, who may not be able to distinguish between greenwashing funds ('lemons') and genuine responsible funds.

Finally, we found no significant differences in the carbon and ESG performance of respondents and non-respondents, which indicates that our survey is robust to self-selection bias. We also found that ESG named funds only obtain significantly better portfolio ESG scores, relative to non-ESG named funds, using ratings from MSCI and Sustainalytics, but not Refinitiv. We contributed to the discussion surrounding the divergence of external ESG ratings, highlighting that some of the inconsistencies found in our results are likely attributable to the different scope, measurement, and weighting methodologies of the providers, as shown by Berg et al. (2019).

Given that we evaluated each fund's portfolio at one point in time, it would be interesting to explore the evolution of portfolio carbon intensities and ESG scores over time in further research. Alongside this, additional analysis could compare the divergence of each fund's ESG performance from its stated benchmark, alongside a general global equity benchmark given that our sample features both ESG focussed funds and conventional funds.

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Figures

Figure 1: Survey Flow Diagram

Figure 1 presents the order flow of our survey questions. Arrows and boxes represented by dotted lines indicate the questions that were displayed to respondents conditional on their previous response.

Figure 2: Stated vs. Actual Portfolio Carbon Intensity

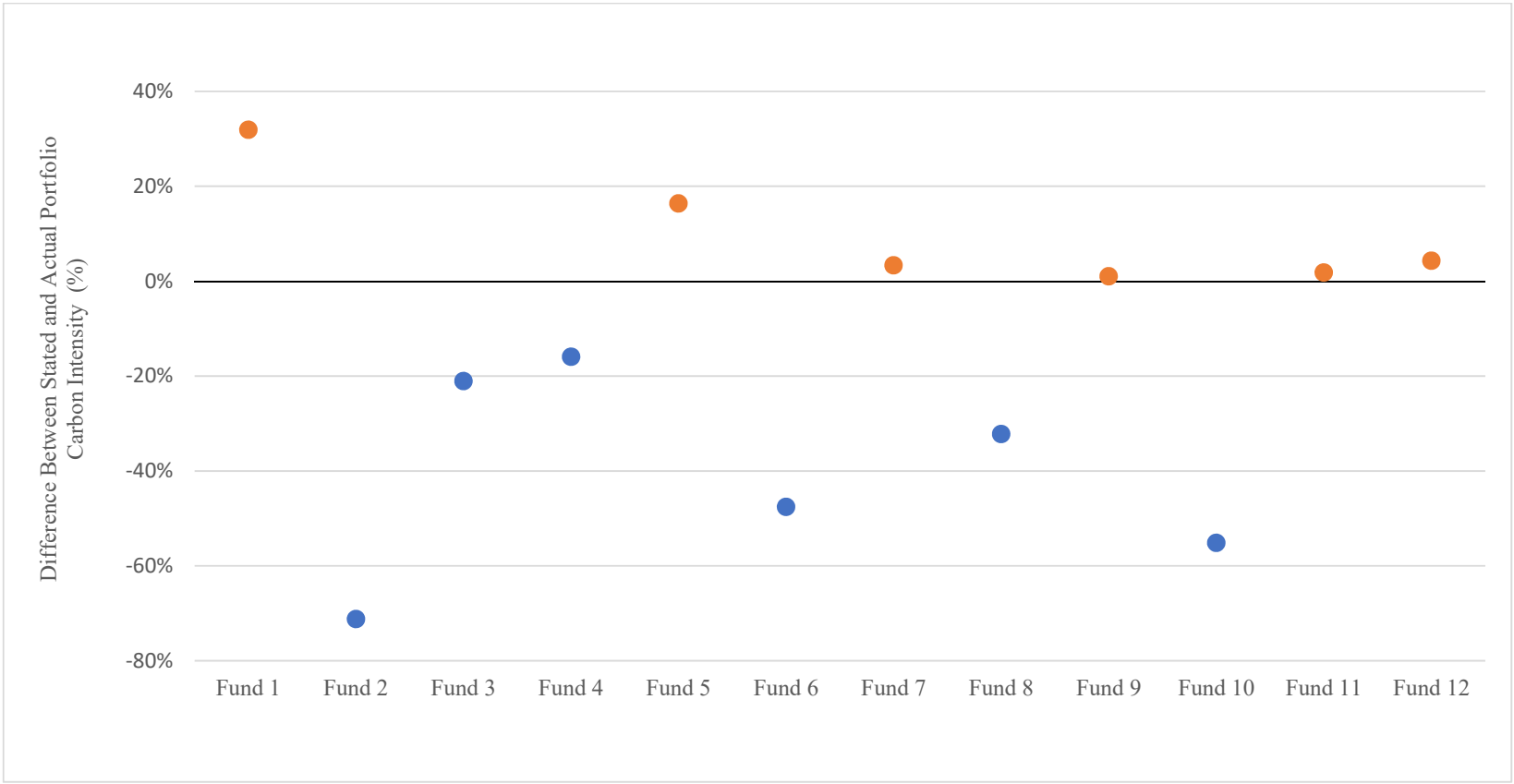

Figure 2 illustrates the percentage difference between stated and calculated Scope 1 and 2 portfolio carbon intensity of respondents. Of the thirty-three responding funds with available portfolio holdings data, only twelve provided their Scope 1 and 2 portfolio carbon intensity in the survey. The percentage difference is calculated as (Stated – Actual)/Actual. A positive percentage difference indicates overreporting, while a negative percentage difference indicates underreporting.

Tables

Table 1: Summary Statistics

Institution-Level	N	%	Fund-Level	N	%
Respondent Job Title/Position			**Fund Size (in US $ million)**		
ESG/Responsible Investment Specialist	9	20%	< 100	11	26%
Investment Analyst/Strategist	7	16%	100 - 500	12	28%
Fund/Portfolio Manager	6	14%	500 - 1000	8	19%
Executive/Managing Director	5	11%	1000 - 5000	9	21%
Chief Executive Officer	2	5%	> 5000	3	7%
Chief Investment Officer	3	7%			
Other	12	27%	**Fund Type**		
			Actively Managed	39	91%
Location of Headquarters			Passively Managed	4	9%
Australia	16	36%			
New Zealand	12	27%	**Lead Fund Manager Gender**		
United States	10	23%	Male	41	95%
United Kingdom	2	5%	Female	1	2%
Other	4	9%	Other	1	2%
ESG Considerations in Investment Decisions			**ESG Named Fund**		
Across All Funds	35	80%	No	24	56%
Across Some Funds	9	20%	Yes	19	44%
None	0	0%			
			Average Fund Holding Period		
Attainment of ESG Capabilities			Short (less than 6 months)	0	0%
Internal Training	42	95%	Medium (6 months to 2 years)	9	21%
Hiring ESG Experts	21	48%	Long (2 years to 5 years)	24	56%
Hiring Investment Experts with Some ESG Training	17	39%	Very Long (more than 5 years)	9	21%
External Training	15	34%			
Industry and Academic Groups	14	32%	**Fund Investment Styles**		
Other	9	20%	Quality	20	47%
			Growth	16	37%
Signatories/Memberships			Value/Fundamental	15	35%
Principle for Responsible Investment	40	91%	Specific Theme	12	28%
Climate-Related Initiatives	26	59%	Concentrated (less than 50 holdings)	10	23%
Responsible Investment Association of Australasia	19	43%	Broad Market	8	19%
Other	19	43%	Factor/Quantitative	7	16%
			Momentum	2	5%
			Other	8	19%

Notes: Table 1 presents the institution-level summary statistics on the left-hand side, and the fund-level summary statistics on the right-hand side, as provided by respondents in the survey.

Table 2: Responsible Investing Motivations (n=44)

	Region of Headquarters				
	(1) All	(2) Australasia	(3) U.S.	(4) Other	(5) Range
ESG information is material to investment performance	81%	79%	89%	83%	10%
Growing client/stakeholder demand	74%	71%	78%	83%	12%
ESG risk and opportunities, although not yet priced, will soon affect investment performance	67%	64%	67%	83%	19%
We believe this will encourage positive change in individual firm ESG practices	65%	71%	33%	83%	50%
We see it as an ethical responsibility	51%	64%	11%	50%	53%
It is part of our mandated investment strategy/SIPO	40%	43%	22%	50%	28%
Other	9%	4%	22%	17%	19%

Notes: Table 2 presents the percentage of survey responses to the question "*Why does your institution consider ESG information when making investment decisions?*", where respondents could choose one or more alternatives that represented their institution. Column (1) reports the percentage of respondents that selected the response for a given row. Columns (2), (3), and (4) report the percentage of respondents with headquarters in Australasia, the United States, and Other regions, who selected the response for a given row. Across the region of headquarters, the range (high minus low) of percentages are reported in Column (5). The responses in Table 2 have been ordered from highest to lowest based on the proportion of respondents that chose each reason in Column (1).

Table 3: Responsible Investing Approaches (n=43)

	All	Fund Size			ESG Named Fund			Region of Headquarters			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
		>50%	≤50%	Diff (2) - (3)	Yes	No	Diff (5) - (6)	Australasia	U.S.	Other	Range
Fundamental analysis incorporating ESG considerations	84%	71%	96%	-25%**	79%	88%	-9%	85%	70%	100%	30%
Negative screening	81%	81%	82%	-1%	95%	71%	24%**	85%	80%	67%	19%
Engagement/active ownership with companies on ESG	79%	81%	77%	4%	79%	79%	0%	78%	80%	83%	5%
Positive (best in class) screening	37%	33%	41%	-8%	58%	21%	37%**	37%	40%	33%	7%
Decarbonization of portfolio	28%	38%	18%	20%	37%	21%	16%	22%	30%	50%	28%
Thematic investment	21%	29%	14%	15%	32%	13%	19%	11%	40%	33%	29%
Overlay/Portfolio tilt	12%	14%	9%	5%	26%	0%	26%	4%	20%	33%	30%
Quantitative ESG factor investing	12%	14%	9%	5%	21%	4%	17%	7%	20%	17%	13%
Impact investing	5%	10%	0%	10%	11%	0%	11%	7%	0%	0%	7%
Other	5%	5%	5%	0%	5%	4%	1%	0%	10%	17%	17%

Notes: Table 3 presents the percentage of survey responses to the question "Which ESG investment approaches do you incorporate within this fund?", where multiple responses were allowed. Column (1) reports the percentage of respondents that selected the response for a given row. Columns (2) and (3) report the percentages for funds greater than 50% of the median fund size ('>50%') and less than or equal to 50% of the median fund size (≤50%) respectively. Column (4) reports the difference between Column (2) and (3), and the results of a test of the null hypothesis that the two percentages are equal. Columns (5) and (6) report the percentages for ESG named funds ('Yes') and non-ESG named funds ('No') respectively. Column (7) reports the difference between Column (5) and (6), alongside the results of a test of the null hypothesis that the two percentages are equal. Columns (8), (9), and (10) report the percentage of respondents with headquarters in Australasia, the United States, and other regions, who selected the response for a given row. Across the region of headquarters, the range (high minus low) of percentages are reported in Column (11). Finally, ***, **, and * represent the significance at the 1%, 5%, and 10% levels respectively. The responses in Table 3 have been ordered from highest to lowest based on the proportion of respondents that chose each reason in Column (1).

Table 4: ESG Theme Priority (n=43)

	All		Fund Size			ESG Named Fund			Region of Headquarters			
	(1) Mean	(2) SD	(3) >50%	(4) ≤50%	(5) Diff	(6) Yes	(7) No	(8) Diff	(9) Australasia	(10) U.S.	(11) Other	(12) Range
Panel A: *Themes*												
Environment [E]	38%	0.15	40%	37%	3%	44%	34%	10%**	34%	46%	44%	12%
Governance [G]	32%	0.10	32%	32%	0%	29%	35%	-5%**	32%	26%	33%	7%
Social [S]	29%	0.08	28%	31%	-3%	27%	31%	-5%	32%	26%	24%	8%
Panel B: *Sub-Themes*												
[E] Climate Change	35%	0.22	37%	34%	2%	36%	35%	2%	33%	38%	41%	8%
[E] Environmental Opportunities	24%	0.10	23%	25%	-2%	23%	24%	-1%	24%	27%	17%	10%
[E] Pollution & Waste	23%	0.12	21%	25%	-4%	23%	23%	-1%	26%	17%	20%	9%
[E] Natural Capital (Including Biodiversity)	18%	0.11	20%	16%	3%	18%	18%	0%	16%	19%	23%	6%
[G] Corporate Behaviour	34%	0.18	30%	37%	-7%**	31%	36%	-6%**	39%	25%	28%	14%
[G] Shareholder Rights	23%	0.08	23%	23%	1%	23%	23%	1%	22%	25%	23%	3%
[G] Remuneration	22%	0.09	24%	20%	4%	24%	20%	4%	20%	27%	23%	7%
[G] Board Composition	21%	0.07	23%	20%	3%*	22%	21%	1%	19%	24%	28%	8%
[S] Supply Chain & Community	28%	0.15	24%	32%	-8%	27%	29%	-3%	30%	25%	27%	5%
[S] Health & Safety	24%	0.07	24%	24%	0%	23%	24%	-1%	24%	24%	23%	1%
[S] Product Liability	24%	0.14	27%	22%	6%	27%	22%	5%	24%	25%	23%	2%
[S] Human Capital Management	23%	0.10	25%	22%	2%	23%	24%	-1%	22%	27%	27%	5%
Panel C: *Weighted Sub-Themes*												
[E] Climate Change	15%	0.18	16%	15%	1%	20%	12%	8%	11%	20%	24%	13%
[G] Corporate Behaviour	11%	0.07	10%	12%	-3%*	9%	12%	-3%**	13%	7%	9%	6%
[S] Supply Chain & Community	9%	0.06	7%	10%	-4%*	7%	10%	-2%	10%	7%	6%	3%
[E] Environmental Opportunities	9%	0.05	9%	8%	1%	9%	8%	1%	8%	12%	5%	6%
[E] Pollution & Waste	8%	0.04	8%	8%	-1%	8%	8%	0%	9%	6%	7%	3%
[G] Shareholder Rights	7%	0.03	7%	7%	0%	7%	8%	-1%	8%	7%	7%	1%
[S] Product Liability	7%	0.05	8%	7%	1%	7%	7%	0%	8%	7%	5%	2%
[G] Remuneration	7%	0.03	7%	7%	1%	7%	7%	0%	7%	7%	7%	0%
[S] Health & Safety	7%	0.03	7%	7%	-1%	6%	8%	-1%	8%	6%	5%	2%
[G] Board Composition	7%	0.03	7%	7%	1%	6%	7%	-1%	7%	7%	9%	3%
[S] Human Capital Management	7%	0.03	7%	6%	0%	6%	7%	-1%	7%	7%	6%	0%
[E] Natural Capital (Including Biodiversity)	6%	0.04	7%	6%	2%*	7%	6%	1%	6%	8%	7%%	2%

Notes: Survey respondents were asked to allocate 100 points between various ESG themes and subthemes, based on the relative importance that the fund places on them within the investment process (See survey questions 30-33 in Appendix 2). Table 4 presents the relative weightings of ESG themes and subthemes by the funds in our sample. Column (1) reports the mean percentage of respondents that selected the response for a given row, while Column (2) reports the standard deviation. Columns (3) and (4) report the mean percentages for funds greater than 50% of the median fund size ('>50%') and less than or equal to 50% of the median fund size (≤50%) respectively. Column (5) reports the difference between Column (3) and (4), and the results of a non-parametric Mann-Whitney U Test of the null hypothesis that the two distributions are equal (represented in brackets). Columns (6) and (7) report the mean percentages for ESG named funds ('Yes') and non-ESG named funds ('No') respectively. Column (8) reports the difference between Column (6) and (7), alongside the results of a non-parametric Mann-Whitney U Test of the null hypothesis that the two distributions are equal (represented in brackets). Columns (9), (10), and (11) report the mean percentage of respondents with headquarters in Australasia, the United States, and other regions, who selected the response for a given row. Across the region of headquarters, the range (high minus low) of percentages are reported in Column (12). Finally, ***, **, and * represent the significance at the 1%, 5%, and 10% levels respectively. Across the rows, Panel A reports the results for ESG themes, Panel B for individual E, S, and G subthemes, and finally, Panel C reports the results for the weighted E, S, and G subthemes.

Table 5: Reported Portfolio Carbon Intensity (n=43)

	All	Fund Size			ESG Named Fund			Region of Headquarters			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
		>50%	≤50%	Diff	Yes	No	Diff	Australasia	U.S.	Other	Range
Panel A: *Scope 1 and 2 Emissions Intensity*											
Metric provided	49%	52%	46%	7%	63%	38%	26%*	37%	60%	83%	46%
A different intensity measure is used	9%	0%	18%	-18%	5%	13%	-7%	15%	0%	0%	15%
Metric not provided											
Explained	*23%*	*19%*	*27%*	*-8%*	*16%*	*29%*	*-13%*	*30%*	*20%*	*0%*	*30%*
Unexplained	*19%*	*29%*	*9%*	*20%*	*16%*	*21%*	*-5%*	*19%*	*20%*	*17%*	*3%*
Total	42%	48%	36%	11%	32%	50%	-18%	48%	40%	17%	31%
Panel B: *Scope 1, 2 and 3 Emissions Intensity*											
Metric provided	9%	5%	14%	-9%	5%	13%	-7%	7%	10%	17%	9%
A different intensity measure is used	9%	10%	9%	0%	16%	4%	12%	11%	0%	17%	17%
Metric not provided											
Explained	*61%*	*62%*	*59%*	*3%*	*68%*	*54%*	*14%***	*63%*	*60%*	*50%*	*13%*
Unexplained	*21%*	*24%*	*18%*	*6%*	*11%*	*29%*	*-19%*	*19%*	*30%*	*17%*	*13%*
Total	81%	86%	77%	8%	79%	83%	-19%	82%	90%	67%	26%

Notes: Table 5 presents the percentage of survey response to the question "*What is the weighted-average emissions (tonnes of CO2e) intensity per sales ($USD) of the fund (as at Q2 2021)?*". Column (1) reports the percentage of respondents that selected the response for a given row. Columns (2) and (3) report the percentages for funds greater than 50% of the median fund size ('>50%') and less than or equal to 50% of the median fund size (≤50%) respectively. Column (4) reports the difference between Column (2) and (3), and the results of a test of the null hypothesis that the two percentages are equal. Columns (5) and (6) report the percentages for ESG named funds ('Yes') and non-ESG named funds ('No') respectively. Column (7) reports the difference between Column (5) and (6), alongside the results of a test of the null hypothesis that the two percentages are equal. Columns (8), (9), and (10) report the percentage of respondents with headquarters in Australasia, the United States, and other regions, who selected the response for a given row. Across the region of headquarters, the range (high minus low) of percentages are reported in Column (11). Finally, *, **, and * represent the significance at the 1%, 5%, and 10% levels respectively. Across the rows, Panel A reports the results relating to Weighted Average Portfolio Scope 1 and 2 Carbon Intensity, while Panel B reports the results relating to Weighted Average Portfolio Scope 1, 2, and 3 Carbon Intensity.**

Table 6: Respondent Fund Summary Statistics

Variables	Obs	Mean	Std Dev	Min	Max	Skew	Kurt
Portfolio Weighted Average Scope 1 & 2 Carbon Intensity (tCO2e/US$M)	33	103.52	64.62	12.07	320.61	1.22	5.28
Carbon Intensity Coverage (%)	33	98.26	5.00	72.26	100.00	-4.54	23.72
Refinitiv ESG Score	33	66.36	6.26	52.13	76.80	-0.35	2.49
Refinitiv ESG Score Coverage (%)	33	91.26	5.26	69.76	100.00	-2.05	9.67
MSCI ESG Score	33	6.19	0.60	4.87	7.53	0.05	3.10
MSCI ESG Score Coverage (%)	33	93.42	7.32	60.60	100.00	-2.91	13.40
Sustainalytics ESG Score	33	21.61	2.41	14.67	26.11	0.44	3.75
Sustainalytics ESG Score Coverage (%)	33	93.42	7.32	60.60	100.00	-2.91	13.40
U.S. Headquarters Dummy	33	0.15	0.36	0.00	1.00	1.94	4.78
Other Region Headquarters Dummy	33	0.18	0.39	0.00	1.00	1.65	3.72
Value Style Dummy	33	0.09	0.29	0.00	1.00	2.85	9.10
Growth Style Dummy	33	0.42	0.50	0.00	1.00	0.31	1.09
ESG Name Dummy	33	0.39	0.50	0.00	1.00	0.43	1.19
Size (Ln($))	33	18.56	2.33	12.03	22.22	-0.80	3.35
Age (Months)	33	101.36	85.74	6.00	328.00	0.97	3.17
Financial Performance (%)	31	38.71	13.84	7.06	75.02	-0.09	3.86
Volatility (%)	31	4.45	1.10	2.48	7.18	0.52	3.04
Management Fees (%)	33	0.90	0.31	0.20	1.50	-0.27	2.67

Notes: Table 6 presents the fund summary statistics relating to the 33 survey respondents with available portfolio holdings data. The fund characteristics for survey respondents are presented at the holdings date of 30 June 2021 (or as close to this date as possible). These include calculated measures of carbon performance and ESG performance, alongside various fund-level control variables that have been obtained from Morningstar Direct.

Table 7: Actual vs. Stated Carbon Performance of Respondents (n=33)

Panel A: *Stated vs. Actual Rankings*

	Stated Importance Placed on Climate Change	Portfolio Scope 1 & 2 Carbon Intensity (tCO2e/US$M)
	(1)	(2)
Fund A	1	22
Fund B	2	8
Fund C	3	24
Fund D	4	17
Fund E	5=	3
Fund G	5=	18

Panel B: *Correlation Between Stated and Actual Rankings (Full Sample)*

	Portfolio Scope 1 & 2 Carbon Intensity (tCO2e/US$M) Rankin
Stated Importance Placed on Climate Change Ranking	–0.056

Notes: In Panel A of Table 7, Column (1) presents the top five respondents that place the highest relative importance (weighted) on Climate Change themes among the thirty-three responding funds (ranking 1 reflects the fund that places the highest importance on climate change). Column (2) reports the ranking of these respondents with respect to their Weighted Average Scope 1 and 2 Carbon Intensity, relative to all thirty-three responding funds (ranking 1 reflects the fund that has the lowest portfolio carbon intensity). Panel B presents the correlation between the stated and actual rankings of all thirty-three responding funds.

Table 8: Determinants of Respondent Portfolio Carbon Intensity (n=33)

	Portfolio Carbon Intensity							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: *Model 1*								
Material to Financial Performance	47.35*							
Ethical Responsibility		19.94						
Future Performance			55.20***					
Decarbonisation				-14.00				
Engagement					54.90**			
Environment Weighting						23.10		
Climate Change Weighting							-0.223	
Climate Initiative								53.20**
Headquarters								
U.S.	-14.07	0.07	0.46	-6.65	-16.45	-12.66	-10.93	-14.46
Other	17.53	26.93	9.5	25.89	14.53	18.06	20.19	17.20
ESG Name	9.34	-4.37	8.52	1.72	7.96	-0.25	1.60	-16.30
Constant	61.49**	89.46***	63.24***	102.10***	58.65**	93.46***	100.90***	83.21***
R-Squared	0.11	0.04	0.18	0.03	0.15	0.02	0.02	0.18
Panel B: *Model 2*								
Material to Financial Performance	45.71							
Ethical Responsibility		16.71						
Future Performance			52.37**					
Decarbonisation				-12.04				
Engagement					54.64**			
Environment Weighting						-22.87		
Climate Change Weighting							-31.48	
Climate Initiative								43.41*
Style								
Value	-6.76	3.03	2.17	-2.82	-12.17	-0.82	-2.23	13.63
Growth	-22.13	-30.68	-21.33	-29.59	-25.02	-29.23	-30.62	-15.90
Ln(Size)	-4.78	-2.62	-3.77	-3.59	-4.33	-4.16	-4.45	-3.61
Constant	166.30*	155.80	148.90	185.50*	154.20	202.00*	204.10*	155.00*
R-Squared	0.15	0.09	0.23	0.08	0.20	0.07	0.08	0.18

Notes: Table 8 presents the results to the regression models that explore the determinants of respondent carbon performance using ordinary least squares. In Panel A, Model 1 correspondents to Equation (4). Across Columns (1) to (8), we rotate the variable of interest, maintaining Location of Headquarters and ESG Name as control variables. In Panel B, Model 2 correspondents to Equation (5). Across Columns (1) to (8), we rotate our variables of interest while maintaining Style and Ln(Size) as control variables. Here, standard errors are robust to heteroskedasticity, while ***, **, and * represent the significance at the 1%, 5%, and 10% levels respectively.

Table 9: Determinants of Portfolio Carbon Intensity for Respondents – Additional Controls (n=33)

	Portfolio Carbon Intensity							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Future Performance	44.52**				49.26**			
	(2.347)				(2.627)			
Decarbonisation		-25.89				-21.61		
		(-0.949)				(-0.866)		
Climate Change Weighting			-26.44				-2.762	
			(-0.445)				(-0.046)	
Climate Initiative				41.91**				42.94**
				(2.070)				(2.045)
Engagement	38.94*	61.55**	57.33**	48.22***				
	(1.907)	(2.367)	(2.200)	(2.807)				
Activist Fund					21.61	39.84	34.51	27.94
					(0.962)	(1.500)	(1.513)	(1.231)
Constant	45.69***	62.39***	64.16***	46.67***	63.01***	91.21***	89.31***	70.85***
	(3.064)	(2.883)	(2.884)	(3.222)	(5.082)	(6.909)	(5.304)	(5.484)
N	33	33	33	33	33	33	33	33
R-Squared	0.24	0.16	0.14	0.24	0.20	0.09	0.07	0.18

Notes: For additional controls, Table 9 uses ordinary least squares to individually regress Future Performance, Decarbonisation, Climate Change Weighting, and Climate Initiative against Engagement in Columns (1), (2), (3), and (4) respectively. It also individually regresses Future Performance, Decarbonisation, Climate Change Weighting, and Climate Initiative against Activist Fund in Columns (5), (6), (7), and (8) respectively. Robust t-statistics are presented in parenthesis, while ***, **, and * represent the significance at the 1%, 5%, and 10% levels respectively.

Table 10: Full Sample Fund Summary Statistics

Variables	Obs	Mean	Std Dev	Min	Max	Skew	Kurt
Portfolio Weighted Average Scope 1 & 2 Carbon Intensity (tCO2e/US$M)	78	109.30	70.85	12.07	320.61	0.88	3.64
Carbon Intensity Coverage (%)	78	98.23	5.43	62.79	100.00	-5.15	30.97
Portfolio Refinitiv ESG Score	78	66.84	7.36	37.28	81.70	-1.38	6.10
Refinitiv ESG Score Coverage (%)	78	90.54	6.83	62.79	100.00	-2.12	7.94
Portfolio MSCI ESG Score	78	6.22	0.69	4.80	8.48	0.14	3.62
MSCI ESG Score Coverage (%)	78	93.06	9.39	51.39	100.00	-2.93	11.73
Portfolio Sustainalytics ESG Score	78	21.54	2.18	14.67	27.96	0.13	4.17
Sustainalytics ESG Score Coverage (%)	78	93.06	9.39	51.39	100.00	2.93	11.73
Respondent Dummy	78	0.42	0.50	0.00	1.00	0.31	1.10
U.S. Headquarters Dummy	78	0.18	0.39	0.00	1.00	1.67	3.79
Other Region Headquarters Dummy	78	0.27	0.45	0.00	1.00	1.04	2.08
Value Style Dummy	78	0.15	0.36	0.00	1.00	1.92	4.68
Growth Style Dummy	78	0.37	0.49	0.00	1.00	0.53	1.28
ESG Name Dummy	78	0.29	0.46	0.00	1.00	0.90	1.81
Size (Ln($))	78	18.85	2.21	12.03	24.01	-0.60	3.59
Age (Months)	78	219.09	377.24	6.00	1846.00	3.27	12.68
Financial Performance (%)	74	41.61	15.51	7.06	108.10	1.32	7.71
Volatility (%)	74	4.57	1.06	2.48	8.16	1.01	4.51
Management Fees (%)	77	0.87	0.37	0.09	1.52	-0.24	2.11

Notes: Table 10 presents the fund characteristics for the entire sample of respondents and non-respondents at the holdings date of 30 June 2021. These include calculated measures of carbon performance and ESG performance, alongside various fund-level control variables that have been obtained from Morningstar Direct.

Table 11: Determinants of Portfolio Carbon Intensity

	Portfolio Carbon Intensity	
	Model 1	Model 2
	(1)	(2)
Respondent	8.02	14.38
	(0.503)	(0.858)
ESG Name	-7.06	-4.61
	(-0.378)	(-0.243)
Headquarters		
U.S.	28.11	29.33
	(1.363)	(1.389)
Other	33.31	37.38*
	(1.667)	(1.984)
Style		
Value	54.81**	66.64**
	(2.235)	(2.640)
Growth	-27.95	-32.80*
	(-1.621)	(-1.905)
Age	0.00	
	(0.038)	
Ln(Size)	-4.38	
	(-1.144)	
Intensity Coverage	1.49	1.30
	(0.709)	(0.607)
Financial Performance		1.02
		(1.424)
Volatility		-18.13*
		(-1.674)
Constant	29.37	3.49
	(0.135)	(0.016)
N	77	73
R-Squared	0.23	0.25

Notes: Table 11 presents the results to the regression models that explore the determinants of fund carbon performance using ordinary least squares. Column (1) presents Model (1), which corresponds to the first variation of Equation (6), while Column (2) presents Model (2), which corresponds to the second variation of Equation (6). T-statistics are presented in parenthesis, while ***, **, and * represent the significance at the 1%, 5%, and 10% levels respectively.

Table 12: Determinants of Portfolio ESG Score

	Portfolio ESG Score					
	Model 1			Model 2		
	Refinitiv (1)	MSCI (2)	Sustainalytics (3)	Refinitiv (4)	MSCI (5)	Sustainalytics (6)
Respondent	-0.03	-0.15	-0.47	-0.40	-0.14	-0.74
	(-0.028)	(-1.082)	(-1.045)	(-0.314)	(-1.030)	(-1.628)
ESG Name	0.62	0.42**	1.05*	1.02	0.48***	1.13**
	(0.435)	(2.530)	(1.960)	(0.697)	(2.983)	(2.122)
Headquarters						
U.S.	4.00***	0.43**	0.15	3.85**	0.39**	0.37
	(2.832)	(2.449)	(0.257)	(2.439)	(2.290)	(0.650)
Other	4.46***	0.32*	-0.89	3.08**	0.22	-0.77
	(2.952)	(1.857)	(-1.606)	(2.160)	(1.458)	(-1.511)
Style						
Value	-2.58	-0.51**	-0.88	-2.46	-0.43**	-0.82
	(-1.534)	(-2.439)	(-1.309)	(-1.258)	(-2.115)	(-1.224)
Growth	-6.71***	-0.02	1.01**	-5.79***	-0.07	0.94**
	(-4.639)	(-0.147)	(2.076)	(-4.423)	(-0.499)	(2.011)
Age	-0.00	-0.00	0.00			
	(-0.954)	(-0.184)	(0.760)			
Ln(Size)	0.33	-0.02	-0.27**			
	(1.031)	(-0.617)	(-2.546)			
ESG Coverage	0.83***	0.03**	0.14***	0.69***	0.03**	0.11**
	(5.874)	(2.316)	(2.687)	(5.364)	(2.252)	(2.104)
Financial Performance				-0.16***	-0.00	-0.00
				(-2.998)	(-0.811)	(-0.334)
Volatility				1.78**	-0.06	-0.07
				(2.181)	(-0.637)	(-0.218)
Constant	-14.01	3.11**	-29.53***	3.28	3.41**	-31.16***
	(-0.956)	(2.027)	(-5.923)	(0.268)	(2.331)	(-6.394)
N	75	74	74	71	70	70
R-Squared	0.59	0.41	0.38	0.64	0.46	0.32

Notes: Table 12 presents the results to the regression models that explore the determinants of fund ESG performance using ordinary least squares. Columns (1), (2) and (3) relate to Model (1), which corresponds to the first variation of Equation (7), while Columns (4), (5), and (6) relate to Model (2), which corresponds to the second variation of Equation (7). For each variation of Equation (7), we utilise portfolio ESG scores as based on Refinitiv, MSCI, and Sustainalytics data as dependent variables. Robust t-statistics are presented in parenthesis, while ***, **, and * represent the significance at the 1%, 5%, and 10% levels respectively

Appendices

Appendix 1: Definitions of Responsible Investing Approaches

Responsible Investing Approach	Definition
Fundamental analysis incorporating ESG considerations	Incorporating ESG factors into the financial analysis of individual firms. For example, using ESG factors as inputs into cost of capital estimates, or financial forecasts.
Negative screening	Excluding firms within certain industries, that engage in certain economic activities or score relatively badly on ESG factors relative to their peers.
Engagement/active ownership with companies on ESG	Influencing corporate activities or behaviour through shareholder power. For example, holding discussions with management, submitting shareholder proposals, and voting on ESG issues at annual meetings.
Positive (best in class) screening	Including firms within certain industries, that engage in certain economic activities, or score relatively well on ESG factors relative to their peers.
Decarbonization of portfolio	Actively reducing the exposure of a portfolio to carbon risk to align with a low carbon future. For example, divesting stocks that are highly exposed to carbon emissions, actively engaging with portfolio companies to reduce their emissions, or purchasing carbon credits to offset emissions.
Thematic investment	Investing in specific themes or assets that are related to ESG factors. For example, investing only in firms focussed on green technologies and clean energies.
Overlay/Portfolio tilt	Using specific investment strategies to tilt the overall ESG performance of a fund to reach a targeted level. For example, a portfolio could be tilted towards a targeted carbon footprint.
Quantitative ESG factor investing	Selecting securities that score well on ESG factors, which have historically to achieved above-market returns in return-factor analysis.
Impact investing	Investing with the intention of generating measurable social and environmental return, alongside financial return. - Company Impact is the measurable impact that a company has due to its business activities. For example, a company building solar farms is mitigating emissions in the Energy sector. - Portfolio/Capital Impact is the measurable impact an investor has by providing capital to a project or investment. Showing additionality is key for this type of impact. For example, providing capital directly to a solar farm developer (in a primary market transaction), which allows them to build additional renewable generation.

Notes: In Appendix 1, the definitions of responsible investing approaches have been adapted from Amel-Zadeh & Serafeim (2018), Credit Suisse (2021) and RIAA (2021a).

Appendix 2: Full Survey

1. **What is your Institution's name?**

   _____

2. **What is the geographical location of your Institution's headquarters?**
   - Australia
   - New Zealand
   - United Kingdom
   - United States
   - Other (please state): _____

3. **What is your Job Title/Position?**
   - Fund/Portfolio Manager
   - ESG/Responsible Investment Specialist
   - Chief Executive Officer
   - Investment Analyst/Strategist
   - Executive/Managing Director
   - Chief Investment Officer
   - Other (please explain): _____

4. **What was the total size of assets under management (in $USD) at your institution as at Q2 2021?**

   USD$_____

5. **Which of the following organisations is your Institution a signatory/member of?**

[Please select all that apply]

- ☐ United Nations Principles of Responsible Investing
- ☐ B-Corporation
- ☐ Carbon Disclosure Project
- ☐ Responsible Investment Association of Australasia
- ☐ Climate Action 100+
- ☐ Investor Agenda
- ☐ Net Zero Asset Managers
- ☐ Investor Group on Climate Change (IGCC)
- ☐ Asia Investor Group on Climate Change (AIGCC)
- ☐ Climate Investment Coalition
- ☐ Climate League 2030
- ☐ Science Based Targets Initiative for Financial Institutions
- ☐ Net-Zero Asset Owner Alliance
- ☐ Other (Please State): _____

6. **Do you consider any ESG information when making investment decisions?**

   - Yes – in all of our funds
   - Yes – in more than half of our funds
   - Yes – in less than half of our funds
   - No

IF *YES – IN ALL OF OUR FUNDS* IS SELECTED, MOVE TO QUESTION 8:

ELSE, MOVE TO QUESTION 7:

7. **Why do you not consider ESG information when making investment decisions across all of your funds?**

[Please select all that apply]

- ☐ Our SIPO/mandate does not allow it
- ☐ There is no stakeholder demand for such policy
- ☐ We lack access to reliable nonfinancial data
- ☐ ESG information is not material to investment performance
- ☐ We believe such policy to be ineffective in inducing change at firms
- ☐ Such information is not material to a diversified investment portfolio
- ☐ Including such information is detrimental to investment performance
- ☐ It would violate our fiduciary duty to our stakeholders
- ☐ It is not possible to reflect our client's diverse ethical views
- ☐ Other (please state): _____

***IF *NO* WAS SELECTED IN QUESTION 6, THE SURVEY IS FINISHED.**
FOR ALL OTHER ANSWERS SELECTED IN QUESTION 6, MOVE TO QUESTION 8*

8. **What percentage (%) of your assets under management formally incorporate Environmental, Social, AND Governance considerations?**

_____% of AUM

9. **Does your institution have a written ESG policy?**
   - ☐ Yes
   - ☐ No

IF *YES*, MOVE TO QUESTION 10:

IF *NO*, MOVE TO QUESTION 11:

10. What was the date of your first ESG policy?

_____

11. How do you build ESG capabilities in your team?

[Please select all that apply]

- ☐ Internal training
- ☐ External training (please state provider): _____
- ☐ Industry and academic groups e.g. CFA ESG mico-credentials. (please state the qualifications): _____
- ☐ Hiring ESG experts
- ☐ Hiring investment experts with some ESG training
- ☐ Other (please state): _____

12. Which of the following applies to your institution?

[Please select all that apply]

- ☐ We have ESG specialist/s
- ☐ Everyone is trained in ESG
- ☐ None of the above

13. Why do you consider ESG information when making investment decisions?

[Please select all that apply]

- ☐ ESG information is material to investment performance
- ☐ Growing client/stakeholder demand
- ☐ We believe this will encourage positive change in individual firm ESG practices
- ☐ It is part of our mandated investment strategy/SIPO
- ☐ We see it as an ethical responsibility
- ☐ ESG risk and opportunities, although not yet priced, will soon affect investment performance
- ☐ Other (please state): _____

14. **What is your flagship retail ESG global equity fund? Please choose your global equity fund that incorporates ESG principles the most (i.e. this could be one of your general global equity funds)**

_____

The remainder of this survey will specifically focus on the fund that you have provided above.

Please answer all questions below based on your Flagship retail ESG Fund identified above.

15. **How much money is invested in this fund (in $USD) as at Q2 2021?**
_____ USD

16. **What is the average holding period for equities in this fund?**
    - Short (less than 6 months)
    - Medium (6 months to 2 years)
    - Long (2 years to 5 years)
    - Very long (more than 5 years)

17. **What is the benchmark index for this fund?**

_____

18. **Which of the following applies to this fund?**

    - We aim to track our benchmark index
    - We aim to outperform our benchmark index

19. **What is the investment style of this fund?**

[Please select all that apply]

- ☐ Value/Fundamental
- ☐ Momentum
- ☐ Growth
- ☐ Factor/Quantitative
- ☐ Broad Market
- ☐ Concentrated (less than 50 holdings)
- ☐ Quality
- ☐ Specific Theme (please state): _____
- ☐ Other (please state): _____

20. What is the gender of the lead Fund/Portfolio Manager for this fund?

- Male
- Female
- Non-binary

21. What was the start date of the lead Fund/Portfolio Manager in charge of this fund?

_____

22. Which of the following qualifications has the lead Fund/Portfolio Manager of the fund attained?

[Please select all that apply]

- ☐ Bachelors in Finance/Accounting
- ☐ Masters in Finance/Accounting
- ☐ PhD in Finance/Accounting
- ☐ MBA
- ☐ CFA
- ☐ Other professional qualification (please state): _____
- ☐ Bachelors in another subject (please state): _____
- ☐ Masters in another subject (please state): _____
- ☐ PhD in another subject (please state): _____

23. Which ESG investment approaches do you incorporate within this fund?

[Please select all that apply]

- ☐ Negative screening: exposure based
- ☐ Negative screening: industry based
- ☐ Positive (best in class) screening
- ☐ Overlay/portfolio tilt
- ☐ Decarbonization of portfolio
- ☐ Quantitative ESG factor investing
- ☐ Fundamental analysis incorporating ESG considerations
- ☐ Impact Investing **(1)**
- ☐ Engagement/Active Ownership with companies on ESG **(2)**
- ☐ Thematic investment
- ☐ Other (Please state): _____

IF (1) IS SELECTED, MOVE TO QUESTION 24:

IF (2) IS SELECTED, MOVE TO QUESTION 25:

ELSE, MOVE TO QUESTION 27:

24. Which Impact Investing standard/methodology do you follow?

[Please select all that apply]

- ☐ Impact Investing and Reporting Standards (IRIS+)
- ☐ Global Impact Investing Rating System (GIIRS)
- ☐ Sustainability Accounting Standards Board (SASB)
- ☐ Global Reporting Initiative (GRI)
- ☐ Other (Please State): _____

IF (2) WAS SELECTED IN QUESTION 23, MOVE TO QUESTION 25:

ELSE, MOVE TO QUESTION 27:

25. What measures of direct engagement over ESG issues have you taken in the past five years with any of your portfolio companies?

[Please select all that apply]

□ Questioning management on a conference call about ESG issues
□ Holding private discussions with management regarding the financial implications of ESG issues
□ Publicly criticizing management on ESG issues
□ Privately proposing specific actions to management on ESG issues
□ Voting against management on proposals over ESG issues at the annual meeting **(3)**
□ Voting against re-election of any board directors due to ESG issues **(3)**
□ Submitting shareholder proposals on ESG issues
□ Legal action against management on ESG issues
□ Outsource to a third-party engagement provider **(3)**
□ Other (Please State): _____

IF (3) IS SELECTED, MOVE TO QUESTION 26

ELSE, MOVE TO QUESTION 27:

26. How do you undertake voting on ESG issues?

[Please select all that apply]

- ☐ Direct Voting
- ☐ Proxy Voting (please specify proxy provider): _____
- ☐ Proxy Voting generally, but Direct Voting on controversial issues (please specify proxy provider): _____
- ☐ Other (Please State): _____

27. Which type of ESG data do you use?

[Please select all that apply]

- ☐ ESG ratings **(4)**
- ☐ Raw data (e.g. emissions data)
- ☐ Analysis at firm level (e.g. incorporating stranded asset risk into valuation)
- ☐ Analysis at sector level (e.g. identifying sectors exposed to ESG risks)
- ☐ Analysis at country level (e.g. identifying countries exposed to ESG risks)
- ☐ Other (please state): _____

IF (4) IS SELECTED, MOVE TO QUESTION 28:

ELSE, MOVE TO QUESTION 29:

28. Which ESG rating provider do you use?

[Please select all that apply]

- ☐ Sustainalytics
- ☐ MSCI
- ☐ Refinitiv
- ☐ Bloomberg
- ☐ S&P Global
- ☐ FTSE Russel
- ☐ Other (please state): _____

29. When emissions data is unavailable, how do you estimate/predict firm-level emissions?

[Please select all that apply]

- ☐ Multiples/industry averages
- ☐ Regression analysis
- ☐ Machine learning
- ☐ From external provider e.g. Emmi
- ☐ Other (please state): _____
- ☐ We do not estimate firm-level emissions

ESG Preferences

30. **Allocate 100 points between Environment, Social and Governance themes based on the importance this fund places on them in the investment process.** ***[Place 100 points into the "Equally weighted" box if you place equal importance on each of the three themes]***

Theme	Points
Environment	
Social	
Governance	
Equally weighted	

(Note: Please make sure that the sum of your allocated points equals 100)

31. **Allocate 100 points between the specific Environmental themes below based on the importance this fund places on them in the investment process.**

Theme	Points
Climate Change	
Pollution & Waste	
Natural Capital (incl. biodiversity)	
Environmental Opportunities	

(Note: Please make sure that the sum of your allocated points equals 100)

32. **Allocate 100 points between the specific Social themes below based on the importance this fund places on them in the investment process.**

Theme	Points
Health & Safety	
Human Capital Management	
Product Liability	
Supply Chain & Community	

(Note: Please make sure that the sum of your allocated points equals 100)

33. Allocate 100 points between the specific Governance themes below based on the importance this fund places on them in the investment process.

Theme	Points
Board Composition	
Remuneration	
Corporate Behaviour	
Shareholder Rights	

(Note: Please make sure that the sum of your allocated points equals 100)

Stated Carbon Performance

34. What is the weighted-average Scope 1 and 2 emissions (tonnes of CO2e) intensity per sales ($USD) of your fund (as at Q2 2021)?

$$\sum_{i=1}^{N} percentage\ ownership_i \times \frac{Scope\ 1\ and\ 2\ emissions_i}{Sales_i}$$

$$where\ \ i = firm\ i$$
$$N = Total\ number\ of\ firms\ in\ fund$$

- The fund's weighted-average Scope 1 and 2 emissions (tonnes of CO2e) intensity per $USD of revenue is: _____
- We do not calculate this because _____
- We calculate a different intensity measure. Please explain: _____

35. What is the weighted-average Scope 1, 2 and 3 emissions (tonnes of CO2e) intensity per sales ($USD) of your fund (as at Q2 2021)?

$$\sum_{i=1}^{N} percentage\ ownership_i \times \frac{Scope\ 1{,}2\ and\ 3\ emissions_i}{Sales_i}$$

$$where\ \ i = firm\ i$$
$$N = Total\ number\ of\ firms\ in\ fund$$

- The fund's weighted-average Scope 1,2 and 3 emissions (tonnes of CO2e) intensity per $USD of revenue is: _____
- We do not calculate this because _____
- We calculate a different intensity measure. Please explain: _____

36. What are the attributable fossil-fuel reserves of your flagship ESG global equity fund (as at Q2 2021)? Attributable fossil-fuel reserves are the sum of all disclosed reserves of each company multiplied by the percentage ownership of the fund in that company.

$$Attributable\ reserves = \sum_{i=1}^{N} percentage\ ownership_i \times total\ reserves_i$$

$$where\ \ i = firm\ i$$
$$N = Total\ number\ of\ firms\ in\ fund$$

- The fund's attributable fossil-fuel reserves measured in barrel of oil equivalent (BOE) is: _____
- The fund's attributable fossil-fuel reserves measured in embedded carbon (tonnes of CO2e) is: _____
- We do not calculate this because: _____
- We calculate a different measure. Please explain: _____

Appendix 3: Use of ESG Information

Various types of ESG information can be incorporated into the investment process, including internal and external analysis. Table A3 details the types of ESG information used in the specific global equity funds provided by respondents, presenting the survey responses to the question "Which type of ESG data do you use", adapted from van Duuren et al. (2016).

[INSERT TABLE A3 HERE]

Table A3 highlights that respondents more commonly incorporated analysis at the individual firm level rather than at the aggregated sector or country level, consistent with van Duuren et al. (2016). Specifically, the most common types of ESG information used among global equity funds in our sample were analysis at the firm level (83%) and raw ESG data (79%). However, the preference for raw ESG data over external ESG ratings differs from the findings of van Duuren et al. (2016). Raw data, such as carbon emissions, can be sourced from external data providers, company reports, and press statements, and often requires more internal resources to process. Our finding likely corresponds to the growing concerns regarding the divergence of different external ESG ratings, alongside the adoption of internal ESG scoring frameworks.

Our comparison of small and large funds in Table A3 highlights a significant difference in the proportion of respondents who use external ESG ratings at the 1% level. While 86% of small funds indicated that they use external ratings, only 50% of large funds selected this option. Alongside this, large funds more commonly incorporated raw ESG data into their analysis alongside financial data. These results are likely because larger funds have more internal resources to process raw ESG data, reducing the need to rely on external ratings, relative to smaller funds. This is consistent with many of the larger funds in our sample indicating that they use their own internal ESG scoring framework for individual companies.

Table A3: Types of ESG Data Used (n=42)

	All	Fund Size			ESG Named Fund			Region of Headquarters			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
		>50%	≤50%	Diff	Yes	No	Diff	Australasia	U.S.	Other	Range
Analysis at firm level (e.g. incorporating stranded asset risk into valuation)	83%	85%	82%	3%	78%	88%	-10%	77%	90%	100%	23%
Raw data (e.g. emissions data)	79%	85%	73%	12%	83%	75%	8%	73%	90%	83%	17%
Analysis at sector level (e.g. identifying sectors exposed to ESG risks)	69%	65%	73%	-8%	78%	63%	15%	58%	90%	83%	32%
External ESG ratings	69%	50%	86%	-36%**	67%	71%	-4%	65%	70%	83%	18%
Analysis at country level (e.g. identifying countries exposed to ESG risks)	43%	40%	46%	-6%	44%	42%	3%	35%	40%	83%	49%
Other	24%	35%	14%	21%	22%	25%	-3%	23%	20%	33%	13%

Notes: Table A3 reports the percentage of survey responses to "*Which type of ESG data do you use?*", where Multiple responses were allowed. Column (1) reports the percentage of respondents that selected the response for a given row. Columns (2) and (3) report the percentages for funds greater than 50% of the median fund size ('>50%') and less than or equal to 50% of the median fund size (≤50%) respectively. Column (4) reports the difference between Column (2) and (3), and the results of a test of the null hypothesis that the two percentages are equal. Columns (5) and (6) report the percentages for ESG named funds ('Yes') and non-ESG named funds ('No') respectively. Column (7) reports the difference between Column (5) and (6), alongside the results of a test of the null hypothesis that the two percentages are equal. Columns (8), (9), and (10) report the percentage of respondents with headquarters in Australasia, the United States, and other regions, who selected the response for a given row. Across the region of headquarters, the range (high minus low) of percentages are reported in Column (11). Finally, ***, **, and * represent the significance at the 1%, 5%, and 10% levels respectively. The responses in Table A3 have been ordered from highest to lowest based on the proportion of respondents that chose each reason in Column (1).

Appendix 4: ESG Engagement Approaches

Active ESG ownership involves influencing corporate activities or behaviour through shareholder power (Amel-Zadeh & Serafeim, 2018). Table A4 details the types of ESG engagement strategies adopted by the specific global equity funds provided by respondents. Adapted from Krueger et al. (2020), respondents were asked "What measures of direct engagement over ESG issues have you taken in the past five years with any of your portfolio companies?" Referring to Figure 1, this question was only available to respondents who selected that they employ active engagement strategies with firms on their ESG issues, which included 32 funds.

[INSERT TABLE A4 HERE]

The results in Table A4 indicate that the most frequent engagement approach was private discussions with management regarding the financial implications of ESG issues, which was selected by 97% of respondents within the subsample. This was followed by voting against management on proposals over ESG issues at the annual meeting (91%) and questioning management on a conference call about ESG issues (88%). While many responding funds indicated that they privately propose specific actions to management (84%), the proportion of funds that publicly submitted shareholder proposals was relatively low (47%). These results support the interpretation that managers prefer private interactions with firms first, and only take public actions once private interventions fail (McCahery et al., 2016). This divergence was emphasised in both Australasian and U.S. regions. However, funds with headquarters in other regions, including Europe, more actively submitted shareholder proposals and voted against the re-election of the board of directors.

Table A4: Engagement Strategies (n=32)

	All	Fund Size			ESG Named Fund			Region of Headquarters			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
		>50%	≤50%	Diff	Yes	No	Diff	Australasia	U.S.	Other	Range
Holding private discussions with management regarding the financial implications of ESG issues	97%	94%	100%	-6%	93%	100%	-7%	95%	100%	100%	5%
Voting against management on proposals over ESG issues at the annual meeting	91%	88%	94%	-6%	87%	94%	-7%	90%	88%	100%	13%
Questioning management on a conference call about ESG issues	88%	88%	88%	0%	93%	82%	11%	84%	88%	100%	16%
Privately proposing specific actions to management on ESG issues	84%	75%	94%	-19%	80%	88%	-8%	90%	63%	100%	38%
Voting against re-election of any board directors due to ESG issues	75%	63%	88%	-25%	80%	71%	9%	68%	75%	100%	32%
Submitting shareholder proposals on ESG issues	47%	50%	44%	6%	47%	47%	0%	42%	38%	80%	43%
Publicly criticizing management on ESG issues	22%	31%	13%	19%	13%	29%	-16%	21%	25%	20%	5%
Outsourcing to a third-party engagement provider	13%	13%	13%	0%	20%	6%	14%	16%	13%	0%	16%
Legal action against management on ESG issues	3%	6%	0%	6%	0%	6%	-6%	0%	0%	20%	20%
Other	9%	6%	13%	-6%	7%	12%	-5%	11%	13%	0%	13%

Notes: Table A4 presents the survey responses to "*What measures of direct engagement over ESG issues have you taken in the past five years with any of your portfolio companies?*", where multiple responses were allowed. Column (1) reports the percentage of respondents that selected the response for a given row. Columns (2) and (3) report the percentages for funds greater than 50% of the median fund size ('>50%') and less than or equal to 50% of the median fund size (≤50%) respectively. Column (4) reports the difference between Column (2) and (3), and the results of a test of the null hypothesis that the two percentages are equal. Columns (5) and (6) report the percentages for ESG named funds ('Yes') and non-ESG named funds ('No') respectively. Column (7) reports the difference between Column (5) and (6), alongside the results of a test of the null hypothesis that the two percentages are equal. Columns (8), (9), and (10) report the percentage of respondents with headquarters in Australasia, the United States, and other regions, who selected the response for a given row. Across the region of headquarters, the range (high minus low) of percentages are reported in Column (11). Finally, ***, **, and * represent the significance at the 1%, 5%, and 10% levels respectively. The responses in Table A4 have been ordered from highest to lowest based on the proportion of respondents that chose each reason in Column (1).

Appendix 5: ESG Voting Approaches

Voting can be used as a mechanism for institutions to influence an organisation's corporate behaviour. Table A5 details the survey responses to the question "How do you undertake voting on ESG issues?". Referring to Figure 1, this question was only available to respondents who selected an engagement strategy related to voting or external outsourcing, which included 29 funds. Respondents were only able to select one option that applied to their fund and there was an opportunity to provide text entry answers for choices that were not included in this list.

[INSERT TABLE A4 HERE]

The results in Table A5 highlight that the most common way to vote on ESG issues was through proxy voting (59%), with many respondents citing ISS (Institutional Shareholder Services) or Glass Lewis as their proxy providers. Interestingly, many respondents did not consider proxy voting to be a form of outsourced engagement, which was only selected by 13% of respondents in Table A5. There were large geographical differences in voting strategies, with 41% of funds with Australasian headquarters using direct voting, compared to 0% with U.S. headquarters. This was partially attributable to direct voting being more common among smaller funds, relative to larger funds.

Table A5: Voting Approaches (n=42)

	All	Fund Size			ESG Named Fund			Region of Headquarters			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
		>50%	≤50%	Diff	Yes	No	Diff	Australasia	U.S.	Other	Range
Proxy Voting	59%	67%	50%	17%	57%	60%	-3%	47%	71%	80%	33%
Direct Voting	24%	13%	36%	-22%	29%	20%	9%	41%	0%	0%	41%
Proxy Voting generally, but Direct Voting on controversial issues	10%	7%	14%	-8%	7%	13%	-6%	12%	14%	0%	14%
Other	7%	13%	0%	13%	7%	7%	0%	0%	14%	20%	20%

Notes: Table A5 presents the percentage of survey responses to "*How do you undertake voting on ESG issues?*". Column (1) reports the percentage of respondents that selected the response for a given row. Columns (2) and (3) report the percentages for funds greater than 50% of the median fund size ('>50%') and less than or equal to 50% of the median fund size (≤50%) respectively. Column (4) reports the difference between Column (2) and (3), and the results of a test of the null hypothesis that the two percentages are equal. Columns (5) and (6) report the percentages for ESG named funds ('Yes') and non-ESG named funds ('No') respectively. Column (7) reports the difference between Column (5) and (6), alongside the results of a test of the null hypothesis that the two percentages are equal. Columns (8), (9), and (10) report the percentage of respondents with headquarters in Australasia, the United States, and other regions, who selected the response for a given row. Across the region of headquarters, the range (high minus low) of percentages are reported in Column (11). Finally, ***, **, and * represent the significance at the 1%, 5%, and 10% levels respectively. The responses in Table A5 have been ordered from highest to lowest based on the proportion of respondents that chose each reason in Column (1).

Appendix 6: Actual vs. Stated Carbon Performance – Robustness Check (n=33)

	Portfolio Carbon Intensity (Using FY19 Revenues)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: *Model 1*								
Material to Financial Performance	54.55*							
Ethical Responsibility		41.23						
Future Performance			59.53**					
Decarbonisation				-25.09				
Engagement					63.27**			
Environment Weighting						1.803		
Climate Change Weighting							-18.48	
Climate Initiative								63.21**
Headquarters								
U.S.	-18.75	7.627	-2.848	-7.453	-21.49	-15.29	-13.37	-19.32
Other	42.97	60.00	34.51	56.28	39.52	45.84	48.68	42.49
ESG Name	31.14	9.881	29.68	22.44	29.55	22.06	23.48	0.950
Constant	47.91	69.68**	52.71*	95.50***	44.62	92.73***	94.89***	72.30***
R-Squared	0.150	0.125	0.194	0.087	0.188	0.073	0.075	0.215
Panel B: *Model 2*								
Material to Financial Performance	54.65*							
Ethical Responsibility		29.41						
Future Performance			59.19**					
Decarbonisation				-9.652				
Engagement					64.60**			
Environment Weighting						-13.74		
Climate Change Weighting							-27.27	
Climate Initiative								62.78*
Style								
Value	-8.19	4.63	2.40	-1.96	-14.49	0.02	-1.70	19.33
Growth	-6.30	-18.35	-5.74	-14.37	-9.78	-13.72	-15.40	4.05
Ln(Size)	-8.36	-5.15	-7.14	-6.98	-7.81	-7.35	-7.72	-6.92
Constant	223.60	195.00	205.10	245.90	209.50	255.60	262.20	202.70
R-Squared	0.13	0.08	0.18	0.06	0.17	0.05	0.06	0.20

Notes: Appendix 6 presents a robustness check to the regression models that explore the determinants of respondent carbon performance using ordinary least squares. Portfolio Carbon Intensity has been recalculated based on FY20 emissions and FY19 revenues, to account for the financial impact of the Covid-19 Pandemic. In Panel A, Model 1 correspondents to Equation (4). Across Columns (1) to (8), we rotate the variable of interest, maintaining Location of Headquarters and ESG Name as control variables. In Panel B, Model 2 correspondents to Equation (5). Across Columns (1) to (8), we rotate our variables of interest while maintaining Style and Ln(Size) as control variables. Here, standard errors are robust to heteroskedasticity, while ***, **, and * represent the significance at the 1%, 5%, and 10% levels respectively.

Appendix 7: Determinants of Carbon Performance – Robustness Check

		Portfolio Carbon Intensity	
		Model 1	Model 2
		(1)	(2)
Respondent		8.420	13.32
		(0.459)	(0.704)
ESG Name		0.457	5.180
		-0.023	(0.229)
Headquarters			
	U.S.	23.13	24.03
		(1.145)	(1.193)
	Other	40.19	47.34*
		(1.575)	(1.778)
Style			
	Value	63.10**	82.99**
		(2.102)	(2.485)
	Growth	-17.51	-25.61
		(-0.862)	(-1.432)
Age		0.00	
		(-0.058)	
Ln(Size)		-6.08	
		(-1.367)	
Intensity Coverage		1.149	2.267
		(0.800)	(1.128)
Financial Performance			1.59
			(1.380)
Volatility			-28.26**
			(-2.035)
Constant		96.31	-68.20
		(0.622)	(-0.348)
N		75	71
R-Squared		0.209	0.243

Notes: Appendix 7 presents a robustness check to the regression models that explore the determinants of fund carbon performance using ordinary least squares. Portfolio Carbon Intensity has been recalculated based on FY20 emissions and FY19 revenues, given the financial impact of the Covid-19 Pandemic. Column (1) presents Model (1), which corresponds to the first variation of Equation (6), while Column (2) presents Model (2), which corresponds to the second variation of Equation (6). Robust t-statistics are presented in parenthesis, while ***, **, and * represent the significance at the 1%, 5%, and 10% levels respectively.

Appendix 8: Determinants of ESG Performance – Robustness Check

	Portfolio ESG Score					
	Model 1			Model 2		
	Refinitiv	MSCI	Sustainalytics	Refinitiv	MSCI	Sustainalytics
	(1)	(2)	(3)	(4)	(5)	(6)
Respondent	-0.69	-0.16	-0.33	-1.53	-0.20	-0.42
	(-0.411)	(-0.896)	(-0.703)	(-0.872)	(-1.142)	(-0.847)
ESG Name	1.51	0.46**	0.68	1.81	0.51**	0.79
	(0.747)	(2.236)	(1.220)	(0.889)	(2.482)	(1.396)
Headquarters						
U.S.	4.65**	0.51**	-0.23	4.30*	0.46**	0.05
	(2.152)	(2.305)	(-0.393)	(1.968)	(2.076)	(0.079)
Other	4.51**	0.36*	-0.90	3.32*	0.28	-0.84
	(2.137)	(1.688)	(-1.555)	(1.684)	(1.394)	(-1.536)
Style						
Value	-2.86	-0.53**	-0.635	-3.03	-0.48*	-0.50
	(-1.069)	(-2.021)	(-0.909)	(-1.121)	(-1.857)	(-0.698)
Growth	-6.38***	-0.07	1.13**	-5.68***	-0.12	1.14**
	(-3.476)	(-0.380)	(2.227)	(-3.133)	(-0.672)	(2.275)
Age	-0.00	0.00	0.00			
	(-0.449)	(0.077)	(0.211)			
Ln(Size)	0.49	-0.00	-0.30***			
	-1.202	(-0.006)	(-2.726)			
ESG Coverage	1.42***	0.11***	-0.15***	1.28***	0.10***	-0.17***
	(8.250)	(5.460)	(-2.822)	(7.194)	(5.287)	(-3.165)
Financial Performance				-0.15*	-0.01	-0.01
				(-1.986)	(-0.964)	(-0.361)
Volatility				1.74	-0.03	-0.03
				(1.544)	(-0.228)	(-0.078)
Constant	-79.20***	-4.48**	-0.19	-58.93***	-3.60*	-3.30
	(-4.333)	(-2.325)	(-0.038)	(-3.481)	(-1.915)	(-0.632)
N	75	74	74	71	70	70
R-Squared	0.63	0.53	0.33	0.65	0.56	0.27

Note: Appendix 8 presents a robustness check to the regression models that explore the determinants of fund ESG performance using ordinary least squares. Portfolio ESG scores have been recalculated using non-normalised weightings (i.e., value-weighted averages based on all available holdings). Columns (1), (2) and (3) relate to Model (1), which corresponds to the first variation of Equation (7), while Columns (4), (5), and (6) relate to Model (2), which corresponds to the second variation of Equation (7). For each variation of Equation (7), we utilise portfolio ESG scores as based on Refinitiv, MSCI, and Sustainalytics data as dependent variables. Robust t-statistics are presented in parenthesis, while ***, **, and * represent the significance at the 1%, 5%, and 10% levels respectively.