The effect of Divestment from ESG Exchange Traded Funds

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This paper aims to empirically investigate whether divestment by, predominantly passive, Environmental, Social and Governance (ESG) Exchange Traded Funds (ETFs) can affect firm level share prices, cost of capital and subsequent ESG performance, for the period from 2013 to 2022. In total we identified and investigated 45,397 unique divestment events. Employing panel regression models, we show that divestment by these funds has a significant and prolonged negative effect on the returns of individual companies. Coordination in divestment, measured by a higher number of ESG ETFs divesting a firm in the same quarter, results in significant prolonged negative effects to stock returns, increases in the cost of capital. The increases in the cost of capital, seem to take longer to materialize, especially for the cost of debt. These results provide further evidence that divestment, particularly coordinated divestment, is an important tool for the sustainability transition, even though its effects are indirect.

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1 Introduction

In the ongoing effort to make investments more sustainable, the effectiveness of divestment as a tool for fund managers to align with environmental, social and governance (ESG) goals is a topic of ongoing debate. It offers an alternative to engagement, but what is its impact on the divested companies? There is a debate within the industry and among academics around the success of divestment, a strategy which includes selling off holdings to financially constrain firms with poor ESG behaviour and ultimately enact change. Recently many asset managers are touting engagement, whereby firms and shareholders interact with firm management through various channels to impact firm policy and behaviour, as a more impactful approach. This claim mainly relies on the idea that divestment does not impact the divested firms, for example, Larry Fink's (CEO of Blackrock) statement "Keep in mind, if a foundation or an insurance company or a pension fund says, 'I'm not going to own any hydrocarbons,' well, somebody else is, so you're not changing the world" at the MIT Golub Center for Finance and Policy's eighth annual conference (Vereckey, 2021).

In this paper we investigate whether divestment can contribute to enacting change by affecting companies' share prices and cost of capital. By tracking changes in ESG Exchange Traded Fund (ETF) quarterly holdings, we contribute a new method of identifying divestment events from predominantly passive funds and present evidence that divestments can have a prolonged significant negative effect on the stock returns of firms. As per Heinkel et al. (2001) we would expect this to subsequently increase the cost of capital for the divested firms, which then should lead to changes in their activities. We find supporting evidence for this channel of impact on the divested firm as coordinated divestment leads to an increase in the cost of capital. Another channel for divestment to enact change within companies is through the stakeholder awareness of public divestments, which could affect future cashflows and increase reputational risks (Ansar and Caldecott, 2013; Dordi and Weber, 2019). Taken with the contemporaneous literature this leads us to concluding that divestment is an important tool in the transition toward a global sustainable economy and can have an impact on firm level outcomes. In the end it is not whether asset managers should divest or engage as both approaches can affect firm behaviour, but rather a question of when to divest and when to engage, which remains an unanswered question. In the end both approaches can create change, but are more effective if enough investors are engaged in them.

In the current economic and social climate, ESG investing is becoming an accepted approach for many asset managers, who are motivated predominantly by the demand of their clients and the material risks and opportunities of ESG issues (Revelli, 2017; Amel-Zadeh & Serafeim, 2018; Kim and Yoon, 2021; McLean et al., 2022). Global assets under management claiming to integrate ESG considerations in their investment strategy made up more than US$35 Trillion in 2020 (GSIA, 2021) and are expected to surpass US$50 trillion by 2025 (Bloomberg Intelligence, 2022). ESG ETFs provide low-cost,

diversified investment options with high liquidity to retail investors. By offering ETFs, fund managers take on the responsibility of fiduciary duty (Eccles et al., 2017) whereby they exercise discretionary power on behalf of their clients concerning asset allocation and voting decisions. The majority responsible investing today is most concerned with climate risks and opportunities (Matos, 2020; Krueger et al., 2020; Ilhan et al., 2021), as the world seeks to transition to a carbon-neutral economy and move financial flows away from climate-damaging firms and towards those exhibiting more socially responsible behaviour.

Many dissidents of divestment, who argue it cannot have an impact, are suggesting engagement as the better approach and it is preferred by institutional investors (Krueger et al., 2020). In this context engagement refers to fund managers engaging with polluting/problematic firms to achieve sustainability goals such as reducing emissions, improving health and safety, or managing risks more effectively. Engagement can ensure that some improvements can be suggested/made under their guide, as opposed to divestment which is a more hands-off approach. Broccardo et al., (2022) propose a theory which suggests that investor engagement is the most effective way to encourage companies to improve their ESG practices if most investors are socially responsible, that is it works when done collectively. Dimson et al. (2021) show that the chance for successful engagement increases when the lead investor is well positioned in terms of geography, language, culture, and social connections to the target firm. Engagement efforts can achieve traceable outcomes when firms are willing and able to change whereas divestment is a strong-arm approach taken by fund managers which ultimately may force the firm to change if they want to continue to access favourable financing.

However, Shell plc, (2017), a company affected by climate related divestment can be quoted from their annual report: “Some groups are pressuring certain investors to divest their investments in fossil fuel companies. If this were to continue, it could have a material adverse effect on the price of our securities and our ability to access equity capital markets.” The empirical literature exploring divestment effects directly, by measuring actual divestment pledges (Dordi & Weber, 2019) or trades (Berk & van Binsbergen, 2021; Rohleder et al., 2022) is rather scarce. In our view the most convincing methodology to date is employed by Rohleder et al., (2022) who studied a sample of actively managed mutual funds and found that firms with higher carbon intensity, that is emissions per dollar of revenue, were subject to stronger selling pressure, resulting in downward movements in stock prices. They further showed that these firms subsequently reduced their carbon emission intensity, after their shares were sold down (divested). Rohleder et al., (2022) provide, in our view, the most direct investigation of divestment so far and show that it does affect firms financially and the divested firms subsequently improve their emission performance.

Given the existing literature around the effectiveness of both engagement and divestment, we contribute by investigating whether divestment by ESG ETFs materially impacts a firm. We see this paper as

complementary to the study by Rohleder et al., (2022), as we study the divestment affect of predominantly passive, rather than active, funds. By analysing the holdings of ESG-themed ETFs, any changes in the index they track will result in an purchase or sale of firm shares at the next rebalancing period. Based on the price pressure hypothesis (Scholes, 1972), an increase in the supply of stock is expected to cause a short-term price decline. Therefore, it should be expected that a divestment can cause an increase in the supply of the divested firm's shares to be available on the market hence resulting in downward price pressure and returns, leading to Hypothesis 1a below.

Hypothesis 1a: *Divestment by ESG ETFs will be negatively related to future stock returns of the divested firms.*

Further, for divestment to be effective in creating change in a firm, this negative effect needs to be prolonged, so that access to, and cost of, capital are impacted and the firm has to enact change in order to attract investors. This expectation of a prolonged effect leads to hypothesis 1b below.

Hypothesis 1b*: ESG ETF Divestment has a prolonged negative effect on stock returns.*

Further, the literature on engagement shows that this is most effective when done in collaboration () and for divestment by active mutual funds is also effective when the collective selling pressure is higher (Rohleder et al., 2022). Therefore, we expect a higher coordination between ESG ETF divestments to amplify the impact of divestment, leading to hypothesis 2 below.

Hypothesis 2: *As more ESG ETFs divest from a firm at the same time the effect on stock return amplifies.*

If divestment is to be truly effective in changing firm behaviour we should see not only a negative effect on stock returns, but also an increase in the cost of capital of the firm (Heinkel et al., 2001), leading to hypothesis 3 below.

Hypothesis 3: *ESG ETF divestment is positively related to the subsequent cost of capital of the divested firm.*

By tracking changes in ESG ETF quarterly holdings, we contribute a new method of identifying divestment from a target firm which allows us to determine when the divestment occurred. As opposed to prior literature, outside of Rohleder et al (2022), which has often focussed on a small number of indices/funds/firms or events (Berk & van Binsbergen, 2021; Dordi & Weber, 2019; Hong & Kacperzyk, 2009), we analyse the holdings of 176 ETFs, and find 45,397 unique divestments within the sample of 12,071 firms.

We find that divestment has a significant negative relationship to subsequent stock returns of the divested firms. Further, a higher the number of ESG ETFs divesting from a firm, proxying for coordinated divestment, leads to more negative future stock returns and this effect does not reverse

within 5 quarters following the divestments. We further show that ESG ETF divestment, especially when it is coordinated, leads to significant increases in the cost of capital of the firm, confirming the channel of impact to firm operations proposed in theory by Heinkel et al. (2001). The positive relationship of divestment with the cost of capital is more delayed than the effect on stock prices, particularly for the cost of debt. Our results provide evidence that divestment can be a viable tool, as even by mostly passive ESG ETFs seems to impact firms financial performance and cost of capital, which should motivate change. Combing our findings with those of Rohleder et al. (2022) we can say that divestment does effect firms and should therefore remain a part of the responsible/ESG/ethical investing approach in combination, not substitution of engagement with companies. Overall, both approaches can affect firm financial and carbon performance. When each approach should be used is left for future research, but an important open question.

In the following section, we will provide a background. Then in section 3 we review the prior literature. Followed by a description of our data collection and formation of key variables in section 4. We then describe how we identify divestment events and our empirical methodology, in section 5. Section 6 presents the empirical results, and we conclude in section 7.

2 Background and Literature

Public concerns around climate risks have risen, with the push to combat climate change exploding since the signing of the Paris Agreement and development of the UN SDGs in 2015 (Choi et al., 2022). This has driven a shift in capital allocation away from high-emission (poor ESG performance) firms into less carbon-intensive (good ESG performance) firms. Currently, the largest coordinated effort to divest is being run by 350.org. It has achieved pledges from over 1500 institutions representing a total value of US$40 trillion (Global Fossil Fuel Divestment Commitments Database, 2022). The movement was launched in 2008 when a student-led university divestment initiative was formed. Since then, they have begun to shift public opinion to favour keeping fossil fuels in the ground as well as highlighting the moral urgency to tackle climate change (350.org, 2022). Choi et al., (2022) estimate that between 2007 and 2020, institutional and retail investors have reduced their ownership of high-emission firms by 1.2%, with sustainable and ESG-themed funds traded on the US markets receiving a record value of inflows in 2021. Over 4,900 asset owners, investment managers, and service providers have signed the United Nations Principles for Responsible Investment (UNPRI) and their assets under management (AUM) account for US$121.3 trillion in total. They follow a set of six principles surrounding the incorporation of ESG issues into investment analysis, decision-making, being active owners, disclosing appropriately, and promoting the cause (UNPRI, 2022).

Obtaining accurate and consistent data about ESG practices and risks can often make it difficult for asset managers, with 56% identifying a lack of standards as a barrier to ESG integration (Eccles et al., 2017). Major data providers include Refinitiv, Bloomberg, Sustainalytics, MSCI and many more, which

supply individual environmental, social, governance, and combined ESG scores. These are formed using different methodologies, measurement techniques, categories and scoring methods which compromises their comparability and consistency (Berg et al., 2022). Additionally, there is some evidence of historical ESG scores by some providers changing without any announcement in methodology change, compromising their use in back-testing and empirical analysis, often with a bias toward relating to stock performance more strongly (Berg et al., 2020). The implementation of non-financial disclosures such as the Task Force for Climate-Related Disclosures (TCFD), the mandatory New Zealand Climate Standards, the European Union Green Taxonomy package, and many more, aim to improve the issue of information asymmetry and foster more efficient capital allocation incorporating climate and more broad ESG risks, opportunities and impacts.

There are currently many approaches to this responsible investment, the most popular of which are engagement and negative screening, the later consisting of avoiding investment in and divesting from problematic firms, both in Australasia (McLean et al., 2022) and Globally (GSIA 2021). In secondary markets, fund managers can avoid firms or industries that are considered unethical/high risk or actively engage and work with them to support their transition. These firms can and should have a purpose or goal that is more than just maximising value and includes acting in a socially responsible manner (Edmans, 2021, 2022; Magill et al., 2015).

Integration of sustainable investing techniques generally, can have indirect impacts. Kölbel et al., (2020) outline the potential for stigmatisation to add to the success of a strategy to force improvements. If investors are more aware of a firm causing harm, they may interact with other stakeholders politically or be deterred from obtaining employment from the firm which was seen during the anti-apartheid divestment campaign (Knight, 1990). On the contrary, firms that have stronger ESG behaviour and disclosure relative to their peers will benefit through endorsement from ethical investors and inclusion in portfolios and sustainability indices. This can improve reputation, increase visibility, and motivate employees of the firm. These indirect impacts are extremely difficult to empirically investigate due to their subjective nature, hence the lack of prior literature however it is important to mention these as wider potential impacts of ESG investing.

2.1 Engagement

Engagement or more traditionally termed ‘voice’ (Hirschmann, 1970), refers to shareholders interacting with companies through voting on appointing or removing directors, having open discussions around adapting the strategy of the business, approving a merger, acquisition, or takeover, making shareholder proposals and in some cases litigating against the firm. Broccardo et al., (2022) provide theoretical evidence in support of engagement, finding that if most investors are socially responsible, engaging with firms achieves the socially optimal outcome. On the contrary, their results imply that when most investors are not socially responsible, engagement is ineffective, and divestment is the only strategy

that can push firms to improve their ESG practices. However, it is difficult to know the variety of investors' true beliefs.

Coordinated engagement efforts by institutions around environmental and social matters are on the rise, however, the nature and impact of such engagement in the global environment can vary in success dependent on the situation. Dimson et al., (2021) found that the chances of success in coordinated engagements relating to environmental and social issues are improved if there is a lead investor from the same country as the target firm, who owns more assets and equity in the target firm and has a formal engagement process in place. Large investment institutions with influence and resources are more likely to be successful in engaging to achieve their goals and improve investee companies' performance.

Recognition of the success of engagement attempts is widely varied depending on the approach used and data used in empirical analysis. Kölbel et al., (2020) provide a summary of five studies that analysed the extent to which target firms comply with shareholder engagement requests. They show that there is a reasonable probability that engagement success lies between 18-60% dependent on aims and measurement of success (Table 1). Barko et al., (2017) and Dyck et al., (2019) measure success through an increase in the firms' ESG rating following engagement requests. Alternative measures that have been used include positive abnormal returns (Dimson et al., 2015, 2021), and reduced financing costs following successful engagement (Hoepner et al., 2016).

Engine No.1, a hedge fund, successfully won a proxy battle against ExxonMobil, one of the largest oil and gas firms in North America, by electing climate-oriented directors onto their board (Naef, 2022). The fund, which owned $40 million worth of shares, recommended candidates with experience in the industry and a commitment to change. They gained support from major shareholders and proxy advisors, ultimately resulting in 97.8% of votes for their nominees compared to 95.3% for ExxonMobil's nominees (ExxonMobil, 2021). This case is often presented as evidence that shareholder engagement mechanisms can be used to force fossil fuel firms to transition. However, this example is that of an activist fund, at the extreme of the engagement approach spectrum, and should not be used as an example of the effect of more common engagement methods.

2.2 Divestment

Before the turn of the century, the most widespread divestment campaigns targeted firms operating in South Africa during the apartheid regime and the tobacco industry (350.org, 2022). These were primarily led by religious organisations, medical associations, pension funds, and educational institutions due to the misalignment of their ethical principles and morals. Despite the apartheid divestment campaign's popularity, widespread coverage, and many divesting organisations, there is no empirical evidence to suggest negative impacts on the market valuations of the targeted companies in

South Africa, which was primarily due to the reallocation of shares to less concerned investors (Teoh et al., 1999).

The movement to divest from the largest tobacco manufacturers began in the 1990s and gained traction due to a combination of both legal and financial considerations (Fisher, 2000). While the success of the strategy is debated in the literature, Hong & Kacperzyk, (2009) found that reduced holding of so-called 'sin stocks' (firms profiting from alcohol, tobacco, weapons, and gambling) by institutional investors caused their stock prices to be undervalued by 15-20%. Subsequently, due to the implications of the efficient market hypothesis, that is all stock prices will reflect the information available (Fama, 1970). Subsequent to the tobacco divestment campaign Hong & Kacperzyk, (2009) showed that the sin stocks outperformed other comparable stocks by 3.5% per year during their sample period, which occurred after the majority of the divestment campaign publicity. Despite the intentions of divestitures being to hurt the target firm, it can have other outcomes benefitting less ESG-concerned investors.

Eccles et al. (2022) explore the valuations, institutional ownership, public market delisting, cost of new equity between sin (alcohol, tobacco, gaming, weapons, and fossil fuel industries) and non-sin stocks, finding no significant differences concluding that negative screens do not work. However, they do find a significantly higher cost of new debt for sin stocks. In their research they do not directly investigate divestment events or trades, but rather explore sin and non-sin company variables. When looking specifically at divestment pledges (events) targeting firms in the fossil fuel industry, Dordi & Weber, (2019) conclude that divestors can create a negative demand shift for fossil fuel shares, which increases financial capital costs and decreasing their solvency. They find that divestment can be successful in creating change and influencing corporate objectives in the industry, with pledges having varying levels of success. Through empirical testing they attribute the fossil-free divestment campaign to have caused negative effects on the stock prices of the target firms. Specifically, they show that divestment announcements impact share prices with significant effects over one day and 10 day intervals. These findings provide results of significant negative returns in the short-term in line with theoretical expectations of Wright & Ferris (1997) and Meznar (1998).

The end goal of divestment campaigns based on ESG is an improvement by the target firm to become more socially responsible. During the process, many incremental goals are desired achievements along the way. Paun et al., (2015) outline how a divestment trend leads to reduced demand for shares/bonds, which increases the cost of capital for the target firm. This makes it more difficult to finance projects and drives them to scale back the size of operations to reduce their harm or improve their behaviour. Further, the exit of ESG-focused investors leads to a larger number of parties becoming aware of corporate ESG standards as shown by Gantchev et al., (2022). They provide a theoretical view arguing that management concerns surrounding a reputation-damaging incident occurring can result in material

changes being made. These aim to improve actions and policy, preventing the loss of capital supplied by ethical investors and subsequent negative impacts on valuations.

Berk & van Binsbergen, (2021) investigate the impact of inclusions and exclusions of a firm in or from one popular socially responsible index. This works under the impression that funds replicate indices and there is an immediate redeployment of capital when the index fund is rebalanced. They test the effect of a dummy variable (included in an index or not) and determine that a substantial increase in the value of 'socially conscious' investments is required to have material negative effects on the long-term cost of capital and corporate policy.

Rohleder et al., (2022) provide convincing empirical research evidence for the effectiveness of carbon motivated divestment on company financial performance and more importantly subsequent emissions. The sale of climate-damaging shares is often referred to as decarbonisation or fossil fuel divestment. Within their study, Rohleder et al., (2022) form a decarbonisation selling pressure (DSP) measure of divestment by active mutual fund managers. Through an event study and panel regression approach, they find that collective divestment by equity funds can exert sufficient selling pressure to cause the stock prices of these stocks to fall, and interestingly this drop is persistent. They also show that divestment leads to decreases in carbon emission intensities by divested firms. Within our research, we focus on the divestment of the mostly passively managed ESG ETFs and find complementary results.

3 Data

A list of ESG ETFs was compiled using Bloomberg's equity fund screening tool. The criteria included funds with assets under management of greater than US$100 million (as of 20th October 2022), which were identified as an 'ESG ETF' by Bloomberg. Their holdings and weights were collected from Bloomberg, at the beginning of every quarter from 01/01/2013 to 01/10/2022. Both active and inactive funds were included in the sample to prevent survivorship bias (Elton et al., 1996). Their holdings were screened to include only listed equities which involved removing corporate, mortgage, government, and pooled bonds, future contracts, and cash (see Table 2 for more details). This ensured our analysis specifically focussed on divestment from listed shares.

After matching all of the Bloomberg tickers to ISIN (International Securities Identification Number) codes, stock-level data was obtained from Thomson Reuters Refinitiv Eikon and Datastream for the full sample period. The stock-level data included the total return index (share price adjusted for dividends), market capitalisation, common shares outstanding, total assets, total debt, return on equity, and return on assets. To complete further analysis, the weighted average cost of capital was also obtained from the Refinitiv StarMine model which uses analytics to calculate the average rate a firm is expected to pay to its debt, equity, and preferred stockholders to finance its assets. Similarly, Refinitiv Environmental, Social, Governance and overall ESG ratings were also collected to assess whether firms have changed their efforts and transparency to their key risks.

Commented [SG1]: Was it really all?need numbers on this

Of 12k listed equity, how many matched and how many have data datastream

The MSCI All Country World Index (ACWI) was used as a proxy for the market portfolio and was chosen as it is the most commonly used global equity benchmark, which represents the returns of stocks in 47 developed and emerging global equity markets. Fama-French global market factors were downloaded from Kenneth French's data library and included high-minus-low (HML), small-minus-big (SMB), and momentum (UMD) factors. These are formed with the use of data from developed markets in 23 countries across four regions.

4 Methodology

4.1 Divestment identification

It is difficult to identify when a divestment event happens because the reasons behind asset allocation decisions made by fund managers are not widely known, and the data necessary for the analysis is complex to obtain. We classify a divestment event by an ESG ETF as a reduction in their holding dollar value decreasing completely to zero. We assume that a majority of divestments of these funds were due to ESG concerns, as they are all ESG funds. Either way, our results will show the effect of divestment by these funds, regardless of the specific reason. During our analyses, we found that many funds had reduced a holding to zero but then re-purchased more stock in the future, which does not reflect a true divestment, therefore we only count divestments as those sell downs which are not followed by reinvestment within the sample.

4.2 Empirical models

We begin our analyses by determining a baseline regression model as

$$\begin{aligned}\mathrm{Ret}_{\mathrm{i,t}} = \alpha_0 + \alpha_1 \mathrm{MarketReturn}_{\mathrm{t}} + \textstyle\sum_{\mathrm{j}}^{5} \beta_j \mathrm{DIVEST}_{\mathrm{i,t-j}} + \theta_1 \mathrm{SMB}_{\mathrm{t}} + \theta_2 \mathrm{HML}_{\mathrm{t}} + \theta_3 \mathrm{UMD}_{\mathrm{t}} + \\ \theta_4 \ln(\mathrm{TotalAssets})_{\mathrm{i,t}} + \theta_5 \ln(\mathrm{TobinsQ})_{\mathrm{t}} + \theta_6 ROA_t + \theta_7 ROE_t + \mathrm{e}_{\mathrm{i,t}} \ .\end{aligned} \quad (1)$$

where $R_{i,t}$ is the quarterly log return of company i and $R_{M,t}$ is the return of the market portfolio (ACWI).The variable of interest is divestment event proxy $DIVEST_{i,t}$, classified in several ways. We classify divestment events using both their total count (*DivestCount*) within the quarter as well as *DivestOne* to *DivestFive*, which are dummy variables that are equal to one if there is at least one to five event(s) in that quarter for that firm, respectively. We control for the Fama-French size (SMB_t), value (HML_t) and momentum (UMD_t) risk factors as well as firms' total assets, TobinsQ, return on assets and return on equity. We estimate equation (1) with different combinations of firm, country, and year fixed effects and clustered standard errors, to control for unobserved heterogeneity and reduce bias in our estimation. Firm fixed effects control for any differences in returns that are due to the differences in firms' overall performance or risk profiles not captured by our control variables. Country and year fixed effects control for any differences in returns that are due to differences in economic conditions or market regulations across countries and between periods.

Based on H1, we expect divestments will have a negative relationship with the returns of divested firms. Therefore, we expect β_1 to β_5 to be negative, or that at least the net relationship is negative. Further, as per the coordination effect, hypothesised in H2, we expect a stronger negative relationship when coordination of divestment is higher. That is, we expect negative coefficients when we estimate equation (1) with the *DivestCount* variable and for the negative coefficient to increase as we estimate the regression using the *DivestOne* to *DivestFive* dummy variables.

Beyond the effect of divestment on firm stock returns, we also explore the relationship between ESG ETF divestment and firm cost of capital as well as ESG performance. In order to explore these relationships we estimate equations (2) and (3) below, respectively.

$$CC_{i,t} = \alpha_0 + \alpha_1 MarketReturn_t + \sum_j^5 \beta_j DIVEST_{i,t-j} + \theta_1 SMB_t + \theta_2 HML_t + \theta_3 UMD_t + \theta_4 \, ln(TotalAssets)_{i,t} + \theta_5 \, ln(TobinsQ)_t + \theta_6 ROA_t + \theta_7 ROE_t + e_{i,t}, \quad (2)$$

where $CC_{i,t}$ is the weighted average cost of capital (WACC), cost of equity or cost of debt.

5 Results

5.1 Summary Statistics

Table 3 presents the summary statistics of our key stock-level variables. The mean quarterly return for the sample is 1.23% with a lower median of 0.88% and a standard deviation of 0.22%. The distribution is negatively skewed with a coefficient of -0.42. The *DivestCount* variable has a mean of 0.0945 and is extremely positively skewed due to the observations primarily taking on zero values. This contributes to the median, 25th, and 75th percentiles all also take on zero values. The highest number of funds that divested from a particular stock in a single quarter is twelve. An average firm in the sample holds US$16.2 Billion in total assets, US$4.3 Billion in total debt, and has a market capitalisation of US$6.8 Billion. The MSCI All World market index averages a quarterly return of 1.69%, has a minimum value of -23.63%, and a maximum of 21.93%.

Table 4 contains summary statistics of our variables of interest. The total number of divestment events within our sample is 45,397. *DivestOne* to *DivestFive* are dummy variables that are equal to one if there are at least one to five event(s) in that quarter for that firm, respectively.

Figure 1 shows the maximum and average count of divestment events that occur each quarter. It shows that due to many funds rebalancing only once a year, they update their holdings at the beginning of the calendar year shown by spikes of the maximum at the beginning of each year. The average number of funds divesting is constantly changing, with the earliest divestment in the sample occurring in the first quarter of 2014.

5.2 Divestment effect: stock returns

In this section, we analyse the effect that ESG ETF divestment has on divested firm quarterly stock returns. Table 5 presents the coefficients of the mode defined in equation (2), with the various definitions of our variable of interest, the *Divest* variable. In the first column we explore the *DivestCount* definition, which reflects a count of the number of ESG ETFs that divested from the firm in quarter *t*. We can observe that the coefficient for the first two lags is negative and highly significant, that is for each additional ESG ETF that divests from a firm, on average its stock returns are 1.14% and 0.25% lower in the following two quarters. This does seem to somewhat reverse with significantly positive coefficients on the third and fifth lagged *DivestCount*, however the net effect of all 5 coefficients is still a decrease in stock returns.

To explore the divestment effect, particularly in terms of coordination more directly we explore the five dummy variable definitions *DivestOne* to *DivestFive*, which are 1 when one to five ESG ETFs divest from the firm in the same quarter, respectively, and zero otherwise. As we can see the initial negative effect seems to reverse after 6 months for the *DivestOne* variable, and is essentially fully reversed at the end of 5 quarters. As we move to the measure of higher divestment coordination, that is toward *DivestFive*, we can see that the negative effect of this coordinated divestment bevomces stronger and does not reverse within 5 quarters after the divestment. More specifically when 5 ESG ETFs divest from the same firm, on average the firm will experience a significant (1% level) decrease in stock returns of 4.45% in the first quarter, followed by a slightly significant reversal (10% level), and then three more quarters of a negative effect on stock returns. The net effect of five ESG ETFs divesting from a firm is an average decrease in stock returns of 15.96% over the following 5 quarters.

Overall, these results show that divestment by ESG ETFs does negatively relate to subsequent stock returns, in line with hypothesis one, and that increased coordination among divestment by the ETFs strengthens this negative effect, in line with hypothesis two. This provides some initial evidence that divestment by the predominantly passive ESG ETF funds can effect company stock returns, that this effect is prolonged for over a year and that coordination in divestment is an important factor. These results are in line with Rohleder et al. (2022), who found that decarbonization selling pressure by actively managed mutual funds decreases future stock returns in a prolonged manner.

5.3 Divestment effect: cost of capital

To explore the channel of impact of divestment theorized by Heinkel et al. (2001) and test hypothesis 3, we estimate equation (2), exploring the effect of divestment on the weighted average cost of capital of the divested firms in subsequent quarters. The estimated coefficients are presented in Table 6, each column estimating the model with a different definition of the Divest variable. For the *DivestCount* variable we can see that there is a significant positive effect on the cost of capital of a divested firm one

quarter after this divestment, as on average each additional divestment by an ESG ETF leads to a 0.067% increase in the cost of capital, this effect seems to reverse in the third and fourth quarter following divestment, but then 5 quarters after the divestment, there is a really strong increase in the cost of capital. When exploring the *DivestOne* to *DivestFive* dummy variables we find a similar pattern that is an initial increase in the WACC in first quarter following ESG ETF divestment, which reverses, and is followed by a much stronger negative relationship to the WACC five quarters later. This effect becomes more pronounced the more coordination the divestment is.

We further explore the effect of divestment on the firm cost of capital by exploring the cost of debt and cost of equity in tables 7 and 8, respectively. We find consistent results as when the WACC was explored, that is divestment, particularly coordinated divestment increases the firms cost of capital in the following quarters, with the strongest effect coming 5 quarters after the divestment. We can further see that this relationship is stronger for the cost of equity. The effect on the cost of debt seems to be more delayed as it is not significant until the fifth quarter, while the cost of equity increases, with some fluctuation, sooner.

The prolonged net negative affect on the cost of capital for a divested firm supports our hypothesis 3 and the delayed nature, relative to the effect of stock returns, can be expected as this is the next step in the chain of reactions to divestment theorized by Heinkel et al. (2001).

6 Conclusion

This paper aimed to empirically test the effect of divestment on divested firms' subsequent stock returns and cost of capital, to establish whether divestment can be an effective strategy to impact firms and potentially drive changes in policy and behaviour. The literature suggests that divestment has a negative effect, particularly the most direct test employed on divestment by active mutual fund manager and also decreases subsequent firm emission intensity (Rohleder et al., 2022). We find that divestment by predominantly passive ESG ETFs has a significant negative effect on the stock returns of firms, regardless of which proxy is used. More specifically, a higher number of ESG ETFs divesting in a firm in the same quarter, which proxies for coordinated divestment, results in prolonged negative effects on stock returns and increases in the firms cost of capital. Taking these findings together, we conclude that divestment does affect the divested firms and should continue to be a part of responsible investing practice.

We assumed that if an ESG-themed ETF decreases its holding of a firm's stock to zero, it is a divestment, however, we do not know the reason for the divestment without communicating with the fund manager. Another limiting factor that may have harmed the significance of results is outlined by Marupanthorn (2022) who investigated the potential divestment strategies that may be used by fund managers to mitigate any negative effects on ETF risk and return profiles. From this, they determined three distinct methods: slow, fast, and instant. Our study focused primarily on the effects of instant

divestment or the last quarter of a slow/fast divestment, as we only explore divestment where the holding of the fund in the firm goes to zero. It can be noted that if a large proportion of fund managers opt for slow (reduction of holding value by less than 20% per quarter), this would bias against our results. Therefore, given our significant results, and that some ETFs will divest slowly, the real effect of divestment is likely even larger than reported in this research.

We contribute a new method of identifying divestment of ESG ETFs from a firm. By analysing changes in their holdings, we can determine which quarter the event occurred in, the number of shares, and the proportion of holdings. The data obtained and methodology principles provide a basis for further research to be completed and to investigate a larger number of dependent variables such as proxies for ESG and carbon performance, sustainability related disclosures, media sentiment and others in order to expand our understanding of the effect of divestments. Further, quantifying divestment in dollar amount, proportion of fund holdings or proportion of firm ownership will allow us to gain deeper insights the effectiveness of divestment.

Given our results, and those already in the literature (particularly Rohleder et al., 2022) the argument often posited by investment managers, such as Larry Fink, that divestment does not work, and they should just engage with their investee companies does not hold. To create change in firms and hopefully improve the world's environmental and social issues, investment managers need to both divest and engage, as both approaches affect firm value and actions. Not one or the other is better, but they are more appropriate in different situations. We should not use engagement as a reason to stay invested in firms unwilling to change, but rather to work with firms willing and able to change, while we divest from firms which will not transition in time to avoid material and significant climate impacts. Further, for both approaches coordination/collaboration will make the desired outcome more likely as the pressure on the companies is amplified. Arguing you are a responsible investment fund, but you rely purely on engagement while continuing to invest in the highest ESG risk companies, would only be valid if the fund is an activist fund. Such a fund invests in ESG laggards in order to engage, often through public statements, shareholder proposals or even litigation. This is opposed to engaging, often quite passively, in order to stay invested in the ESG laggards, rather than divesting.

References

350.org. (2022). ABOUT 350. https://350.org/about/

Amel-Zadeh, A., & Serafeim, G. (2018). Why and how investors use ESG information: Evidence from a global survey. Financial Analysts Journal, 74(3), 87-103.

Ansar, A., Caldecott, B., 2013. 'Stranded Assets and the Fossil Fuel divestment campaign: what does divestment mean for the valuation of stranded assets'. *Smith School of Enterprise and the Environment, University of Oxford.* http://www.smithschool.ox.ac.uk/publications/reports/SAP-divestment-report-final.pdf

Barko, T., Cremers, M., & Renneboog, L. (2017). Activism on corporate social responsibility. SSRN Electronic Journal.

Bassen, A., Gödker, K., Lüdeke-Freund, F., & Oll, J. (2019). Climate information in retail investors' decision-making: Evidence from a choice experiment. Organization & Environment, 32(1), 62-82.

Berg, F., Fabisik, K., & Sautner, Z. (2020). Is history repeating itself? the (un) predictable past of ESG ratings. The (Un)Predictable Past of ESG Ratings (August 24, 2021). European Corporate Governance Institute–Finance Working Paper, 708.

Berg, F., Koelbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. Review of Finance, 26(6), 1315-1344.

Berk, J., & van Binsbergen, J. H. (2021). The impact of impact investing. Available at SSRN 3909166.

Berman, D. (2002). Why Sin is good: Tobacco, alcohol, and gaming stocks can add sizzle to your portfolio.

Bloomberg Intelligence. (2022). ESG May Surpass $41 Trillion Assets in 2022, But Not Without Challenges, Finds Bloomberg Intelligence.

Briere, M., & Ramelli, S. (2021). Green sentiment, stock returns, and corporate behavior. Available at SSRN 3850923.

Broccardo, E., Hart, O., & Zingales, L. (2022). Exit versus voice. Journal of Political Economy, 130(12), 3101-3145.

Business & Human Rights Resource Centre. (2021). Renewable Energy & Human Rights Benchmark: Key Findings from the Wind & Solar Sectors. https://www.business-humanrights.org/en/from-us/briefings/renewable-energy-human-rights-benchmark-2/

Guardian Capital. (2022). Engagement vs Divestment. https://www.guardiancapital.com/investmentsolutions/wp-content/uploads/docs/ri/GC_engagement_vs_divestment_%20Sep_2022.pdf

Choi, D., Gao, Z., Jiang, W., & Zhang, H. (2022). Carbon Stock Devaluation. Available at SSRN 3589952.

Dimson, E., Karakaş, O., & Li, X. (2015). Active ownership. Review of Financial Studies, 28(12), 3225-3268.

Dimson, E., Karakaş, O., & Li, X. (2021). Coordinated engagements. European Corporate Governance Institute–Finance Working Paper (721).

Dordi, T., & Weber, O. (2019). The impact of divestment announcements on the share price of fossil fuel stocks. Sustainability, 11(11), 3122.

Dyck, A., Lins, K. V., Roth, L., & Wagner, H. F. (2019). Do institutional investors drive corporate social responsibility? International evidence. Journal of Financial Economics, 131(3), 693-714.

Eccles, R. G., Kastrapeli, M. D., & Potter, S. J. (2017). How to integrate ESG into investment decision-making: Results of a global survey of institutional investors. Journal of Applied Corporate Finance, 29(4), 125-133.

Eccles, R. G., Rajgopal, S., & Xie, J. (2022). Does ESG negative screening work?

Edmans, A. (2021). Grow the Pie: How Great Companies Deliver Both Purpose and Profit–Updated and Revised. Cambridge University Press.

Edmans, A., Levit, D., & Schneemeier, J. (2022). Socially responsible divestment. European Corporate Governance Institute–Finance Working Paper (823).

Elton, E. J., Gruber, M. J., & Blake, C. R. (1996). Survivor bias and mutual fund performance. Review of Financial Studies, 9(4), 1097-1120.

ExxonMobil, (2021). Form 8-K.

Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. The Journal of Finance, 25(2), 383-417.

Fisher, L. (2000). Divestment in the tobacco industry. Cancer Causes and Control, 11(4), 381-382. https://dx.doi.org/10.1023/a:1008948311971

Gantchev, N., Giannetti, M., & Li, R. (2022). Does Money Talk? Divestitures and Corporate Environmental and Social Policies. Review of Finance.

Global Fossil Fuel Divestment Commitments Database. (2022). The database of fossil fuel divestment commitments made by institutions worldwide. https://divestmentdatabase.org/

Global Sustainable Investment Alliance (GSIA) (2021). *Global Sustainable Investment Review 2020*. http://www.gsi-alliance.org/wp-content/uploads/2021/08/GSIR-20201.pdf

Heinkel, R., Kraus, A., & Zechner, J. (2001). The effect of green investment on corporate behavior. Journal of Financial and Quantitative Analysis, 36(4), 431-449.

Hirschman, A. O. (1970). Exit, voice, and loyalty: Responses to decline in firms, organizations, and states (Vol. 25). Harvard University Press.

Hoepner, A., Oikonomou, I., Scholtens, B., & Schröder, M. (2016). The effects of corporate and country sustainability characteristics on the cost of debt: An international investigation. Journal of Business Finance & Accounting, 43(1-2), 158-190.

Hong, H., & Kacperczyk, M. (2009). The price of sin: The effects of social norms on markets. Journal of Financial Economics, 93(1), 15-36.

Ilhan, E., Krueger, P., Sautner, Z., & Starks, L. T. (2021). Climate risk disclosure and institutional investors. Swiss Finance Institute Research Paper, (19-66).

Kelly, A. (2019). Apple and Google named in US lawsuit over Congolese child cobalt mining deaths. The Guardian, 16.

Kim, S., & Yoon, A. (2023). Analyzing active fund managers' commitment to ESG: Evidence from the United Nations Principles for Responsible Investment. Management science, 69(2), 741-758.

Knight, R. (1990). Sanctions, disinvestment, and US corporations in South Africa. Sanctioning Apartheid, 67-89.

Kölbel, J. F., Heeb, F., Paetzold, F., & Busch, T. (2020). Can sustainable investing save the world? Reviewing the mechanisms of investor impact. Organization & Environment, 33(4), 554-574.

Krueger, P., Sautner, Z., & Starks, L. T. (2020). The importance of climate risks for institutional investors. The Review of Financial Studies, 33(3), 1067-1111.

Magill, M., Quinzii, M., & Rochet, J. C. (2015). A theory of the stakeholder corporation. Econometrica, 83(5), 1685-1725.

Marupanthorn, P., Sklibosios Nikitopoulos, C., Ofosu-Hene, E., Peters, G., & Richards, K.-A. (2022). Mechanisms to Incentivise Fossil Fuel Divestment and Implications on Portfolio Risk and Returns. Available at SSRN 4131449.

Matos, P. (2020). ESG and responsible institutional investing around the world: A critical review.

McLean, L., Diaz-Rainey, I., Gehricke, S., & Zhang, R. (2022). In Holdings We Trust: Uncovering the ESG Fund Lemons. Available at SSRN.

Meznar, M. B., Nigh, D., & Kwok, C. C. (1998). Announcements of withdrawal from South Africa revisited: Making sense of contradictory event study findings. Academy of Management Journal, 41(6), 715-730.

Mindful Money. (2020). Myth Busting: Fossil Fuel Divestment. https://mindfulmoney.nz/news/entry/myth-busting/

Morningstar. (2022). Global Sustainable Fund Flows Report. https://www.morningstar.com/lp/global-esg-flows

Naef, A. (2022). Shareholder engagement for climate change: Lessons from the ExxonMobil vs Engine No. 1 proxy battle.

Ng, A. C., & Rezaee, Z. (2015). Business sustainability performance and cost of equity capital. Journal of Corporate Finance, 34, 128-149.

NZX. (2020). NZX ESG Guidance Note. https://www.nzx.com/regulation/nzx-rules-guidance/nzx-mo-announcements/guidance-notes

Paun, A., Knight, Z., & Wai-Shin, C. (2015). Stranded assets: what next? How investors can manage increasing fossil fuel risks.

Revelli, C. (2017). Socially responsible investing (SRI): From mainstream to margin?. Research in International Business and Finance, 39, 711-717.

Rohleder, M., Wilkens, M., & Zink, J. (2022). The effects of mutual fund decarbonization on stock prices and carbon emissions. Journal of Banking & Finance, 134, 106352.

Ryu, H.-H., Sun, H. H., Myung, S.-T., Yoon, C. S., & Sun, Y.-K. (2021). Reducing cobalt from lithium-ion batteries for the electric vehicle era. Energy & Environmental Science, 14(2), 844-852.

Scholes, M. S. (1972). The market for securities: Substitution versus price pressure and the effects of information on share prices. Journal of Business, 45(2), 179-211.

Shell plc. (2017). Annual Report and Form 20-F for the year ended December 31, 2017. https://www.shell.com/about-us/annual-publications/annual-reports-download-centre.html

Swan, N., & Kalderimis, D. (2021). Legal Opinion 2021 - Legal duties of New Zealand trustees to identify and manage climate change related investment risk. https://chapmantripp.com/trends-insights/trustees-duties-to-identify-and-manage-climate-related-investment-risk/

Teoh, S. H., Welch, I., & Wazzan, C. P. (1999). The effect of socially activist investment policies on the financial markets: Evidence from the South African boycott. Journal of Business, 72(1), 35-89.

United Nations. (2016). Paris Agreement Signing Ceremony – 22 April 2016. https://www.un.org/sustainabledevelopment/parisagreement22april/

UNPRI. (2022). What are the Principles for Responsible Investment? https://www.unpri.org/about-us/what-are-the-principles-for-responsible-investment

Vereckey, B. (2021, Nov 2) 'BlackRock's Larry Fink: Don't divest fossil fuels, stay in the game' *MIT: Ideas made to matter.* *https://mitsloan.mit.edu/ideas-made-to-matter/blackrocks-larry-fink-dont-divest-fossil-fuels-stay-game*

Wright, P., & Ferris, S. P. (1997). Agency conflict and corporate strategy: The effect of divestment on corporate value. Strategic Management Journal, 18(1), 77-83.

Figures

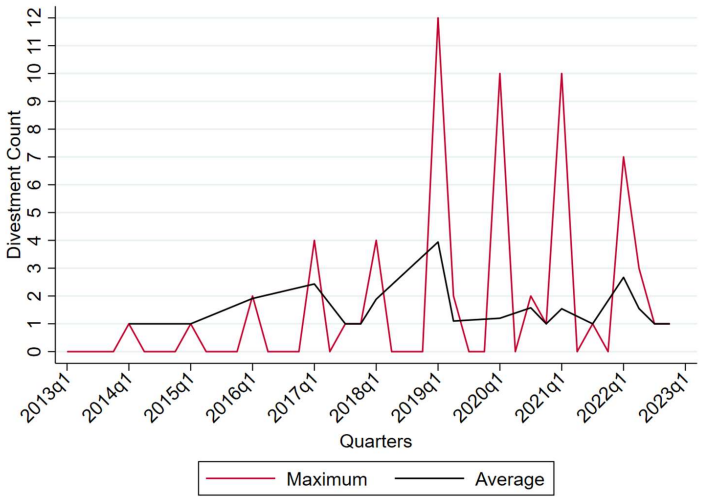

Figure 1: Divestment events occurring between 2013 – 2022
This figure shows the maximum number of divestment events occurring in each quarter and the average number occurring in each quarter during the sample period of 2013 – 2022.

Tables

Reference	No. of requests	Sample period	Success rate
Dimson et al. (2015)	2,152	1999-2009	18%
Hoepner et al. (2016)	682	2005-2014	28%
Barko et al. (2017)	847	2005-2014	60%
Dimson et al. (2018)	1,671	2007-2017	42%
Dyck et al. (2019)	147	2004-2013	33%

Table 1: Success Rates of Shareholder Engagement Requests from (Kölbel et al., 2020)

Asset Type	Count
Listed stocks/firms	12,071
Commodity futures	6
Convertible preference shares	2
Corporate bonds	19,244
Currency	41
Mortgage bonds	1,148
Pooled bonds	305
Treasury bills/Government bonds	389
Underlying index futures	57
	33,263

Table 2: Breakdown of ESG Exchange Traded Fund Holdings, by asset type, for the period 01/01/2013 to 01/10/2022.

	N	Mean	Standard Deviation	25th Percentile	Median	75th Percentile	Skewness	Min	Max
Quarterly Returns	405,214	0.0123	0.2203	-0.0772	0.0088	0.1154	-0.4199	-0.8565	0.7484
DivestCount	480,640	0.0945	0.6036	0.0000	0.0000	0.0000	9.7609	0	12
Total Assets	381,148	16,200,000	52,300,000	618,356	2,095,634	7,754,523	5.748397	17,718	403,000,00
Total Debt	349,223	4,300,347	13,500,000	105,500	574,104	2,432,700	5.836277	0	107,000,00
Market Capitalisation	341,074	6,820,299	15,000,000	687,660	1,826,476	5,427,999	4.342408	51,281	102,000,000
Market Return	462,059	0.0169	0.0804	-0.0054	0.0257	0.0558	-0.8841	-0.2363	0.2193

Table 3: Summary statistics
This table presents summary statistics for stock-level data during the sample period between 2013 and 2022

	Count
DivestCount	45,397
DivestOne	19,385
DivestTwo	10,188
DivestThree	7,097
DivestFour	6,561
DivestFive	1,365

Table 4: Summary of divestment variables of interest
This table shows the summary of count/dummy variables used to interpret the relationship between divestments and returns. *DivestOne*/Two/Three/Four/Five are dummy variables that are 1 if there is at least one/two/three/four/five event(s) in that quarter for that firm.

Commented [SG2]: Why N for quarterly reuturns and divestcount different?

Commented [SG3R2]: Maybe after match of bloomberg ticker to ISIN some still don't have data?

Dependent Variable: Quarterly Stock Return	*Divest* Definition					
	DivestCount	***DivestOne***	***DivestTwo***	***DivestThree***	***DivestFour***	***DivestFive***
$Divest_{t-1}$	-0.0114***	-0.0307***	-0.0526***	-0.0568***	-0.0576***	-0.0445***
	(-13.08)	(-13.18)	(-14.23)	(-11.48)	(-11.56)	(-3.67)
$Divestt_{t-2}$	-0.0025***	-0.0028	-0.0154***	-0.0277***	-0.0287***	0.0216*
	(-3.16)	(-1.26)	(-4.64)	(-6.03)	(-6.19)	(1.86)
$Divest_{t-3}$	0.0039***	0.0062**	0.0517***	0.0187***	0.0194***	-0.0505***
	(4.76)	(2.63)	(14.73)	(4.11)	(4.23)	(-4.55)
$Divest_{t-4}$	-0.0013	-0.0012	-0.0076	0.0012	0.0018	-0.0571*
	(-0.91)	(-0.44)	(-1.55)	(0.15)	(0.22)	(-1.89)
$Divest_{t-5}$	0.0032***	0.0265***	0.0073*	-0.0097*	-0.0093	-0.0291
	(3.21)	(11.21)	(1.95)	(-1.71)	(-1.62)	(-1.41)
$MarketReturn_t$	0.9521***	0.9521***	0.9547***	0.9577***	0.9578***	0.9524***
	(95.53)	(94.65)	(95.42)	(95.77)	(95.77)	(94.28)
SMB_t	0.5058***	0.5254***	0.5079***	0.4768***	0.4761***	0.4984***
	(20.87)	(21.49)	(21.05)	(19.52)	(19.49)	(20.50)
HML_t	0.2068***	0.1919***	0.2195***	0.2477***	0.2482***	0.2609***
	(7.89)	(7.17)	(8.60)	(9.67)	(9.69)	(10.31)
UMD_t	0.1326***	0.1263***	0.1763***	0.1150***	0.1139***	0.1642***
	(4.68)	(4.41)	(6.06)	(4.09)	(4.06)	(5.72)
$Ln(TotalAssets)_t$	0.0053***	0.0053***	0.0053***	0.0053***	0.0053***	0.0053***
	(12.91)	(12.91)	(12.83)	(12.92)	(12.92)	(12.82)
$Ln(TobinsQ)_t$	0.0103***	0.0103***	0.0103***	0.0103***	0.0103***	0.0103***
	(20.80)	(20.83)	(20.77)	(20.82)	(20.82)	(20.76)
ROE_t	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
	(0.73)	(0.71)	(0.77)	(0.76)	(0.75)	(0.77)
ROA_t	0.1542***	0.1537***	0.1541***	0.1542***	0.1542***	0.1541***
	(8.19)	(8.18)	(8.19)	(8.19)	(8.19)	(8.20)
Constant	-0.0665***	-0.0656***	-0.0661***	-0.0665***	-0.0672***	-0.0658***
	(-4.62)	(-4.56)	(-4.60)	(-4.64)	(-4.68)	(-4.57)
Observations	127,041	127,041	127,041	127,041	127,041	127,041
Adj R^2	0.2285	0.2290	0.2299	0.2283	0.2283	0.2273

Table 5: Divestment Effect on Stock Returns

This table reports the estimated coefficients of equation (1), with various definitions for the Divest variable of interest. Specifically *DivestCount* is a count of how many ESG ETFs divest from a particular firm i, in quarter t. *DivestOne* to *DivestFive* are dummy variables which are 1 when one to five ESG ETFs divest from the firm in the same quarter, respectively, and zero otherwise. The regressions are estimated for quarterly stock returns between 2013 and 2022. Firm, year, and country fixed effects are included in these models and standard errors are clustered. The t-statistics are presented in parentheses, while *, **, *** denote significance at the 10%, 5% and 1% level, respectively.

Dependent Variable: WACC	*Divest* Definition					
	DivestCount	***DivestOne***	***DivestTwo***	***DivestThree***	***DivestFour***	***DivestFive***
$Divest_{t-1}$	0.0668***	0.2183***	0.1347**	0.4957***	0.4673***	0.1896
	(5.74)	(6.50)	(2.87)	(6.98)	(6.59)	(0.92)
$Divestt_{t-2}$	0.0148	-0.0509*	0.0364	0.1533*	0.1389*	0.4711**
	(1.22)	(-1.69)	(0.81)	(1.94)	(1.77)	(2.12)
$Divest_{t-3}$	-0.0350***	-0.1470***	-0.1059***	0.0688	0.0522	-0.4534**
	(-3.38)	(-5.30)	(-2.44)	(1.05)	(0.80)	(-2.40)
$Divest_{t-4}$	-0.0308**	-0.0640**	-0.0713	-0.0194	-0.0288	0.2421
	(-2.71)	(-2.20)	(-1.05)	(-0.26)	(-0.39)	(1.41)
$Divest_{t-5}$	0.1269***	0.2876***	0.3425***	0.7098***	0.7005***	0.9754**
	(8.63)	(9.11)	(6.96)	(8.39)	(8.26)	(2.61)
$MarketReturn_t$	4.0767***	4.1450***	4.1778***	4.0987***	4.0989***	4.2583***
	(18.87)	(18.85)	(19.83)	(19.02)	(19.05)	(19.81)
SMB_t	-10.4361***	-10.7327***	-10.5135***	-10.2633***	-10.2687***	-10.5051***
	(-13.43)	(-13.74)	(-13.73)	(-12.98)	(-12.98)	(-13.85)
HML_t	3.8831***	4.5033***	3.6022***	3.7266***	3.7154***	3.6477***
	(20.94)	(22.42)	(19.51)	(20.31)	(20.26)	(19.65)
UMD_t	8.3047***	8.4329***	8.0012***	8.3963***	8.3857***	8.1344***
	(37.34)	(37.04)	(36.56)	(36.47)	(36.43)	(36.38)
$Ln(TotalAssets)_t$	-0.2645***	-0.2643***	-0.2644***	-0.2649***	-0.2649***	-0.2641***
	(-9.74)	(-9.73)	(-9.74)	(-9.76)	(-9.76)	(-9.73)
$Ln(TobinsQ)_t$	0.0813***	0.0814***	0.0813***	0.0810***	0.0810***	0.0816***
	(3.38)	(3.38)	(3.38)	(3.37)	(3.37)	(3.39)
ROE_t	-0.0136	-0.0136	-0.0135	-0.0135	-0.0134	-0.0133
	(-1.01)	(-1.00)	(-1.00)	(-1.00)	(-1.00)	(-0.98)
ROA_t	0.2752	0.2758	0.2765	0.2740	0.2743	0.2765
	(0.97)	(0.98)	(0.98)	(0.97)	(0.97)	(0.98)
Constant	13.2415***	13.2398***	13.2395***	13.2359***	13.2531***	13.2315***
	(9.76)	(9.76)	(9.76)	(9.75)	(9.76)	(9.75)
Observations	98,078	98,078	98,078	98,078	98,078	98,078
Adj R^2	0.2662	0.2662	0.2659	0.2660	0.2662	0.2658

Table 6: Divestment Effect on Weighted Average Cost of Capital

This table reports the estimated coefficients of equation (2), with various definitions for the Divest variable of interest. Specifically *DivestCount* is a count of how many ESG ETFs divest from a particular firm i, in quarter t. *DivestOne* to *DivestFive* are dummy variables which are 1 when one to five ESG ETFs divest from the firm in the same quarter, respectively, and zero otherwise. The regressions are estimated for quarterly Weighted Average Cost of Capital of the firm between 2013 and 2022. Firm, year, and country fixed effects are included in these models and standard errors are clustered. The t-statistics are presented in parentheses, while *, **, *** denote significance at the 10%, 5% and 1% level, respectively.

Dependent Variable: Cost of Debt	*Divest* Definition					
	DivestCount	***DivestOne***	***DivestTwo***	***DivestThree***	***DivestFour***	***DivestFive***
$Divest_{t-1}$	-0.0039	0.0122	-0.0233	0.0001	-0.0145	-0.0585
	(-0.24)	(0.33)	(-0.38)	(0.01)	(-0.11)	(-0.43)
$Divestt_{t-2}$	-0.0053	-0.0792**	0.0393	0.0304	0.0264	0.0539
	(-0.3)	(-2.03)	(0.59)	(0.19)	(0.17)	(0.50)
$Divest_{t-3}$	-0.0190	-0.1012**	-0.0261	0.0858	0.0825	-0.4425**
	(-1.44)	(-3.18)	(-0.45)	(0.80)	(0.75)	(-3.11)
$Divest_{t-4}$	0.0065	0.1244**	-0.0320	-0.0609	-0.0680	-0.1757*
	(0.36)	(3.04)	(-0.44)	(-0.41)	(-0.45)	(-1.91)
$Divest_{t-5}$	0.0965***	0.2601***	0.2558**	0.4174**	0.4134**	0.6803*
	(3.74)	(7.13)	(2.81)	(2.17)	(2.12)	(1.74)
$MarketReturn_t$	3.6137**	3.6528***	3.6676***	3.6278***	3.6280***	3.7062***
	(5.71)	(5.67)	(5.89)	(5.76)	(5.76)	(5.92)
SMB_t	-5.3253**	-5.3997**	-5.4084**	-5.3565**	-5.3607**	-5.4412**
	(-2.29)	(-2.31)	(-2.37)	(-2.27)	(-2.27)	(-2.39)
HML_t	1.2854***	1.7260***	1.1290***	1.1140***	1.1055***	1.2232***
	(5.32)	(6.86)	(4.63)	(4.83)	(4.79)	(5.30)
UMD_t	3.2081***	3.1689***	3.1978***	3.2144***	3.2083***	3.2453***
	(6.53)	(6.30)	(6.82)	(6.00)	(5.98)	(6.29)
$Ln(TotalAssets)_t$	0.0007	0.0010	0.0006	0.0005	0.0006	0.0008
	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.03)
$Ln(TobinsQ)_t$	-0.0748**	-0.0746**	-0.0749**	-0.0749**	-0.0749**	-0.0747**
	(-3.11)	(-3.11)	(-3.11)	(-3.11)	(-3.11)	(-3.12)
ROE_t	-0.0249**	-0.0249**	-0.0248**	-0.0248**	-0.0248**	-0.0246**
	(-2.38)	(-2.38)	(-2.38)	(-2.38)	(-2.38)	(-2.37)
ROA_t	-1.0189**	-1.0214**	-1.0171**	-1.0177**	-1.0176**	-1.0167**
	(-2.23)	(-2.24)	(-2.23)	(-2.23)	(-2.23)	(-2.22)
Constant	2.9469***	2.9493***	2.9443***	2.9409***	2.9467***	2.9383***
	(4.30)	(4.30)	(4.31)	(4.29)	(4.28)	(4.30)
Observations	98,078	98,078	98,078	98,078	98,078	98,078
Adj R^2	0.0288	0.0289	0.0287	0.0288	0.0288	0.0287

Table 7: Divestment Effect on Cost of Debt

This table reports the estimated coefficients of equation (2), with various definitions for the Divest variable of interest. Specifically *DivestCount* is a count of how many ESG ETFs divest from a particular firm i, in quarter t. *DivestOne* to *DivestFive* are dummy variables which are 1 when one to five ESG ETFs divest from the firm in the same quarter, respectively, and zero otherwise. The regressions are estimated for quarterly Cost of Debt of the firm between 2013 and 2022. Firm, year, and country fixed effects are included in these models and standard errors are clustered. The t-statistics are presented in parentheses, while *, **, *** denote significance at the 10%, 5% and 1% level, respectively.

Dependent Variable: Cost of Equity	*Divest* Definition					
	DivestCount	***DivestOne***	***DivestTwo***	***DivestThree***	***DivestFour***	***DivestFive***
$Divest_{t-1}$	0.0860***	0.1449***	0.1632**	0.6413***	0.6072***	0.8553**
	(6.22)	(4.02)	(3.24)	(9.39)	(8.99)	(3.24)
$Divestt_{t-2}$	0.0360**	-0.0967**	0.0762	0.2970***	0.2708***	1.1680***
	(2.55)	(-3.12)	(1.57)	(4.14)	(3.81)	(4.11)
$Divest_{t-3}$	0.0128	-0.0681**	0.0351	0.2655***	0.2397***	0.3353
	(0.97)	(-2.30)	(0.74)	(3.88)	(3.58)	(1.29)
$Divest_{t-4}$	-0.0374***	-0.1438***	-0.3604***	-0.0102	-0.0235	0.5830**
	(-2.93)	(-4.58)	(-8.46)	(-0.15)	(-0.36)	(2.23)
$Divest_{t-5}$	0.1497***	0.3123***	0.3921***	0.8553***	0.8456***	1.1423**
	(10.25)	(9.15)	(8.13)	(11.83)	(11.72)	(3.26)
$MarketReturn_t$	3.2567***	3.2757***	3.2657***	3.1932***	3.1927***	3.3645***
	(39.78)	(46.02)	(47.90)	(46.82)	(46.88)	(48.82)
SMB_t	-9.8207***	-9.9124***	-9.7929***	-9.4098***	-9.4202***	-9.6523***
	(-38.42)	(-41.60)	(-43.80)	(-40.52)	(-40.54)	(-43.33)
HML_t	3.9710***	4.3639***	3.4164***	3.8494***	3.8427***	3.8425***
	(27.65)	(29.49)	(26.07)	(29.19)	(29.28)	(29.33)
UMD_t	8.0298***	8.0098***	7.5776***	8.0401***	8.0289***	7.7758***
	(44.20)	(44.21)	(43.57)	(46.92)	(47.01)	(45.68)
$Ln(TotalAssets)_t$	-0.0024	-0.0016	-0.0020	-0.0025	-0.0025	-0.0016
	(-0.08)	(-0.05)	(-0.07)	(-0.08)	(-0.08)	(-0.05)
$Ln(TobinsQ)_t$	-0.1276***	-0.1181***	-0.1183***	-0.1188***	-0.1187***	-0.1178***
	(-4.35)	(-4.19)	(-4.20)	(-4.21)	(-4.21)	(-4.18)
ROE_t	-0.0063	-0.0063	-0.0062	-0.0062	-0.0062	-0.0059
	(-0.54)	(-0.54)	(-0.53)	(-0.54)	(-0.54)	(-0.51)
ROA_t	-0.3476	-0.3785	-0.3773	-0.3819	-0.3815	-0.3784
	(-1.17)	(-1.34)	(-1.33)	(-1.35)	(-1.35)	(-1.34)
Constant	12.4857***	13.0487***	13.0449***	13.0483***	13.0733***	13.0398***
	(6.93)	(7.83)	(7.83)	(7.83)	(7.84)	(7.82)
Observations	98,039	98,039	98,039	98,039	98,039	98,039
Adj R^2	0.4032	0.4164	0.4165	0.4168	0.4168	0.4162

Table 8: Divestment Effect on Cost of Equity

This table reports the estimated coefficients of equation (2), with various definitions for the Divest variable of interest. Specifically *DivestCount* is a count of how many ESG ETFs divest from a particular firm i, in quarter t. *DivestOne* to *DivestFive* are dummy variables which are 1 when one to five ESG ETFs divest from the firm in the same quarter, respectively, and zero otherwise. The regressions are estimated for quarterly Cost of Equity of the firm between 2013 and 2022. Firm, year, and country fixed effects are included in these models and standard errors are clustered. The t-statistics are presented in parentheses, while *, **, *** denote significance at the 10%, 5% and 1% level, respectively.