The expected returns of ESG excluded stocks. Shocks to firms costs of capital? Evidence from the World's largest fund

Erika Berle, Wanwei (Angela) He and Bernt Arne Ødegaard*

December 2022

Abstract

We investigate the consequences of ESG-based portfolio exclusions on the expected returns of excluded firms. The exclusions of Norway's "Oil Fund," the world's largest SWF, provide a sample of stocks that face widespread exclusions by institutional investors. The portfolio of excluded firms have significantly superior performance (alpha) of about 5%. Excluded stocks have a return premium, as predicted by e.g. Pastor et.al (2021). Investigating the corporate reactions to exclusion, we find that companies with low ESG at the time of exclusion (scope for improvement), and higher revenue growth (investment needs) are more likely to get their exclusion revoked, which we interpret as evidence of dynamics: Firms improve their ESG to revoke exclusions and achieve lower cost of capital. In fact, firms that get off the exclusion list do not have superior performance going forward.

Keywords: ESG investing; Exclusions; Cost of Capital
JEL Codes: G10; G11; G20

*All authors are from the Business School at the University of Stavanger (HHUiS), Stavanger, Norway. Corresponding author: Bernt Arne Ødegaard. Email: bernt.a.odegaard@uis.no. Postal address: UiS Business School, EOJ Building, University of Stavanger, NO-4036 Stavanger, Norway. An earlier version of the paper was circulated with the title *"The expected returns of ESG excluded stocks. The case of exclusions from Norway's Oil Fund"* Declaration of Interest: none. We are grateful for comments from Jonathan Berk, Sean Foley and Randi Næs, seminar participants at the Norwegian Ministry of Finance, and conference participants at the 44th Annual Meeting of the Norwegian Association of Economists.

Introduction

"Sustainability concerns" may be a good way to characterize recent trends in society, concerns that have spread to financial markets. In the investment community, the early term "Socially Responsible Investing" has been replaced with the current concern with "ESG-aware investing," where ESG is concerned with environmental, social, and governance considerations of a firm's decisions.[1] The practitioner interest is mirrored by academic interest. Most of the academic work is empirical, looking for links between ESG characteristics and company performance. This literature has grown so quickly that a recent survey (Coqueret, 2021) lists 10 *meta* studies of the issue, the last of which (Whelan et al., 2021) surveyed over 1,000 studies produced in the period 2015–2020. There is no clear conclusion from these studies.

We investigate the issue of *exclusion*, the removal of stocks from an institutional investors portfolio. The theoretical literature on exclusions, starting with Heinkel et al. (2001) argues that the removal of part of a stock's potential investors may lead to less capital available for investments, and thus a higher cost of capital, for stocks facing exclusions.

Key to Heinkel et al. (2001) and related models is that investors have preferences over both the monetary return from an investment and that investments' ESG characteristics. For example, investors can feel satisfaction in not supporting gun violence through the avoidance of weapon manufacturers (negative screening). On the other hand, investors may want to support clean energy generation and get an extra utility from investing in such energy companies.

These theoretical models support differences in expected returns depending on the ESG characteristics of a stock. Pástor et al. (2021) argues that expected returns are decreasing in ESG quality. The model of Pedersen et al. (2021) has similar implications but less clear-cut predictions, as the equilibrium depends on the relative proportions of different types of investors, and one can end up with both higher and lower expected returns for high-quality ESG stocks. An alternative interpretation of these effects is provided by Cornell (2021), who views high returns for high quality ESG firms as a transitory phenomenon due to changing preferences affecting the

[1] For the practitioner view of the state of ESG, see the Special report on ESG investing in the 23 July 2022 issue of *The Economist*.

costs of capital.

These theoretical models have less to say about the *magnitude* of return differences, a question addressed by e.g. Luo and Balvers (2017) and Berk and van Binsbergen (2021). These papers ask what is a reasonable magnitude of the price change necessary to induce an already well-diversified investor to take the other side to the divesting investors. Berk and van Binsbergen argue that as stocks are close substitutes, the magnitude of this price effect is necessarily small. This prediction however relies on the fraction of investors desiring to divest being relatively small. Berk and van Binsbergen acknowledge that if the group of investors willing to hold the targeted stocks is small, the price effects can be large. It is therefore of interest to look at a sample of stocks with widespread exclusions.

Another potential channel for ESG preferences of owners to affect corporate decisions is on the potential of the threat of exit affecting managerial decisions – the governance channel (Admati and Pfleiderer, 2009; Gantchev et al., 2022).

Our study gathers a sample of stocks from which a large number of institutional investors are divesting. For that purpose, we lever data from Norway's Government Pension Fund Global (GPFG – "The Oil Fund"). GPFG is the world's largest SWF, with an equity portfolio valued at one trillion USD at the end of 2021. Beginning in 2005, the GPFG has excluded stocks on an expanding set of ethical criteria, starting with exclusions based on the production of cluster ammunition and nuclear armaments. The GPFG exclusions are decided upon by a committee set up by the Norwegian Parliament, which needs to show clear evidence that a given firm violates ethical norms before exclusions are effected. The exclusions of the GPFG are thus distinct from exclusions based purely on ESG rankings, as the ethical committee investigates each firm, often also communicating with the firm, before recommending an exclusion. This leads us to argue that the GPFG's exclusions is a list of "worst offenders." The GPFG exclusion decisions are used as a model for many institutional investors, which typically follow their exclusions.

In our analysis, we construct portfolios representing the excluded stocks and measure the performance of these portfolios. We measure performance as alpha relative to the global five-factor model of Fama and French (2017), and find significantly positive alphas. For example, the equally weighted portfolio of all excluded stocks has an alpha of 5.2% in annual terms. An estimation for the US part of the

exclusion portfolio has a comparable magnitude of alpha (4.9% in annual terms).

We distinguish two possible hypotheses. First, there is a direct price effect from the GPFG selling their stake and announcing it. This price pressure effect can be viewed as causal. Second, the exclusions by the GPFG *identify* companies with low-quality ESG. The return differences are then *caused* by those companies' ESG characteristics, not by the GPFG's selloff. The short-term price effect is measured in event studies, such as (Atta-Darkua, 2020; Ayoubi and Enjolras, 2020; Eriksen et al., 2020). To measure the long-term return difference we look at returns beyond the period investigated in the event studies, and find that these are slightly smaller in magnitude, for example the 5.2% alpha estimate for the equally weighted portfolio falls to 4.6%, but the alpha estimate is still highly significant.

We go on to show evidence of the mechanism behind these results, by linking them to corporate finance properties of the excluded firms. A possible interpretation of the results concerns the equilibrium cost of capital. Firms with such a bad ESG rating that they are excluded by the GPFG and other institutional investors are facing an uphill struggle in raising capital. They therefore have to offer higher returns to the investors willing to "dirty their hands" by providing capital. Only firms that can maintain high returns will remain on the list of excluded firms. Others need to improve their ESG to lower their cost of capital.

As evidence supporting this interpretation, we look at the GPFG's decisions to revoke their exclusions. From 2005 to 2021, 26 of the GPFG's exclusions have been revoked, mainly because the firms took actions to remove the offending activities, by changing their product mix, selling off subsidiaries, etc. We investigate the corporate decisions driving these actions and find that firms with low ESG scores at the time of exclusion are more likely to get their exclusion revoked – possibly because their cost of ESG improvement was small, as they were starting from a low base. We also find that firms with high revenue growth – likely to need to raise capital – are also more likely to get their exclusion revoked. Finally, we look at the number of deals where firms raise new equity (SEO's), and find that firms that got their exclusion revoked are more likely to raise new equity capital. All of these results are consistent with the idea that firms react to shocks to the cost of capital, and attempt to change it if possible.

A final supporting result concerns the firms that have had their exclusions re-

voked. After these firms are "let back in the warmth" their returns fall back immediately, which we demonstrate by constructing a post-exclusion portfolio. The return of this portfolio shows no sign of superior performance.

From society's point of view, our results can be interpreted as a sign that exclusions achieve their stated goals. The higher capital cost discourages investment in low-rated ESG projects, as only projects able to sustain the high returns demanded survive. The more marginal projects have to change their ESG profile.

The structure of the paper is as follows. Section 1 gives an overview of the issues and discusses the literature, before giving some background on the Norwegian Government Pension Fund Global (GPFG) in Section 2. Section 3 discusses the data sources and gives some summary statistics. Section 4 demonstrates that portfolios of excluded firms provide superior performance. Section 5 investigates firms who have had their exclusion revoked. We finally offer a short conclusion. A separate Appendix provides some additional analysis.

1 Literature

We are analyzing investment decisions by institutional investors, how they are affected by environmental, social, and governance (ESG) considerations, and the equilibrium implications for stock returns. While the concept of ethical investing has a long history (Liang and Renneboog, 2017), it is in the last fifteen years or so that the ESG viewpoint has moved to the forefront. Mutual funds marketed as "socially responsible" and "sustainable" have seen large inflows, to the extent that today, one third of U.S. assets under management are subject to a sustainable investment strategy (SIF, 2020). Regulation is also a driver of the increased ESG focus. The best-known example is the EU's introduction of a taxonomy of sustainable activities.

From a large institutional investor's point of view, ESG considerations will affect all their portfolio decisions. The investor's investment universe needs ranking in the ESG dimension, which will affect over- and under-weighting decisions. For low ESG ranked stocks, an institutional investor will react by either dialogue or divestment. The most common reaction from institutional investors is dialogue directly or through voting at the annual meeting. Institutional investors argue that dialogue is

a better way of achieving change. There is also research pointing to the value effect of dialogue.[2]

Exclusion is chosen in only a minority of cases and is viewed as a reaction of last resort. Even if it is a last resort, the number of stocks seeing widespread exclusions is increasing. We will discuss the causes of exclusions in the context of the oil fund. Let us instead discuss some theoretical aspects of exclusions and ESG rankings.

To simplify the discussion, let us label the stocks with high-quality ESG rankings "green" and those with low-quality ESG ratings "brown". The intuitive argument of e.g. Pástor et al. (2021) is that when there is a subset of investors that gets utility from green stocks beyond the pure monetary return, green stocks can sustain lower returns. There is, however, a tradeoff. The higher expected returns for brown firms also mean that costs of capital for these firms are higher. Thus, when financing new investments, the brown firms will face a steeper hurdle rate than green firms. These brown firms will then have an incentive to become greener to access cheaper capital. In equilibrium, this will be a true tradeoff, and future investments will be greener.[3] This tradeoff is behind the ambiguity in theoretical predictions. For example, the more ambiguous results of Pedersen et al. (2021). For a survey of these issues see (Gillan et al., 2021, Section 5.2).[4]

Since the theoretical models we rely on are equilibrium models, we note that in that case expected equity return equals the cost of equity capital. We will in the later discussion therefore not carefully distinguish realized returns from the cost of capital.

A recent article, Avramov et al. (2022), points to a moderating effect to the ESG-return relationship: ESG uncertainty. Empirical evidence shows that the various ESG ranking providers do not agree on their ESG rankings (Berg et al., 2022). This introduces noise in any ESG-return relationship estimation. This has implications for our study. According to Avramov et al.'s model, events that reduce uncertainty about ESG ratings – such as a press release on exclusion by the GPFG – may trigger

[2]Dimson et al. (2021) and Lewellen and Lewellen (2022) provides empirical evidence. Broccardo et al. (2021) provides theoretical arguments.

[3]Note that this opportunity to finance green projects cheaper provides an incentive for "green-washing" by misrepresenting the green credentials of projects.

[4]This theoretical tradeoff is understood by institutional investors. As an example of this, we point to a summary of these theoretical models in a working paper from the GPFG (NBIM, 2021b).

a re-evaluation of required returns.

Exclusions are an extreme reaction to ESG concerns. Investigating the cost of capital for the sample of excluded firms is, however, a special case of a more general question, whether there is a link between ESG and the cost of capital. There is a number of studies of this more general question. For example, El Ghoul et al. (2011), Chava (2014), Ng and Rezaee (2015) and Breuer et al. (2018) all find evidence of low ranked ESG firms having higher costs of capital.[5]

Close to our work is several studies that investigate the performance of mutual funds with varying degrees of ESG. For example Liang et al. (2022), who looks at the returns of hedge funds, and shows that funds that endorse the United Nations Principles for Responsible Investment (PRI) underperforms other hedge funds by, on average 2.45% per annum.[6]

Our research complements this literature by looking directly at the stocks in question, without the additional layer of the institutional investors. As such, it is closer to a strand of the research literature investigating what is called "sin stocks," which focuses on the stock returns of industries such as alcohol, gambling, and tobacco. A pioneering study of this, Hong and Kacperczyk (2009) shows that sin stocks have significantly positive abnormal returns based on both a Fama-French four-factor model and a cross-sectional regressions analysis (Fama and MacBeth, 1973).

The existence of a sin premium is, however, not settled, with other studies reporting mixed evidence of such "sin" return differences. For example, while Fabozzi et al. (2008) examines 21 countries and shows that sin stocks significantly outperform in 19 and mildly underperform in 2 countries, Blitz and Fabozzi (2017) revisit the sin anomaly and shows that the alpha estimates become economically small and statistically insignificant after controlling for the five Fama-French factors. Outside of the US, Durand et al. (2013) find that sin stocks significantly underperform in seven

[5]While we concentrate on the cost of equity capital, there is also literature that links the cost of corporate debt to ESG, such as Zerbib (2019) who argues that "green bonds" (debt certified as environmentally friendly) can be issued at lower yields. A recent study, Wang and Wu (2022), uses data from primary issues of corporate debt to show that a driving force is the difference in interest from the institutional investors' side, with the "best" ESG bonds being the most over-subscribed.

[6]There is some discussion as to which degree endorsing the PRI leads to improvements in ESG. Both Kim and Yoon (2020), who looks at active mutual funds, and Brandon et al. (2022), who investigates institutional investors, see signs of PRI used for green-washing, particularly in the US context. See also Choi et al. (2022) on closed-end funds.

Pacific-basin markets. Overall, the evidence for the existence of a sin premium is still ambiguous.

The focus of the initial "sin" literature was on industries such as gambling which arguably is not necessarily bad for the environment. Newer studies look at wider definitions of "sin," negative consequences for the planet. Chava (2014) investigates the effects of environmental concerns and argues that the stocks excluded by environmental screens have a higher cost of capital and higher expected returns. Bolton and Kacperczyk (2021) find evidence that stocks with higher carbon emissions (both in terms of levels and innovations) earn higher returns.

A key difference between our research and the "sin" investigations listed above is that we only look at specific firms within the industries typically labelled as "sinful." Only when the GPFG ethical committee decides that a specific firm is in violation will it be divested. It enters our exclusion portfolios after this active decision is made. Our analysis is thus closer to the Edmans et al. (2022) idea of only divesting from the worst offenders. An additional difference between the "sin" literature and our research is that we look at dynamics, whether firms actively change their ESG profile to pursue changes to their costs of capital.

Finally, our research also intersects with a large research literature linking ESG with ownership characteristics in general. We refer to (Gillan et al., 2021, Section 4) for a survey of this literature, without going into specifics.

We are not the first to use the exclusions of the Norwegian GPFG as objects of study. Existing studies using GPFG data can be grouped by the question they ask. First, a number of recent studies (Atta-Darkua, 2020; Ayoubi and Enjolras, 2020; Eriksen et al., 2020) considers the short-term price reactions to exclusion announcements by the oil fund (i.e. these are event studies). They all estimate negative announcement price effects. Second, several papers look beyond the immediate market reaction and investigate the returns of the stocks excluded by the GPFG. Beck and Fidora (2008) and Dewenter et al. (2010) were early studies. More recent is Hoepner and Schopohl (2018), which analyze the exclusions from the GPFG and the Swedish AP-funds. They find no significant return differences relative to the funds' benchmark portfolios. Their focus on the portfolios' long-term performance is similar to ours, but we employ a longer sample and different empirical methods. We will return to these studies after we present our results, point out differences, and relate

these studies' results to ours.

We finally mention a study using GPFG data more marginally related to ours, but supporting the cost of capital explanation. Liang and Vansteenkiste (2022) looks at the announcements by the GPFG of a requirement of board diversity for the companies the fund invests in. They find a positive value effect, and claim it is linked to a discount rate (cost of capital) channel.

2 The oil fund and the fund's exclusions

In this section we provide some background information on Norway's GPFG, and the fund's evolving ESG and exclusion policies.[7]

The fund's purpose is to manage Norway's considerable resource wealth stemming from oil and gas production in the North Sea. The fund is an attempt to avoid the consequences of the "resource curse" — the adverse effects of a sudden increase in natural resource wealth (Ross, 1999). The fund translates the oil and gas in the North Sea into a well-diversified financial portfolio invested outside of Norway to avoid overheating the Norwegian economy. The first oil revenues were transferred into the fund in 1996. Initially, the fund invested in treasury securities, but it was soon realized that the size of the revenues channeled into the fund would make it necessary to diversify the asset mix. In 1998 the funds' portfolio was split into 40% equity and 60% fixed-income securities. The equity fraction has since increased to its current level of 70%, and several other asset classes, such as real estate and infrastructure investments, have been added. At the end of 2021, the fund's market value was 12,340 billion NOK (NBIM, 2021a).

In our discussion, we will concentrate on the equity part of the portfolio. The equity part of the GPFG was valued at 8,878 billion NOK (1,014 billion USD) at year-end 2021. At the time, the fund's portfolio contained 9,338 stocks across 65 countries.

The fund is managed by Norges Bank (the central bank of Norway) on behalf of Norway's Ministry of Finance (which is instructed by the Norwegian Parliament).

[7]For more information we refer to NBIM's recent survey of their ESG history (NBIM, 2020). For more academic views of the fund, we refer to Chambers et al. (2012, 2021) and the evaluations of the fund's performance: **?**, Ang et al. (2014), Dahlquist and Ødegaard (2018) and Bauer et al. (2022).

The fund can thus be viewed as being owned by the people of Norway. The Ministry attempts hands-off management of the fund by limiting instructions to an investment mandate (Ministry of Finance, 2021). For our purposes, the most important part of this mandate is that the Ministry of Finance specifies a *target portfolio*, a weighted average of the developed worlds stock markets, close to a world portfolio, together with a maximal allowable tracking error (the difference between the return of the target portfolio and the GPFG portfolio). This construction ensures that the fund should be thought of as a "near index fund"[8] The mandate by the Ministry instructs the fund to have an active strategy attempting to achieve returns above those of the target portfolio within specific risk limits.

Exclusions of companies from the fund's equity universe will lead to deviations from a well-diversified market portfolio, and are thus a cost for the GPFG.[9] Exclusions still happen, though, and are the subject of this article. It is helpful to consider some political issues to understand where exclusions come from. By adding equities to the GPFG asset mix, the Norwegian Parliament effectively became part-owners of thousands of companies worldwide. As an owner, one is arguably party to the actions of companies one owns, which can quickly become a political issue.

The first ethically motivated exclusion took place in 2002 of Singapore Tech, a producer of anti-personnel mines (Ministry of Finance, 2002). The first specific mention of Singapore Tech was in a 2001 discussion in the Parliament between human rights organizations and Christian Democratic and Social Democratic political parties. Singapore Tech was the only company mentioned by name, but the broader discussion raised the question of a need to ensure ethical guidelines for the fund's investments. Up until then, the fund had no ethical guidelines impacting investment strategies. The question in 2001 was whether the investment in Singapore Tech was a direct breach of Norway's obligations towards human rights.

In the autumn of 2002, the Norwegian government appointed a public committee to propose ethical guidelines for the fund. The question of participation raises

[8]Using standard classifications of mutual funds, (Dahlquist and Ødegaard, 2018, pg 91) shows that the GPFG's active share is so low that it would be classified as an index fund.

[9]Note that the Ministry of Finance adjusts the target index for the asset allocator, the central bank, removing the excluded firms from the index. This means these exclusions will not lead to tracking error for the asset allocator, but the exclusions still lead to the GPFG portfolio deviating from the unconstrained portfolio from the point of view of the ultimate owners, the people of Norway.

difficult questions. The committee argued that owning shares or bonds in a company that can be expected to commit gross unethical acts can be considered as complicity in these actions (Graver et al., 2003). In the revised national budget of 2004, ethical guidelines were established aligned with the recommendations in the report.

The Council on Ethics was established in November 2004. Its primary function is to advise Norges Bank on the observation and exclusion of companies from the fund. The ethical guidelines are determined by the Ministry of Finance and contain both product-based exclusions (currently including tobacco, cannabis, certain types of weapons, and coal), and conduct-based exclusions (currently including human rights abuses, environmental damage, unacceptable levels of greenhouse gas emissions, corruption, and sale of weapons to specific states) (Etikkrådet (Council of Ethics), 2005). The threshold for exclusion is high. Only companies representing an unacceptable high future ethical risk to the fund are excluded.

Both the Ministry of Finance and the management of the GPFG acknowledge that the opportunity to exercise ownership rights instead of exclusion may be a more suitable alternative to reduce the risk of continued norm violations. The action to exclude is therefore grounded by a discussion with the Fund, which has information about their corporate interactions (Ministry of Finance, 2021). The Ethical Council publishes its announcement after Norges Bank has agreed. The process provides the fund time to divest before the information is official.[10] Through continued dialogue with the excluded firms, the Ethical Council can revoke the decision to exclude in the event of a change in operations for the excluded company.

In July 2006, the Fund became a signatory to the UN Principles of Responsible Investment (PRI).

The ethical guidelines were again revised in 2020 (Mestad et al., 2020). Based on their conclusions and the fund's response, the domestic consensus is that the guidelines have served their purpose (Norges Bank, 2020). The Fund particularly highlights that the ethical guidelines serve to reduce non-financial risk, as this type

[10]The time frame Norges Bank has had to implement their selloff has varied. An early mandate for the ethical council (Etikkrådet (Council of Ethics), 2006, pg. 9) explicitly gave Norges Bank two months to sell their stake before the exclusion was announced. This mention of an explicit time is no longer present in more recent mandates. The mandate is now just specifying that the ethical council will make their announcement after Norges Bank's announcement of the divestiture — which means the fund has ample opportunity to sell its stake before anything is public.

of risk cannot be diversified away. The revision suggested a further broadening of the exclusion criteria to reflect developments in the last 15 years. An example is the inclusion of deadly autonomous weapons. Part of the feedback on the report from the fund is illuminating. For example, the report suggests the inclusion of a new criterion for excluding companies that sell military equipment to states that use this for serious and systematic violations of humanitarian law. Whereas Norges Bank agrees with the sentiment of the request, they highlight that the fund does not exclude countries but companies. Thereby, there must be broad and conclusive company evidence for such actions to make the guidelines effective. Otherwise, this type of exclusion will be based on foreign politics rather than individual company actions.

In addition to exclusions made by the Ethical Counsel, the fund conducts its own risk-based divestments (NBIM, 2020). These are divestments based on the fund ESG risk management. Risk-based divestments are not published, but the underpinnings of such decisions are transparent. These divestments will not be analyzed in our study.

To close our discussion of the GPFG, let us discuss the influences of the GPFG exclusions on the investment industry in general, and to what degree other institutional investors are likely to follow the GPFG's example. First, the GPFG is widely acknowledged as an example in the financial industry, due to its transparency, among others with respect to their ESG decisions. The largest Norwegian institutional investors publicly state that they will follow the GPFG exclusions. While we don't know to what degree this is the case outside of Norway, we note that many of the GPFG exclusions have made headlines in newspapers like the Wall Street Journal and the Financial Times. As clearer evidence of influence, we note that in the step before exclusion, corporate engagement, GPFG is part of a network of institutional investors cooperating to influence firms on environment and social issues (Dimson et al., 2021). Finally, the criteria used by the GPFG in their exclusions are similar to criteria published by other large institutional investors and investor groupings.[11]

[11] See for example lists published by The World Banks International Finance Corporation and European finance institutions (EDFI).

3 Data

3.1 Exclusions

The prime source of data is announcements from the Ethical council and GPFG. From these announcements, we construct a history of companies excluded, with the key dates those of the GPFG news release. Throughout the 2005-2021 period, 189 companies have been excluded for shorter or longer periods. In Table 1 we break down the official reasons for exclusion. The majority of exclusion justifications are product-based, with the production of coal the largest group. The excluded stocks are distributed across 32 countries. The country with the largest number of exclusions is the US, with 51 exclusions. Following the US are China and India, with 27 and 13 exclusions, respectively.[12]

For the identified companies, we gather stock market data from Refinitiv, including daily prices and shares outstanding. We also gather exchange rates, from Yahoo Finance. Of the 189 excluded companies, we are able to match 184 stocks with Refinitiv data. Table 2 gives an overview of the sample. We note that of the 189 excluded firms, 26 have had their exclusion revoked and again been allowed to enter the GPFG portfolio. The 189 firms is a very small number compared to the fund's investment universe, where the fund had almost ten thousand different companies in its portfolio at year-end 2021. Exclusion is truly an exceptional reaction for the GPFG.

In Figure 1 we give an overview of the exclusions over time. As the figure shows, the number of exclusions has been increasing gradually, with the exception of a major jump in exclusions in 2016. That is the year when the Fund introduces the production or use of coal as a separate product-based exclusion reason.

3.2 Equity data

The basis for our analysis is monthly equity returns. In addition to the returns, we calculate market capitalizations as the product of shares outstanding and closing prices. All returns and market capitalizations are denominated in dollars (USD).

[12] See the Appendix for detailed breakdowns by country, industry, and year, as well as a complete list of companies.

Table 1: Reasons for exclusions

Overview of the reasons for exclusions in the period 2005–2021. The reasons are grouped into two major causes, conduct and product based. Data from the Ethical Council and GPFG.

Exclusion reasons	Events
Conduct	67
Environmental damage	28
Individuals' rights in war or conflict	12
Violation of human rights	12
Environmental damage / Violation of human rights	4
Violation of ethical norms	5
Greenhouse gas emissions	4
Gross corruption	2
Product	122
Coal or coal-based energy	75
Weapons	26
Tobacco	21

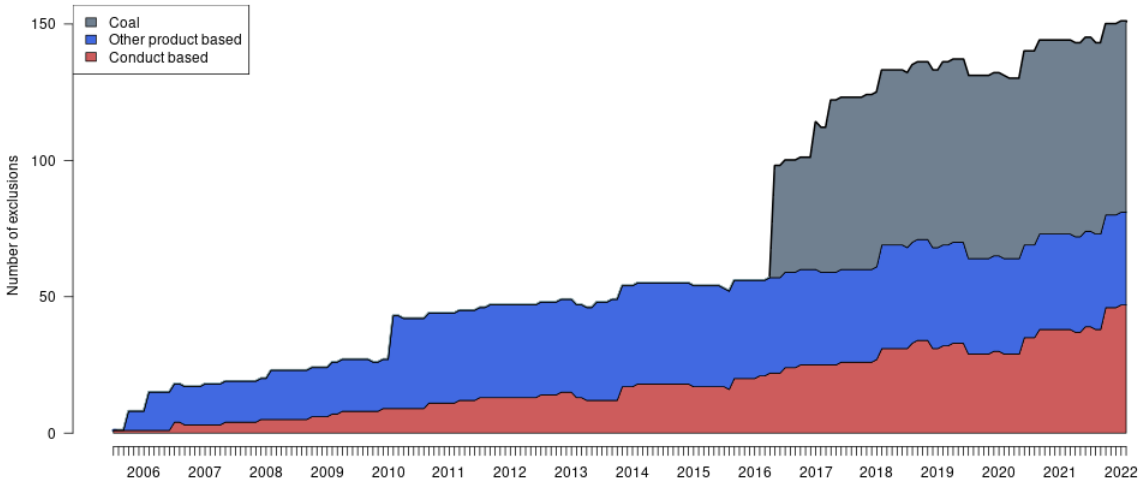
Table 2: Sample of stocks

Overview of the exclusions, revocations and sample content. Data from the Ethical council, GPFG and Refinitiv.

Status	Events
Total exclusions	189
Exclusion revoked	26
Excluded again	1
Not matched with Refinitiv	5
Total sample	184
Conduct-based exclusions	67
Product-based exclusions	122

Figure 1: The number of excluded shares over time

The figure shows the number of stock returns in the equally weighted exclusion portfolios, broken down by product-based and conduct-based. The product-based category is further broken down by coal-based and other product-based exclusions. Data from the Ethical council, GPFG and Refinitiv.



From these returns we construct the Exclusion Portfolio. We let a stock enter the Exclusion Portfolio the start of the month after the company has been excluded by the GPFG. If an exclusion is revoked, the stock leaves the Exclusion Portfolio at the end of that month. We consider two methods to calculate portfolio returns: equally weighted and market-weighted, where the latter is using the market capitalization as weights.

Figure 2 provides some data descriptives. Amongst these are some info on the size distribution of the excluded firms. Most of them are relatively small, half of the firms in the sample have a market capitalization below 6 bill USD, but there are also some very large companies, with the largest equity value being 316 bill USD.

3.3 Corporate data

In addition to the equity returns, in the later analysis of revoked exclusions, we use various corporate data, such as ESG scores, accounts, and data on raising equity capital. All data is collected from Eikon Refinitiv.

The Refinitiv ESG corporate scores come in five flavors, as shown in panel A of Table 3. As our measure of the corporate ESG score, we select the TRESGCS score, which combines the self-reported scores with additional information on controversies involving the company. ESG scores are not available for all companies. We have been able to identify the scores of 144 companies. The ESG score is a number between 0 and 100, increasing in ESG quality. Panel B of the table provides some descriptives for the company ESG scores of the portfolio of excluded firms.

We also collect the history of annual accounts (income and balance statements) for the firms in the sample. The accounting variables we use in the later analysis are the growth of earnings (EPS) and revenues. We use growth measures as they are easier to compare across countries and accounting regimes. Panel C of Table 3 provides some descriptive statistics for these measures.

Finally, we collect data on deals of corporate raising of capital. The data contains details about dates, amounts, and types of capital events. We concentrate on equity capital and remove issues of debt and convertible securities.

Figure 2: Equity data

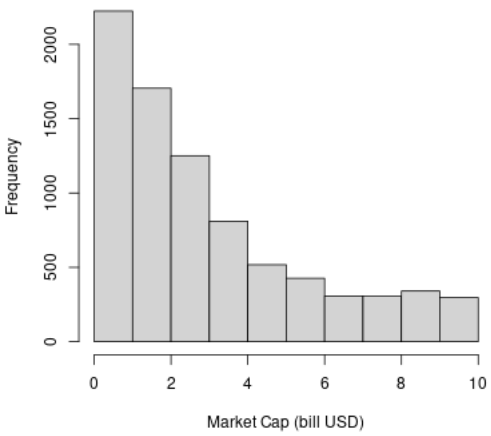
Panel A provides descriptive statistics for the data series. Returns are monthly percentages (not annualized). Market Cap are monthly figures, calculated as month-end price times shares outstanding. Panel B illustrates the distribution of equity market capitalization (in USD) for the excluded firms. They are shown separately for firms with market cap below 10 bill USD (left-hand figure) and above 10 bill USD (right-hand figure). Monthly estimates are calculated for all firms.

Panel A: Descriptives

	min	mean	med	max
Monthly Return (percent)	-72.8	1.1	0.6	166.2
Market Cap (bill USD)	0.0	20.4	6.0	315.8

Panel B: Distribution of Firm Size (Market Capitalization)

B.1: Mkt Cap $\leq$ 10 bill USD



B.2: Mkt Cap $>$ 10 bill USD

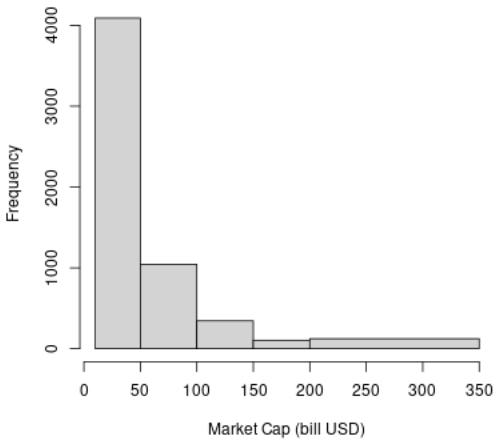


Table 3: Additional corporate data

Panel A: ESG Scores - definitions

TRESGS	Overall company score based on the self-reported information in the environmental, social and corporate governance pillars.
TRESGCS	Overall company score based on the reported information in the environmental, social and corporate governance pillars (ESG Score) with an ESG Controversies overlay.
ENSCORE	Environment Pillar Score – weighted average relative rating of a based on the reported environmental information and the resulting three environmental category scores.
SOSCORE	Social Pillar Score – weighted average relative rating based on the reported social information and the resulting four social category scores.
CGSCORE	Governance Pillar Score – weighted average relative rating based on the reported governance information and the resulting three governance category scores.

Panel B. Descriptives for ESG Scores

	min	mean	median	max
TRESGS	4.8	55.8	57.2	92.1
TRESGCS	4.8	51.4	50.4	89.3

Panel C: Additional Corporate data

	min	mean	median	max
EPS growth (%)	-7000	64	1.8	35933
Revenue growth (%)	-98	9.4	3.6	2489

4 Do excluded firms have superior returns?

We start by analyzing the return of excluded firms, where a key issue is whether these reflect changes to expected return beyond a short-term market reaction due to the exclusion itself.

4.1 The return of the Exclusion Portfolios

A simple, intuitive way to compare returns of two portfolios is to plot their cumulative returns. In Panel A of Figure 3 we compare the evolution of the equally weighted exclusion portfolio with a global market portfolio. The exclusion portfolio clearly outperforms the market portfolio over the period.

One observation is worth making using this picture. During the two large crises in this period, the '08 global financial crisis and the '20 Covid crisis, the decline in the exclusion portfolio seems more prominent. This corresponds to research evidence from Lins et al. (2017) who show that high-quality ESG firms performed better during the '08 Financial Crisis. Albuquerque et al. (2020) make a similar observation at the onset of the Covid-19 crisis in March '20. As the Exclusion Portfolio contains low-quality ESG firms, we would therefore expect them to perform worse.

The comparison of cumulative returns of the Exclusion Portfolio with the world market portfolio should, however, not be used to argue about expected return differences. To formally make a return comparison it is necessary to account for risk differences through a performance estimation in the setting of an asset pricing model. To measure portfolio performance we rely on the Fama-French international five-factor model (Fama and French, 2017):[13]

$$\begin{aligned}(r_{p,t} - r_{f,t}) &= \alpha + \beta(r_{m,t} - r_{f,t}) + b^{SMB} SMB_t + b^{HML} HML_t \\ &\quad + b^{RMW} RMW_t + b^{CMA} CMA_t + \varepsilon_{p,t},\end{aligned}$$

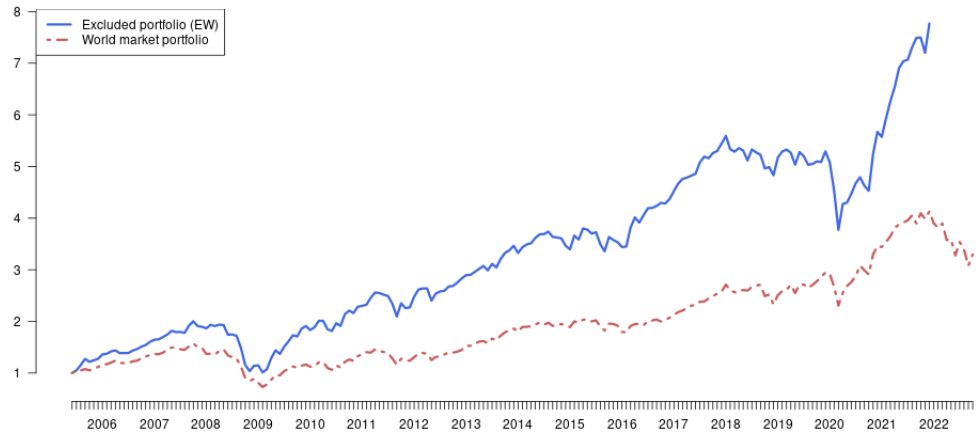
where the factors are international versions of the corresponding US factors (Fama and French, 2015). To show robustness, we also report a number of alternative for-

[13] See Dahlquist et al. (2015) and Dahlquist and Ødegaard (2018) for a discussion of relevant performance measurement for a fund like GPFG.

Figure 3: Cumulative returns of the exclusion portfolios

The figures show the cumulative returns from two investments: The exclusion portfolio (black line), and the world market portfolio provided by Ken French (broken line). Cumulative returns are calculated as $CR_{p,T} = \prod_{t=1}^{T}(1+r_{p,t})$, where $r_{p,t}$ is the monthly portfolio return. Panel A: The equally weighted exclusion portfolio. Panel B: The value weighted exclusion portfolio.

Panel A: Equally weighted exclusion portfolio



Panel B: Value weighted exclusion portfolio

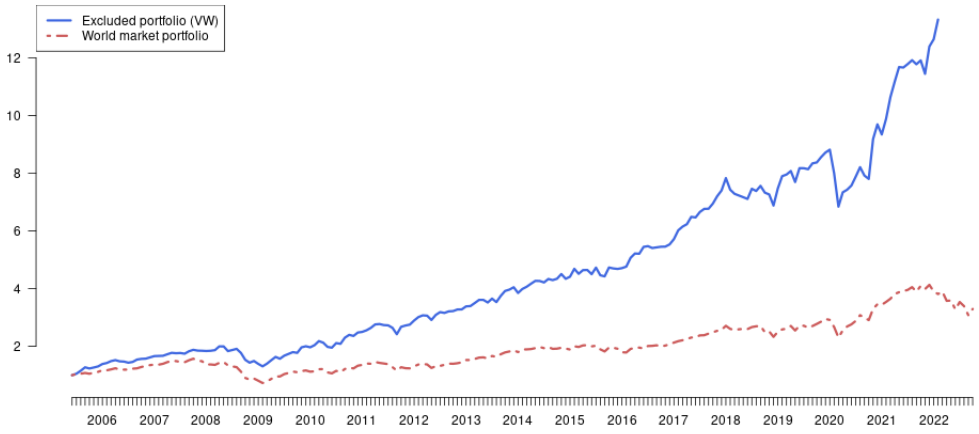


Table 4: Estimates of alpha for exclusion portfolios

Column (1) reports estimates of the regression $(r_{p,t} - r_{f,t}) = \alpha + \beta(r_{m,t} - r_{f,t}) + b^{SMB}SMB_t + b^{HML}HML_t + b^{RMW}RMW_t + b^{CMA}CMA_t + \varepsilon_{p,t}$, where r_{pt} is the return of the exclusion portfolio, r_{ft} the risk free rate, SMB, HML, RMW, CMA and WML the Ken French factors. Column (2) estimates the one factor CAPM $(r_{p,t} - r_{f,t}) = \alpha + \beta(r_{m,t} - r_{f,t}) + \varepsilon_{p,t}$, (3) estimates of the regression three-factor regression $(r_{p,t} - r_{f,t}) = \alpha + \beta(r_{m,t} - r_{f,t}) + b^{SMB}SMB_t + b^{HML}HML_t + \varepsilon_{p,t}$, and (4) the four-factor regression $(r_{p,t} - r_{f,t}) = \alpha + \beta(r_{m,t} - r_{f,t}) + b^{SMB}SMB_t + b^{HML}HML_t + b^{WML}WML_t + \varepsilon_{p,t}$. The equally weighted portfolio constructed from shares excluded from the GPFG. Data is from 2005 to 2021. The international asset pricing factors are from Ken French's data page. Standard errors are Newey-West adjusted. Annualized alphas are calculated from monthly α_i as Annual $\alpha = (1 + \alpha_i)^{12} - 1$. Significance levels are indicated as: *$p < 10\%$, **$p < 5\%$, ***$p < 1\%$.

Panel A: Equally weighted exclusion portfolio

	(1)	(2)	(3)	(4)
Alpha	0.004***	0.004**	0.004***	0.005***
	(0.002)	(0.002)	(0.002)	(0.002)
Rm-Rf	0.961***	1.021***	0.993***	0.962***
	(0.040)	(0.049)	(0.042)	(0.049)
SMB	0.173		0.178	0.177
	(0.115)		(0.115)	(0.123)
HML	0.467***		0.310***	0.224***
	(0.115)		(0.074)	(0.089)
RMW	0.155			
	(0.156)			
CMA	−0.257			
	(0.233)			
WML				−0.138***
				(0.076)
Annualized Alphas(percent)	5.170	4.420	5.220	5.980
Adj. R^2	0.809	0.788	0.808	0.813
Num. obs.	199	199	199	199

Panel B: Value weighted exclusion portfolio

	(1)	(2)	(3)	(4)
Alpha	0.006***	0.007***	0.007***	0.007***
	(0.002)	(0.002)	(0.002)	(0.002)
Rm-Rf	0.871***	0.801***	0.809***	0.817***
	(0.040)	(0.038)	(0.037)	(0.038)
SMB	−0.313***		−0.421***	−0.421***
	(0.113)		(0.116)	(0.111)
HML	0.183*		0.264***	0.287***
	(0.102)		(0.078)	(0.100)
RMW	0.340***			
	(0.143)			
CMA	0.373***			
	(0.139)			
WML				0.036
				(0.064)
Annualized Alphas(percent)	6.850	9.000	9.010	8.810
Adj. R^2	0.785	0.735	0.773	0.772
Num. obs.	199	199	199	199

mulations, including one factor (CAPM), three- and four-factor specifications using the Ken French Global factors.[14]

Column (1) in Panel A of Table 4 reports estimates of the global five-factor Fama-French model. For our purposes, the key result is the alpha estimate, which is a positive, statistically significant alpha, in annualized terms 5.2%. Thus, the premium for the portfolio of "bad ESG" firms is more than 5%. The finding of a positive alpha is confirmed using the alternative asset pricing specifications in models (2)–(4) in the table, where the alphas vary between 4.4% and 6% in annual terms.

The equally-weighted portfolio above measures the expected return difference without regard to company size. Another approach is to think in terms of *economic importance*, a firm's contributions to the economy. To measure this, we consider the value weighted version of Exclusion Portfolio, where the return of each excluded stock is weighted by market capitalization.

Panel B of Figure 3 compares the evolution of the value weighted exclusion portfolio to a global market index. Comparing the value weighted with the equally weighted exclusion portfolio, the cumulative return of the value weighted exclusion portfolio is substantially higher. A similarity with the equally weighted portfolio is apparent during the market reverses in 2008 and 2020. The excluded stocks do worse than the general market, the flip side to the higher resilience of high-quality ESG stocks during these periods.

To make a formal performance statement for the value weighted portfolio Panel B of Table 4 reports performance regressions. As one would expect given the cumulative return figure, the alpha estimates are higher for the value weighted portfolio than the equally weighted one. In annual terms, the alpha in the five-factor model is almost 7%.

The table also reports estimates of the factor loadings. We note that the estimate of the "market beta" is below 1, for both the equally weighted and value weighted exclusion portfolios. The exclusion portfolios thus have lower systematic risk than the market. One cause for this is a large number of coal companies in the exclusion portfolio. These companies are in the "Utilities" industry, with corresponding low betas.

[14]The factors are downloaded from Ken French's homepage. We are grateful to him for making the data available to the research community.

4.2 Investigating sub-portfolios

4.2.1 Are conduct and product based exclusions different?

The fund excludes companies for different reasons, with the main distinction being conduct and product-based exclusions. To investigate differences in reasons for exclusion, we repeat the previous regressions separately for conduct and product based exclusion portfolios.

In Panel A of Table 5 we report regression results for the two subsamples, using both equally and value weighted portfolios. In either case, we find that the alphas of the conduct based exclusion portfolios are double those of the alphas for the product based exclusion portfolios.[15]

4.2.2 The US portfolio

We finally look at a subsample using only stocks listed in the US. This is because the US market is the most commonly studied single market, and we want to facilitate direct comparisons with studies on the US market. We therefore calculate exclusion portfolios using only stocks with an US listing.[16]

Panel B of Table 5 shows the results of estimating a Fama French five-factor model (Fama and French, 2015) for the US exclusion portfolios. Note that this estimation uses Ken French's US factors, not his global factors. We again find highly significant alpha estimates, with annualized alpha estimates of 4.9% for the equally weighted and 7.2% for the value weighted US portfolios.

4.3 Long term or short term effects?

We have shown clear evidence that the portfolio of slightly less than 200 stocks excluded from the GPFG have superior returns (alpha). Intuitively, there are two alternative causes of the return difference: (1) Short-term price pressure leading to temporary underpricing, or (2) higher long-term expected returns for low-quality ESG firms. Our interest is in (2). We therefore attempt to estimate this directly.

[15] In the appendix we show cumulative return plots, where we show that it is particularly the last few years that seem to be driving the higher alpha estimates for the conduct based portfolio.

[16] See the appendix for some descriptives of the US portfolio.

Table 5: Estimates of alpha for subportfolios

Panel A shows Estimates of the regression $(r_{p,t} - r_{f,t}) = \alpha + \beta(r_{m,t} - r_{f,t}) + b^{SMB}SMB_t + b^{HML}HML_t + b^{RMW}RMW_t + b^{CMA}CMA_t + \varepsilon_{p,t}$, where $r_{p,t}$ is the return on the exclusion portfolio. We consider two different samples of exclusion portfolios: The stocks excluded based on conduct, or based on product. For each of these samples we calculate equal or value weighted portfolios. The international factors are from Ken Frenchs' homepage. Panel B estimates the same regression for the exclusion portfolio only using stocks with a US primary listing. Standard errors are Newey-West adjusted. Significance levels are indicated as: *$p < 10\%$, **$p < 5\%$, ***$p < 1\%$.

Panel A: Conduct and Product-based exclusion portfolios.

	Conduct		Product	
	EW	VW	EW	VW
Alpha	0.007*	0.009***	0.003	0.004**
	(0.004)	(0.003)	(0.002)	(0.001)
Rm-Rf	1.061***	0.793***	0.926***	0.935***
	(0.130)	(0.077)	(0.037)	(0.037)
SMB	0.139	−0.269	0.167	−0.280**
	(0.293)	(0.255)	(0.136)	(0.128)
HML	0.967***	0.293	0.295***	0.208*
	(0.214)	(0.165)	(0.107)	(0.107)
RMW	0.231	0.419	0.164	0.345*
	(0.349)	(0.285)	(0.174)	(0.211)
CMA	−1.241***	0.306	0.070	0.305*
	(0.412)	(0.244)	(0.167)	(0.157)
Annualized Alphas(percent)	8.540	11.310	3.370	4.680
Adj. R^2	0.579	0.371	0.766	0.731
Num. obs.	199	199	196	196

Panel B: US Exclusion Portfolio

	Equally Weighted	Value Weighted
Alpha	0.004*	0.006***
	(0.002)	(0.002)
Rm-Rf	0.925***	0.783***
	(0.050)	(0.045)
SMB	0.012	−0.280***
	(0.089)	(0.080)
HML	0.239***	0.168***
	(0.081)	(0.073)
RMW	0.050	0.258***
	(0.117)	(0.106)
CMA	0.073	0.173
	(0.146)	(0.132)
Annualized Alphas(percent)	4.870	7.200
Adj. R^2	0.710	0.644
Num. obs.	200	200

To motivate our approach we refer to several studies attempting to estimate (1) for the GPFG's exclusions, Atta-Darkua (2020), Ayoubi and Enjolras (2020) and Eriksen et al. (2020). All of these estimate the short-term effect using an event study, where the measured effect is estimated over a given period after the event date (announcement of exclusion). We estimate the long term effect by creating an exclusion portfolio where the stocks enter the portfolio *after* the final date of the event study. We consider two alternatives for the short-term period: One and two calendar months after the announcement. We let the excluded stocks enter the Exclusion Portfolio after the short-term period is over.

In Table 6 we show the results. First, we note that the estimates of alpha are still highly significant, albeit slightly lower. For example, in the equally weighted case, the alpha estimate of 5.17% falls to 4.62% if entry into the exclusion portfolio is delayed with one month, and further to 4.32% if delayed with two months. The value weighted case is similar.

These results tally with the results of event studies of exclusions by the GPFG, which look at the announcement returns and find that stocks of excluded firms fall by about 1.4% (Atta-Darkua) or 0.3–0.5% (Eriksen et al.). As the short-term effect is a one-period effect, and the long-term return go over each year of the period, we should not expect these estimates to add directly, but these positive short-term one-time returns will depress the estimates of long-term returns relative to the full-period estimates.

4.4 Relation to earlier studies

At this stage, it behooves us to come back to an earlier issue, discussing how our results tally with extant research on the GPFG. We have already discussed the event study results, but we also need to consider the study which does a similar construction to ours Hoepner and Schopohl (2018). They also construct value weighted and equally weighted portfolios representing the exclusions by the GPFG, and estimate alpha. They find an estimate of the alpha lower than ours and not significant. There are, however, some variations in research design that we believe cause the differences. Their sample period is shorter, with the sample period stopping in 2015. We

Table 6: Alpha estimations, delayed entry into exclusion portfolio

The columns report estimates of the regression $(r_{p,t} - r_{f,t}) = \alpha + \beta(r_{m,t} - r_{f,t}) + b^{SMB}SMB_t + b^{HML}HML_t + b^{RMW}RMW_t + b^{CMA}CMA_t + \varepsilon_{p,t}$, where r_{pt} is the return of the exclusion portfolio, r_{ft} the risk free rate, SMB, HML, RMW, CMA and WML the Ken French factors. The equally weighted portfolio constructed from shares excluded from the GPFG, but the entry into the exclusion portfolio is delayed with either one month (columns (1)-(2)) or two months (columns (3)–(4)) . Data is from 2005 to 2021. The international asset pricing factors are from Ken French's data page. Standard errors are Newey-West adjusted. Annualized alphas are calculated from monthly α_i as Annual $\alpha = (1 + \alpha_i)^{12} - 1$. Significance levels are indicated as: *$* p < 10\%$, ** $p < 5\%$, *** $p < 1\%$*.

	1 month delay		2 month delay	
	ew	vw	ew	vw
Alpha	0.004**	0.005***	0.004**	0.005***
	(0.002)	(0.002)	(0.002)	(0.002)
Rm-Rf	0.964***	0.870***	0.961***	0.870***
	(0.044)	(0.043)	(0.045)	(0.043)
SMB	0.212*	−0.283***	0.195	−0.291***
	(0.128)	(0.112)	(0.132)	(0.115)
HML	0.468***	0.204*	0.466***	0.191*
	(0.113)	(0.104)	(0.104)	(0.092)
RMW	0.210	0.417***	0.200	0.410***
	(0.180)	(0.188)	(0.172)	(0.177)
CMA	−0.213	0.412***	−0.212	0.433***
	(0.233)	(0.136)	(0.216)	(0.129)
Annualized Alphas(percent)	4.620	6.420	4.320	6.040
Adj. R^2	0.790	0.753	0.799	0.764
Num. obs.	199	199	198	198

have looked at this and done our estimations for the same subperiod.[17] Even for the same subperiod, we are still estimating a significantly positive alpha. Looking into the cause of the difference, we have identified a number of issues with their analysis that explain this discrepancy. First, there is an inconsistency in their method for alpha estimation. They calculate individual stock returns using continuous compounding, but then use those in an alpha estimation where Ken French's factors are used. The French factors are not continuously compounded. By definition, continuously compounded returns for are lower than arithmetic returns. This mixing of continuously compounded and arithmetic returns will bias their alpha estimates downwards. Second, there is an issue with the timing of when portfolios are updated. It seems that at least in some of their estimations, they update portfolio compositions on an annual basis. We have investigated this issue. We approximate annual updating by using a six month delay before a stock enter the exclusion portfolio. We find that this six-month delayed portfolio has insignificant estimates of alpha. Finally, in our estimation we implement the now standard Fama-French five-factor model, which is preferred to their use of the one-factor CAPM or four-factor models. In conclusion, we believe our results are conceptually more correct than the estimates of Hoepner and Schopohl.

4.5 Performance result

Let us now summarize the analysis of this section. We have shown that portfolios of firms excluded by the GPFG have a consistently significant positive alpha in the region of 5% in annual terms. We have shown this result is robust. In addition to the aggregate portfolio, we have shown similar results for the portfolios grouped by exclusion reason, and the US portfolio separately.[18] We next turn to the corporate

[17] See the Appendix.

[18] We have also performed other robustness tests, which we will not show explicitly, just mention the key findings. The analyses are provided in an Internet Appendix. First, we have looked at the timing of when stocks enter or exit the exclusion portfolio. In addition to the analysis delaying the entry into the exclusion portfolio, we have also done the estimations including the month of the exclusion, without seeing any major changes in the alpha estimates. We also look at keeping stocks in the exclusion portfolio also after their exclusion is revoked, without a major effect on portfolio performance. Secondly, we split the estimation period into two subperiods, 2005–2015 and 2016-2021. We find that in the later period, the alpha estimates are still positive but lower and not always significant. We, however, note that this period only contains six years, which means the sample

implications of this result.

5 Mechanism: Only the bad stay excluded?

The previous section established that firms currently on the list of excluded firms of the GPFG show superior performance (alpha) relative to standard asset pricing models. One theoretical model that delivers this result is the cost of capital argument of e.g. Heinkel et al. (2001), where excluded firms have to provide a higher return due to the scarcity of investors willing to provide capital. I.e. an excluded firm is facing a higher cost of capital. We ask whether we can use our case to support this type of theory.

To understand our approach, consider the the decision problem faced by a corporation. An excluded corporation can potentially make changes to operations to remove the causes of exclusion. If for example a company is excluded because of production of cluster munitions, it could close down this production line, and revoke the exclusion. In making this decision, the company is trading off the cost (loss of profit) from the cluster munition production with the benefit (cheaper capital for new investment).

Our analysis will use the actual cases of the fund revoking its exclusions. Can we show that these firms have either lower costs of removing the cause of exclusion, or larger benefits (need for capital)? Let us start by giving some background on the Oil Funds decision process.

5.1 Revoking the Oil Fund's exclusions

The oil fund has rescinded a number of exclusions. The first case was in 2006 and involved the firm *Kerr-McGee Corp*, which initially got on the exclusion list due to participation in oil exploration in Western Sahara. Their exclusion was revoked when

period is relatively short. Thirdly, we look at whether the group of coal companies has a different effect on returns. Constructing an exclusion portfolio without the coal companies we find similar alpha estimates to the returns in the paper. We also construct a portfolio of just coal companies. This is again similar to the whole portfolio. Finally, in the value weighted portfolio there is one company, Walmart, that has a very large weight in the portfolio in the early part of the period. We have therefore redone the analysis removing Walmart from the value weighted portfolio. This does not change our inferences.

the company ended its involvement with this oil field. By then, it was too late. In June 2006, Kerr-McGee was acquired by Anadarko Petroleum, which shows another way for firms to get off the list of excluded firms: delisting.

Generally, the mandate for the Counsel of Ethics state that the council shall assess whether the reasons for exclusion still apply and, in light of new information, potentially retract the exclusion decision. Thereby, most of the communication leading to a revocation is initiated by the Ethical Counsel. Investigating the 26 instances where the exclusion has been revoked, the causes of these retraction are: cease of specific activity (e.g. end of an oil contract in a particular area, or stop in the involvement of cluster munition), change in product mix (e.g. reduction of coal production, weapon systems no longer exist or cease of production of specific weapons types), or sale of a subsidiary or part of the company.

Panel A in Table 7 summarizes the revocations and their reasons. The table also summarizes the number of firms that have delisted and the reasons why.

Table 7: Reasons for discontinuations of exclusion

The tables summarize the main reasons why exclusions are revoked and firms delist.

Panel A: Exclusions revoked

Cause	no
Change in product mix	10
Cease of activity	7
Sale of subsidiary	3
Other reasons	6
Total	26

Panel B: Firms delist

Cause	no
M&A	9
Going private	5
Bankruptcy	1
Total	15

5.2 The time a firm stays excluded

We want to investigate the determinants of exclusion being revoked. We start by modelling the *time period* a firm stays excluded. That means we have to turn to the econometric framework of duration, or survival, analysis. This style of analysis treats the *time* until an event as the object of study. In the present context, we are interested in the time until a given stock drops out of the exclusion sample. Survival analysis will estimate the likelihood of exit, adjusting for the fact that the sample is right-truncated. The right-truncation is due to the large number of firms still excluded at the end of the sample, whose exit time is still in the future.

In survival analysis, we either work with survival-curves (roughly: the probability of survival till a given time), or hazard-curves (roughly: the probability of exit at a given time). Figure 4 illustrates estimated survival and instantaneous hazard curves for the sample of excluded firms. One observation to draw, which is easy to see from the estimated hazard curve: the likelihood of exit increases with time in the sample.

For our purposes, the interesting question is whether there are properties of these corporations, linked to the likelihood of exit, which is informative about either corporations *scope* for improving their ESG to avoid exclusion, or their *need* to lower the cost of capital.

5.3 The scope for improving ESG

Let us start by investigating corporations *scope* for improving ESG. To do so, we consider the corporations' ESG scores. While the oil funds exclusions are for specific ethical reasons, these are typically reasons that will also lead to a bad ESG score. We therefore look for a relationship between a firm's ESG score and the likelihood that the firm will have its exclusion revoked.

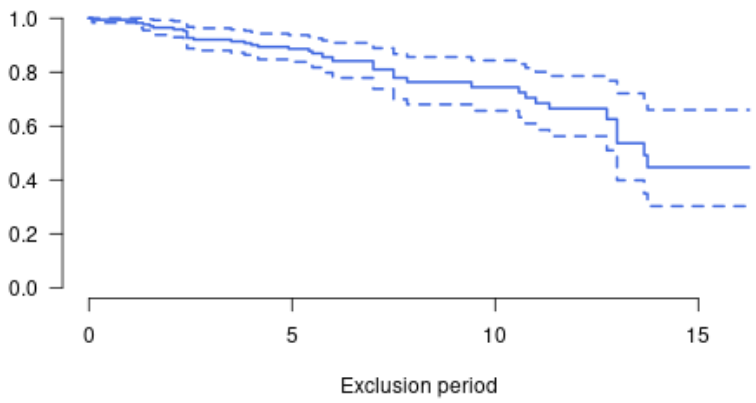
Formally, we estimate this by asking whether the level of the ESG score at the time of exclusion affects the survival time. This is a classical survival analysis, where we ask whether survival times are affected by initial conditions, and modelled by investigating determinants of a Cox proportional hazard function.[19] As determinants we use the combined ESG Score (TRESGCS) of the firm. We also control for firm

[19] In the Appendix we provide evidence using alternative functional assumptions to the Cox model.

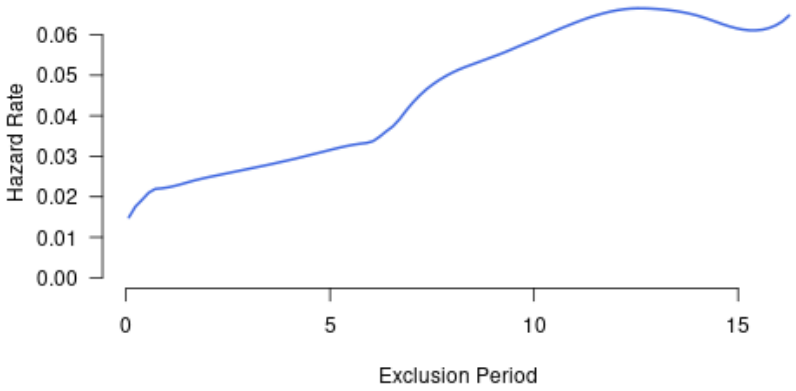
Figure 4: Survival and Hazard curves for the Exclusion Portfolio

Panel A: Survival curve, adjusting for right-truncation. The broken lines indicates one standard deviation. Panel B: Instantaneous hazard curve (smoothed estimate). Both estimated using the sample of excluded firms, where exit is either a delisting, or the exclusion is revoked. Survival curve estimated using `R` library `survival`, Instantaneous hazard curve estimated the `R` library `muhaz`.

Panel A. Survival curve



Panel B. Instantaneous hazard curve (smoothed)



size and the source of exclusion (product or conduct-based), as well as control for annual fixed effects.[20] Differentiating between product and conduct-based firms is relevant because it affects the ease with which firms can change their ESG score. A product-based exclusion, such as coal production, is something the firm will find it hard to do much about without becoming a very different firm, but a conduct-based exclusion, such as employing child labour, is something it is easier to take action on. Note that there are firms for which we do not have the ESG score.

Table 8: Contributions to survival of exclusion

The table summarizes analyses of estimation of contributions to a Cox proportional hazard model. Explanatory variables: *ESG score*: (Refinitiv TRESGCS). *Ind(Conduct)*: Dummy variable equal to one if the exclusion is for a conduct-based reason. *ln(Mkt Cap)*: Firm equity size (the logarithm of the market capitalization at yearend).

	(1)	(2)	(3)	(4)
ESG Score	-0.03^{***}	-0.03^{***}	-0.02^{**}	-0.03^{**}
	(0.01)	(0.01)	(0.01)	(0.01)
Ind(Conduct)		0.85^{**}		0.98^{***}
		(0.39)		(0.44)
ln(Mkt Cap)			−0.05	−0.11
			(0.09)	(0.10)
AIC	219.27	217.21	221.05	218.16
R^2	0.03	0.06	0.04	0.07
Max. R^2	0.77	0.77	0.77	0.77
Num. events	28	28	28	28
Num. obs.	150	150	150	150
PH test	0.47	0.76	0.55	0.68

$^{***}p < 0.025$; $^{**}p < 0.05$; $^{*}p < 0.1$

Figure 8 shows the results, where the ESG score has a significantly negative coefficient. The interpretation of a negative coefficient is that increasing the explanatory variable in question *decreases* the hazard rate, i.e. it increases the survival time. Thus, a low ESG score leads to a *higher* probability of having the exclusion revoked.

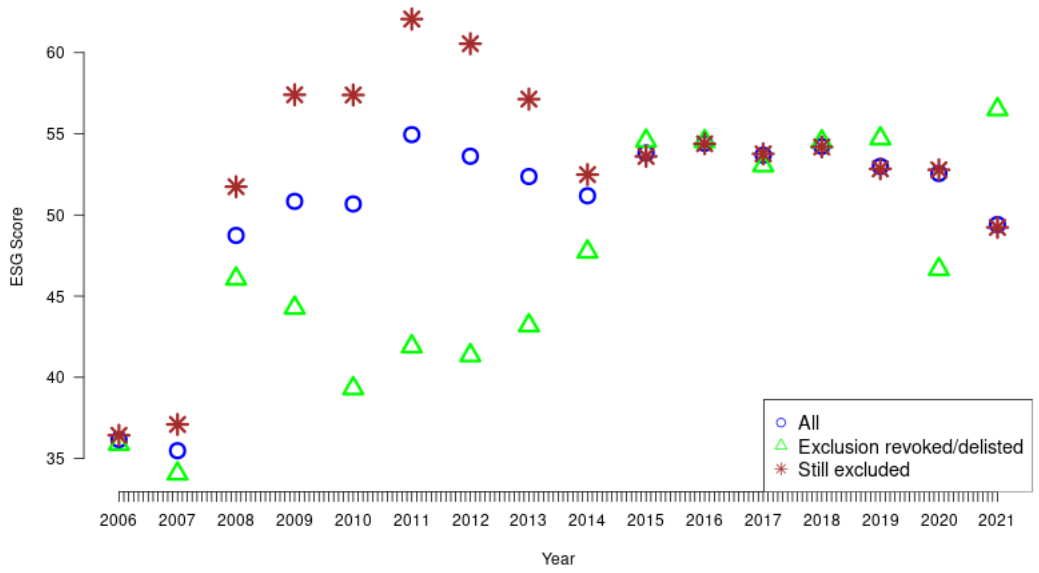
A possible interpretation is that it will be less costly for firms to improve on a low ESG basis. Alternatively that the firm has lots of scope for improvement.

[20] There is not enough observations to allow for company-level fixed effects.

To supplement the survival regressions, we provide some additional descriptives. Figure 5 plots annual average ESG for firms still excluded by 2021 and for firms that have had their exclusion revoked. The average firm which later got off the exclusion list clearly had a lower ESG rating, particularly in the early part of the period. A word of warning, though. The figure uses ex-post information (whether the stock has dropped off the excluded list) in the grouping. It should, therefore, only be viewed as supportive of the econometric analysis, which does not suffer from an ex-post bias.

Figure 5: ESG scores

The figure plots the crossectional average ESG score. The averages are done for all shares (blue circles), shares still excluded by the end of the period (brown crosses), and shares no longer excluded, either by delisting or having the exclusion revoked (green triangles).



5.4 The need to raise equity capital

Let us now move to another source of information about the companies, their accounts, with their information about firm operations. We are interested in cases

where corporations particularly want to lower their cost of capital. The obvious answer is times when the firm is interacting with capital markets, raising equity (or debt), as the cost of capital directly affects the terms at which new capital can be issued.

We, therefore, look at accounting developments that affect the likelihood of capital raising. Take, for example, revenue growth. High revenue growth will likely lead to investment needs as the firm is increasing in scope. An increase in earnings, on the other hand, increase the firm's ability to finance investments internally.

We, therefore, look at whether revenue or earnings growth affects the likelihood that a firm's exclusion is revoked. To estimate this, we can not use the standard survival framework of the previous section, as accounts change every year, leading to time-varying covariates. Instead, we use a method better known in finance, binary choice models. Since accounts are annual, each year we look at the binary event that a firm either stays on the excluded list or not. We stack these annual choices into a probit formulation, using the two mentioned accounting variables: earnings growth and revenue growth. As usual, we consider firm size (market cap) and exclusion cause (conduct/product) as control variables in the estimations.

The results in Table 9 show that the coefficient on earnings growth is negative, i.e. that high earnings growth increases the probability that the firm will stay on the list of excluded firms, but this relationship is not significant.

More interesting is the coefficient on revenue growth, where we find a positive and significant coefficient. The implication is that currently high-revenue-growth firms are more likely to get their exclusion revoked.

Again this can be argued for through the cost of capital. High revenue growth is usually associated with a need for investments and hence new capital. Firms with high capital needs would want to get off the exclusion list, if possible. If these firms have scope for improving ESG (low ESG rating that can be improved), they will want to do it.

5.5 Actually Raising Equity Capital

In the previous estimation, we looked at conditions that would lead to a need for raising capital. An alternative investigation is to use data on the actual raising of

Table 9: Probit estimation of determinants of discontinuation of exclusion

The tables report results of probit estimates of determinants of exclusion revoked by the GPFG. Two separate probit estimations:

$$p(\text{Exclusion Revoked}) = \begin{cases} f(\text{EPS growth, Controls}). \\ f(\text{Revenue growth, Controls}) \end{cases}$$

In each case, for each year, the dependent variable tests whether a firm stays excluded, or not, that year. The dependent variable is equal to one if a firm's exclusion is revoked in a given calendar year. Explanatory variables are: `EPS growth`: Percentage change in EPS from the previous year to this year. *Revenue growth*: Percentage change in total earnings from the previous year to this year. *ln(Mkt Cap)*: Firm Size – The log of year-end market capitalization, denominated in USD. *Ind(Conduct)*: Dummy variable equal to one if the exclusion is for a conduct-based reason. Estimations (3) and (4) include annual fixed effects (unreported), and are estimated without a constant term. T statistics in parenthesis. Significance levels are indicated as: ** p < 10%, ** p < 5%, *** p < 1%*.

	(1)	(2)	(3)	(4)
(Intercept)	−3.55***	−3.47***		
	(1.14)	(1.15)		
Growth EPS	−0.01		−0.01	
	(0.02)		(0.02)	
Growth Revenue		0.43*		0.50*
		(0.26)		(0.30)
Ind(Conduct)	0.65***	0.51***	0.71***	0.55***
	(0.19)	(0.19)	(0.20)	(0.21)
ln(Mkt Cap)	0.06	0.05	0.06	0.07
	(0.05)	(0.05)	(0.05)	(0.06)
Annual fixed effects			*X*	*X*
Log Likelihood	−95.29	−95.67	−85.81	−85.48
Num. obs.	981	969	981	969

capital. We have to that end collected data on corporate equity deals, which allows us to identify the firms that raise equity capital.

As a simple investigation, we count the firms issuing equity (without any accounting for the relative size of the capital issue). Table 10 summarises the results. Of the 151 companies that were still excluded at the end of the sample, 37% had raised capital at least once during the period they have been excluded. Of the 21 firms that got off the exclusion list without delisting, 11, or 57%, have raised equity capital in the shorter time after the exclusion was revoked.

Table 10: Raising new equity capital

The table gives the number of firms in each group that has raised equity capital at least once in the period. For the firms still excluded, the period is the whole exclusion period. For the firms having had the exclusion revoked, it is the period *after* the exclusion is revoked.

	Firms raising capital	
	Number	Percent
Firms still excluded	56	37.1
Firms with exclusion revoked and not delisted	11	57.9

We note that the sample is small, and it will be hard to make strong statistical inferences from these data. We still point to this as evidence consistent with the idea that firms try to improve their ESG (and reverse exclusions) when they see that they will need to raise capital.

5.6 Do post-excluded firms actually lower their cost of capital?

The previous analyses have looked at corporate actions, i.e., when do firms attempt to improve their ESG? The next obvious question is: Do they succeed in lowering cost of capital by getting off exclusion lists?

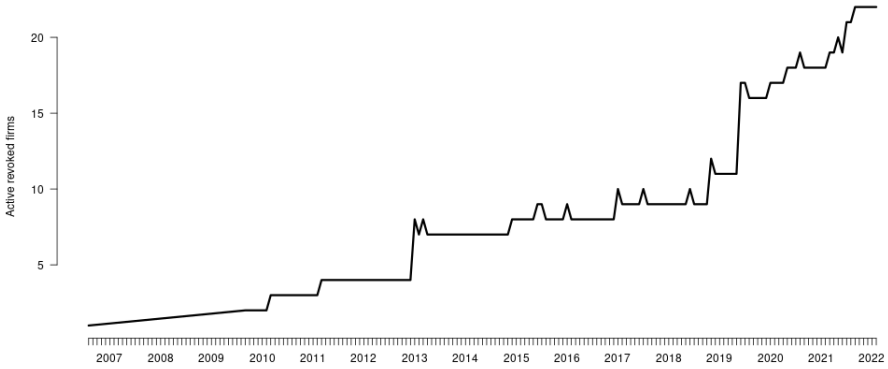
To answer this we construct a "Post Exclusion Portfolio" containing stocks which were previously excluded, but have now been let back in. Panel A of Figure 6 shows the number of stocks in the post-exclusion portfolio over time.

To construct a portfolio representing the revoked firms, we follow our earlier estimations, and construct an equally weighted portfolio of firms whose exclusions

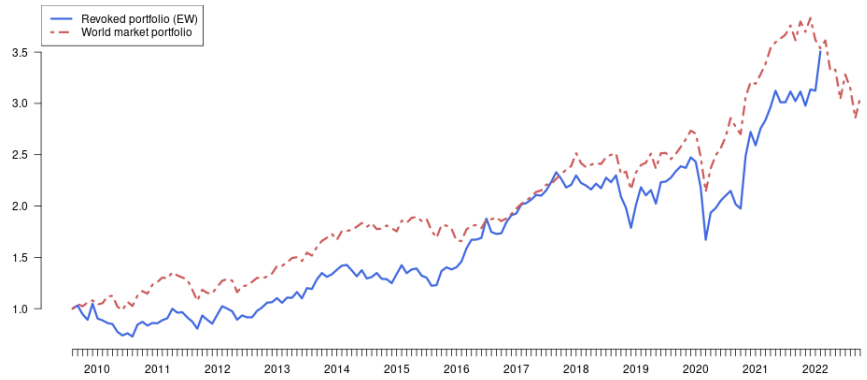
Figure 6: The Post-Exclusion Portfolio

The figure in panel A show the number of firms which have had their exclusion revoked, and remain listed. The post-exclusion portfolio is constructed as an equally weighted portfolio of all firms which have had their exclusions revoked and remain listed, starting the month after the exclusion is rescinded. In panel B we provide cumulative returns illustrating the portfolio evolution. The figure shows the cumulative returns from two investments: The equally weighted post-revocation portfolio (black line), and the world market portfolio provided by Ken French (broken line). Cumulative returns are calculated as $CR_{p,T} = \prod_{t=1}^{T}(1 + r_{p,t})$, where $r_{p,t}$ is the monthly portfolio return.

Panel A: Number of stocks with exclusions revoked and still listed



Panel B: Cumulative returns for the Post-Exclusion Portfolio



have been revoked by the oil fund, by letting them enter the Post-Exclusion Portfolio of revoked firms at the end of the calendar month in which their exclusion is revoked. In Panel B of Figure 6 we show the cumulative return of the Post-Exclusion Portfolio, compared to a world portfolio. The Post-Exclusion Portfolio actually has lower returns than the world portfolio.

Again, we conduct a regression analysis to make a formal statement about performance. The regression results in Table 11 show that the Post-Exclusion Portfolio does not have significant alpha. Some point estimates are even negative. Thus, the firms that contributed to the superior performance of the exclusion portfolio reverts to a "normal" alpha of zero once they get off the exclusion lists.

Table 11: Estimates of alpha for the Post-Exclusion Portfolio

The post-exclusion portfolio is constructed from all firms which have had their exclusions revoked and remain listed, starting the month after the exclusion is rescinded. The table shows regressions with the return of the post-revocation portfolio as dependent variable. Each column reports estimates of the regression $(r_{p,t} - r_{f,t}) = \alpha + \beta(r_{m,t} - r_{f,t}) + b^{SMB}SMB_t + b^{HML}HML_t + b^{RMW}RMW_t + b^{CMA}CMA_t + \varepsilon_{p,t}$, where r_{pt} is the return of the post-revocation portfolio, r_{ft} the risk free rate, SMB, HML, RMW, CMA and WML the Ken French factors. The first column results for the equally weighted post-exclusion portfolio, the second the value weighted. Data for 2006–2021. The international asset pricing factors are from Ken French's data page. Standard errors are Newey-West adjusted. Significance levels are indicated as: *$p < 10\%$, **$p < 5\%$, ***$p < 1\%$.

	(EW)	(VW)
Alpha	0.000	−0.000
	(0.003)	(0.003)
Rm-Rf	1.119***	1.014***
	(0.074)	(0.070)
SMB	0.375	−0.196
	(0.197)	(0.195)
HML	0.359	−0.148
	(0.167)	(0.185)
RMW	0.176	−0.043
	(0.283)	(0.265)
CMA	0.066	0.329
	(0.341)	(0.259)
Annualized Alphas(percent)	0.350	−0.120
Adj. R^2	0.586	0.676
Num. obs.	150	148

6 Conclusion

We argued that current theoretical models of how ESG considerations affect equilibrium stock returns would lead to differences in expected returns linked to ESG ranking. We used the exclusions by the Norwegian Government Pension Fund Global, the world's largest SWF, to identify a set of firms excluded by large numbers of institutional investors.

Applying a battery of performance tests to portfolios of these firms, we establish that these portfolios have a considerable excess return (alpha) relative to the predictions of standard asset pricing models, such as the global Fama-French five-factor model. The portfolios of these stocks have highly statistically significant excess returns (alpha) as high as 5% in annual terms. When we compare different reasons for exclusion, the stocks excluded for reasons of conduct have higher returns than product-based exclusions. Also, the alphas are similar for the portfolio of only US-listed stocks. These results are not driven by the returns of small firms, as value-weighted versions of the portfolios have even higher excess returns than the equally weighted ones.

We discussed two possible theoretical approaches that could lead to high returns. First, a short-term price pressure hypothesis that exclusions lead to selling pressure and a short-term underpricing, which will be corrected going forward, and lead to higher returns in the short-term, or second, differences in expected returns, low-quality ESG firms have higher returns. We estimated directly these long-term returns, and found them significant. It can also be argued that the sheer magnitude of the return difference (5%) rules out short-term price pressure as a complete explanation, as the estimates of the one-time shock to stock prices at the time of exclusion announcement is in the region of 1.5% or lower.

We are left to conclude that our results indicate that low-quality ESG firms have a return premium. If we view the exclusions in our sample as the "worst offenders," it means the cost of capital of these firms is in the region of five percent higher than the norm. While this seems like a high number, we do note that it is similar to the ESG premium found by Barber et al. (2021) in a sample of venture capital deals, which identified a difference in the internal rate of return linked to the ESG properties of the VC firm. It is also similar in magnitude to the "pollution premium" of Hsu et al.

(2022).

We relate our results to the theoretical literature supporting differences in long-term return linked to ESG. The theory is driven by the segmentation of providers of funds to the corporate sector. If the fraction of investors willing to provide funds to "bad" ESG firms is low, the premium they can demand supplying funds to these bad ESG firms is high. This incentivizes firms to improve their ESG rating and achieve a lower cost of capital.

We show some evidence of such dynamics. Firms with scope for improving ESG and/or need for capital will attempt to improve ESG, leading to the revocation of the exclusion. This is consistent with an explanation where firms unable to maintain the returns demanded by their current ESG profile take action to change the ESG profile and access a wider investor pool with fewer demands on returns. A confirmation of this is provided by the returns of firms with their exclusions revoked by the GPFG. A portfolio of these firms does not have superior returns post-exclusion.

We conclude by pointing to what we believe are the prime contributions of our research. First, we show the sheer *magnitude* of the return difference linked to ESG. Annual alphas higher than 5% are exceptional. Second, we point to the *speed* by which the increased cost of capital affects returns. Intuitively, one would expect that the effects materialize gradually, as they primarily affect the firm when it interacts with the capital market. However, here, we see the effects materialize immediately, even for firms who have not needed to raise any equity in the whole period we analyze. Third, we point to the *dynamics* of corporate reactions to exclusion. While we admit that our sample of post-excluded firms is small, we still find evidence consistent with firms actively reacting to their exclusions.

We view the corporate finance dimension as the most promising research direction following up our research. Understanding how firms react to ESG-related shocks to their cost of capital is also a topic of explicit interest to regulators, for example, in the final design of the EU reporting standards and taxonomy.

References

Anat R Admati and Paul Pfleiderer. The "Wall Street Walk" and shareholder activism: Exit as a form of voice. *Review of Financial Studies*, (1):3–41, 2009.

Rui Albuquerque, Yrjo Koskinen, Shuai Yang, and Chendi Zhang. Resiliency of Environmental and Social Stocks: An Analysis of the Exogenous COVID-19 Market Crash. *The Review of Corporate Finance Studies*, 9(3):593–621, 07 2020. doi:10.1093/rcfs/cfaa011.

Andrew Ang, Michael W Brandt, and David F Denison. Review of active management of the Norwegian Government Pension Fund Global. Technical report, Report to the Norwegian Ministry of Finance, January 2014.

Vaska Atta-Darkua. Corporate ethical behaviours and firm equity value and ownership: Evidence from the GPFG's ethical exclusions. Available at SSRN 3388868, 2020.

Doron Avramov, Si Cheng, Abraham Lioui, and Andrea Tarelli. Sustainable investing with ESG rating uncertainty. *Journal of Financial Economics*, 145(2, Part B):642–664, 2022. doi:10.1016/j.jfineco.2021.09.009.

Khalil Al Ayoubi and Geoffrey Enjolras. How norway's sovereign wealth fund negative screening affect firm's value and bahaviour. *Business Ethics*, 30:19–37, 2020. doi:10.1111/beer.12314.

Brad M. Barber, Adair Morse, and Ayako Yasuda. Impact investing. *Journal of Financial Economics*, 139(1):162–185, 2021. doi:10.1016/j.jfineco.2020.07.008.

Rob Bauer, Charlotte Christiansen, and Trond Døskeland. A review of the active management of Norway's government pension fund global. SSRN working paper, January 2022.

Roland Beck and Michael Fidora. The impact of sovereign wealth funds on global financial markets. *Intereconomics*, 43(6):349–358, 2008.

Florian Berg, Julian F Kölbel, and Roberto Rigobon. Aggregate Confusion: The Divergence of ESG Rating. *Review of Finance*, 05 2022. doi:10.1093/rof/rfac033.

Jonathan Berk and Jules H van Binsbergen. The impact of impact investing. Available at SSRN 3909166, 2021.

David Blitz and Frank J Fabozzi. Sin stocks revisited: Resolving the sin stock anomaly. *The Journal of Portfolio Management*, 44(1):105–111, 2017.

Patrick Bolton and Marcin Kacperczyk. Do investors care about carbon risk? *Journal of Financial Economics*, 142(2):517–549, 2021. doi:10.1016/j.jfineco.2021.05.008.

Rajna Gibson Brandon, Simon Glossner, Philipp Krueger, Pedro Matos, and Tom Steffen. Do Responsible Investors Invest Responsibly? *Review of Finance*, 09 2022. doi:10.1093/rof/rfac064.

Wolfgang Breuer, Torbjörn Müller, David Rosenbach, and Astrid Salzmann. Corporate social responsibility, investor protection, and cost of equity: A cross-country comparison. *Journal of Banking and Finance*, 96:34–55, 2018. doi:10.1016/j.jbankfin.2018.07.018.

E Broccardo, O Hart, and L Zingales. Exit vs. voice. ECGI Working Paper, December 2021.

David Chambers, Elroy Dimson, and Antti Ilmanen. The Norway model. *The Journal of Portfolio Management*, 38(2):67–81, 2012.

David Chambers, Elroy Dimson, and Antti Ilmanen. The Norway model in perspective. *The Journal of Portfolio Management*, 47(5):178–187, 2021. doi:10.3905/jpm.2021.1.230.

Sudheer Chava. Environmental externalities and cost of capital. *Management Science*, 60(9): 2223–2247, 2014.

Hyun-Soo Choi, Hugh Hoikwang Kim, and Yun-Soo Kim. ESG, firm value, and the role of credible commitment: Evidence from closed-end funds. SSRN, 2022.

Guillaume Coqueret. Perspectives in ESG equity investing. SSRN, March 2021.

Bradford Cornell. ESG preferences, risk and return. *European Financial Management*, 27(1): 12–19, 2021. doi:10.1111/eufm.12295.

Magnus Dahlquist and Bernt Arne Ødegaard. A Review of Norges Bank's active management of the Government Pension Fund Global. Technical report, Report to Norwegian Ministry of Finance, January 2018. URL `https://www.regjeringen.no/no/aktuelt/ekspertrapporter-om-spu/id2585465/`.

Magnus Dahlquist, Christopher Polk, Richard Priestley, and Bernt Arne Ødegaard. Norges bank's expert group on principles for risk adjustment of performance figures - final report. Norges Bank (Central Bank of Norway) report, November 2015. URL `http://www.norges-bank.no/pages/104035/ExpertGroupFinalReportNov2015.pdf`.

Kathryn L Dewenter, Xi Han, and Paul H Malatesta. Firm values and sovereign wealth fund investments. *Journal of Financial Economics*, 98(2):256–278, 2010.

Elroy Dimson, Oğuzhan Karakaş, and Xi Li. Coordinated engagements. European Corporate Governance Institute–Finance Working Paper, 2021.

Robert B Durand, SzeKee Koh, and Paul LiJian Tan. The price of sin in the Pacific-Basin. *Pacific-Basin Finance Journal*, 21(1):899–913, 2013.

Alex Edmans, Doron Levit, and Jan Schneemeier. Socially responsible divestment. European Corporate Governance Institute – Finance Working Paper No. 823/2022, June 2022.

Sadok El Ghoul, Omrane Guedhami, Chuck C.Y. Kwok, and Dev R. Mishra. Does corporate social responsibility affect the cost of capital? *Journal of Banking and Finance*, 35(9):2388–2406, 2011. doi:10.1016/j.jbankfin.2011.02.007.

Sondre Hansen Eriksen, Snorre Lindset, Quynh Trang Nguyen, and Marie Skara. Market reactions to ESG announcements: Evidence from a $1 trillion fund. Available at SSRN 3640447, September 2020.

Etikkrådet (Council of Ethics). Etikkrådet for Statens pensjonsfond – Utland – Årsmelding 2005, 2005.

Etikkrådet (Council of Ethics). Etikkrådet for Statens pensjonsfond – Utland – Årsmelding 2006, 2006.

Frank J Fabozzi, KC Ma, and Becky J Oliphant. Sin stock returns. *The Journal of Portfolio Management*, 35(1):82–94, 2008.

Eugene F. Fama and Kenneth R. French. A five-factor asset pricing model. *Journal of Financial Economics*, 116(1):1 – 22, 2015.

Eugene F. Fama and Kenneth R. French. International tests of a five-factor asset pricing model. *Journal of Financial Economics*, 123(3):441 – 463, 2017.

Eugene F Fama and J MacBeth. Risk, return and equilibrium, empirical tests. *Journal of Political Economy*, 81:607–636, 1973.

Nickolay Gantchev, Mariassunta Giannetti, and Rachel Li. Does Money Talk? Divestitures and Corporate Environmental and Social Policies. *Review of Finance*, 26(6):1469–1508, 05 2022. doi:10.1093/rof/rfac029.

Stuart L. Gillan, Andrew Koch, and Laura T. Starks. Firms and social responsibility: A review of ESG and CSR research in corporate finance. *Journal of Corporate Finance*, 66:101889, 2021. doi:10.1016/j.jcorpfin.2021.101889.

Hans Petter Graver, Jarle Bergo, Alexander Cappelen, and Ola Löhman. NOU 2003:22 Forvaltning for fremtiden: Forslag til etiske retningslinjer for Statens petroleumsfond, 2003.

Robert Heinkel, Alan Kraus, and Josef Zechner. The effect of green investment on corporate behavior. *Journal of Financial and Quantitative Analysis*, 36(4):431–449, 2001. doi:10.2307/2676219.

Andreas G F Hoepner and Lisa Schopohl. On the price of morals in market: An empirical study of the Swedish AP-funds and the Norwegian government pension fund. *Journal of Business Ethics*, 151:665–692, 2018.

Harrison Hong and Marcin Kacperczyk. The price of sin: The effects of social norms on markets. *Journal of Financial Economics*, 93(1):15–36, 2009. doi:10.1016/j.jfineco.2008.09.001.

Po-Shuan Hsu, Kai Li, and Chi-Yang Tsou. The pollution premium. *Journal of Finance*, 2022. Forthcoming.

Soohun Kim and Aaron Yoon. Analyzing active fund managers' commitment to ESG: Evidence from the United Nations principles for responsible investment. *Management Science*, 2020. Forthcoming.

Jonathan Lewellen and Katharina Lewellen. Institutional investors and corporate governance: The incentive to be engaged. *The Journal of Finance*, 77(1):213–264, 2022. doi:https://doi.org/10.1111/jofi.13085.

Hao Liang and Luc Renneboog. On the foundations of corporate social responsibility. *Journal of Finance*, 72(2):853–910, 2017. doi:10.1111/jofi.12487.

Hao Liang and Cara Vansteenkiste. Delegated gender diversity. European Corporate Governance Institute–Finance Working Paper number 814, 2022.

Hao Liang, Lin Sun, and Melvyn Teo. Responsible Hedge Funds. *Review of Finance*, 05 2022. doi:10.1093/rof/rfac028.

Karl V. Lins, Henri Servaes, and Ane Tamayo. Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis. *The Journal of Finance*, 72(4):1785–1824, 2017. doi:10.1111/jofi.12505.

H Arthur Luo and Ronald J Balvers. Social screens and systematic investor boycott risk. *Journal of Financial and Quantitative Analysis*, 52(1): 365–399, 2017.

Ola Mestad, Johan Henrik Andresen, Egil Matsen, Astrid Undheim, Gro Nystuen, Olaug Svarva, Cecilie Hellestveit, and Svein Richard Brandtzæg. NOU 2020:7 Verdier og ansvar - Det etiske rammeverket for Statens pensjonsfond utland, 2020.

Ministry of Finance. St.meld. nr. 2 (2001-2002) Revidert nasjonalbudsjett 2002, 2002.

Ministry of Finance. Guidelines for Observation and Exclusion of companies from the Government Pension Fund Global (GPFG), 2021.

NBIM. Investing responsibly. The 20 year history. Norges Bank Investment Management, 2020.

NBIM. Government pension fund global annual report 2021, 2021a.

NBIM. The asset pricing effects of ESG investing, July 2021b. Discussion Note 01/2021, Norges Bank Investment Management.

Anthony C Ng and Zabihollah Rezaee. Business sustainability performance and cost of equity capital. *Journal of Corporate Finance*, 34:128–149, 2015.

Norges Bank. Consultation response, NOU 2020:7 Values and Responsibility, 2020. Letter from Norges Bank to the Ministry of Finance.

Lúboś Pástor, Robert F Stambaugh, and Lucian A Taylor. Sustainable investing in equilibrium. *Journal of Financial Economics*, 142(2):550–571, 2021. doi:10.1016/j.jfineco.2020.12.011.

Lasse Heje Pedersen, Shaun Fitzgibbons, and Lukasz Pomorski. Responsible investing: The ESG-efficient frontier. *Journal of Financial Economics*, 142(2):572–597, 2021. doi:10.1016/j.jfineco.2020.11.001.

Michael L Ross. The political economy of the resource curse. *World politics*, 51(2):297–322, 1999.

US SIF. 2020 report on US Sustainable, Responsible and Impact Investing Trends. `https://www.ussif.org/store_product.asp?prodid=42`, 2020.

The Economist. A broken idea – ESG investing – A special report, June 23 2022.

Liying Wang and Juan (Julie) Wu. Investor ESG tastes and asset pricing: Evidence from the primary bond market. Working paper,, April 2022.

Tensie Whelan, Ulrich Atz, and Casey Clark. ESG and financial performance: Uncovering the relationship by aggregating evidence from 1,000 plus studies published between 2015 – 2020. Working Paper, NYU Stern Centre for Sustainable Business, 2021.

Olivier David Zerbib. The effect of pro-environmental preferences on bond prices: Evidence from green bonds. *Journal of Banking and Finance*, 98:39–60, 2019.