Sondre Hansen Eriksen
Marie Skara

On the Ethics of the Government Pension Fund Global

An Empirical Analysis on the Effects of Public Recommendations on Ethics

Master's thesis in Economics
Supervisor: Ragnar Torvik
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Norwegian University of Science and Technology
Faculty of Economics and Management
Department of Economics

NTNU
Norwegian University of
Science and Technology

Preface

When we started studying economics at NTNU, we would never have guessed that something so multifarious as ethics would be the main point of departure for our dissertation. However, economics is a multifaceted discipline, which allows for studying tangled matters.

It is without doubt that many important people have helped us along the way. We especially want to thank our excellent supervisor, Ragnar Torvik, for his valuable input and ideas, throughout the process. Also, we thank all the other professors at the Department of Economics at NTNU, for having their doors open at all times. We also want to thank the Council on Ethics for taking their time to meet with us. We are grateful to the Dragvoll Library and the Economics and Management Library at NTNU for always providing the best service.

We also want to thank our proofreaders for taking your precious time to meticulously read through the thesis. Your fruitful comments mean a lot to us. Just as important, we could not been without our own LaTeX guy.

Finally yet important, we want to thank all our friends who made our student life brilliant. You put colours to the walls at Dragvoll. Thank you to our families, for encouraging and supporting us on every occasion.

This thesis is in its entirety our own work, and all reflections and interpretations are ours. The process has been engaging, and we want to thank each other for good collaboration and enthusiasm.

Sondre Hansen Eriksen & Marie Skara

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Abstract

The Norwegian oil adventure and the unique construction of the Government Pension Fund Global (GPFG), have gradually led to an increase in demand for investment policies that secure the social values of the Norwegian society. This thesis provides an empirical analysis of the market effect of public announcements of firms that breach with the ethical guidelines of the GPFG. More specifically, we study the stock prices of the affected firms around the date it is made public that they are recommended to be excluded or put under observation. We do this by using the event study methodology, and employing the market model, with several event and estimation windows. We use our own constructed data set, with price information for 168 firms that are recommended to be excluded or put under observation by the GPFG. By doing this, we employ a relatively larger data set compared with previous studies. Contrary to previous results, we find a tendency of a decrease in security prices around the time of the announcement. This effect seems to be driven by firms that the Council on Ethics has recommended to exclude based on the firms conduct. The results from our analysis are consistent and hold for several robustness checks. The findings could serve as an empirical argument being that divestment by sovereign wealth funds can have an impact on financial markets.

Sammendrag

Det norske oljeeventyret har ført til utformingen av et av verdens største pensjonsfond, offisielt kalt Statens Pensjonsfond Utland (SPU). I takt med veksten til SPU, har etterspørselen etter en investeringspolitikk som ivaretar de sosiale verdiene i det norske samfunnet økt. I denne oppgaven gjennomføres en empirisk undersøkelse av markedseffekten av offentlige annonseringer om bedrifter som bryter med de etiske retningslinjene til SPU. Vi ser nærmere på hvordan selskapers markedsverdi påvirkes av en annonsert anbefaling om observasjon eller utelukkelse. Metoden vi benytter er eventstudiemetoden med en enkel markedsmodell, der vi ser på flere ulike event- og estimeringsvinduer. Analysen baserer seg på et selvkonstruert datasett og består av 168 bedrifter, som enten er ekskludert eller satt under observasjon av SPU. Tidsspennet på åtte år fra tidligere studier gjør at vi kan studere flere observasjoner enn tidligere. Vårt studie skiller seg fra tidligere forskning ved at vi finner en synkende tendens i aksjeprisen til bedriftene rundt annonseringsdatoene. Effekten ser ut til å være drevet av selskaper som Etikkrådet har anbefalt å ekskludere basert på bedriftenes atferd. Resultatene fra analysen er konsistente og holder for flere robusthetssjekker. Oppgaven kan brukes som et emperisk funn på at deinvesteringer fra statlige investeringsfond kan ha en effekt i finansielle markeder.

Contents

1. Introduction

Since the discovery of oil and gas reserves in the North Sea and the establishment of the Government Pension Fund Global (GPFG), the impact and role of the Fund have been frequently discussed both nationally and internationally. In this thesis, we analyse empirically the effects of the Fund's ethical commitment on the values of the firms in which they have invested. More specifically, we analyse the effect of ethical recommendations on the firms' stock prices.

1.1 Motivation

The Fund has grown both in size and importance. Since the establishment, there has been an increasing concern regarding the Funds ethical commitments. The question of whether the investments should contribute as a transmission of values from the Scandinavian state or not, has grown in importance (Reiche, 2010, p. 3571). The Fund is managing a portfolio on behalf of the Norwegian government, and thus, the Norwegian population. The Norwegian population and society did demand that its "national treasure" must confine to some absolute criteria regarding ethics. This led to the establishment of the Council on Ethics in 2004 (The Council On Ethics, 2005, p. 5). The Council has a mission to protect the ethical guidelines, drafted by the Norwegian Parliament.

The Fund is deeply embedded in, and rose from, Norwegian values and norms. It also has an important role in shaping, reinforcing and promoting these norms (Wood et al., 2017, p. 465). Since the Fund is required to invest in assets outside of Norway, it could have a potential effect on global financial markets. It is stated in the white paper behind the ethical guidelines, that the establishment of the guidelines could have a signalising effect in the market (NOU, 2003:22, p.16). Given the substantial size of the Fund, and the fact that it has gained a reputation as transparent and trustworthy, the process of naming and shaming firms can make headlines around the world (Clark et al., 2013, p. 68).

There have been several arguments regarding the positive and negative impact of Sovereign Wealth Funds (SWFs) on financial markets. Sun & Hesse (2009, p. 3) argue that SWFs, as long

term investors, can have a stabilising effect on markets because they are able to sit out during market downturns. Regardless, SWFs could also have the potential to cause market disturbance through actual or rumoured transactions, because other market agents may be mimicking the movements of such funds. Since the literature on SWFs often treat the GPFG as an anomaly, extensive research on it, is of great value.

1.2 The Research Question

We study market movements around the dates on which the Council and the Fund announce firms that they recommend should be excluded from the investment universe or put under observation. The public announcements make us able to explore market agents' valuation of ethical recommendations in investment decisions. We use an event study approach, based on a self constructed data set. By doing this, we empirically examine the effect of the public recommendations on the equity prices of those companies that have violated the Fund's ethical guidelines. We suggest that the public announcements, at least to some degree, have some effect on financial markets.

The event study approach has predominantly been used to examine return behaviour, focusing on corporate events, such as stock splits (Kothari & Warner, 2007, p. 8). However, we use it to explore the empirical relationship between firms' equity prices and public announcements. The announcements by the Council cannot be interpreted as a typical corporate event. We will therefore place our event study in the landscape between a financial event study and political event study. However, chapter 2 will provide essential background knowledge about why these events can both be valued as economical and political.

Morality and ethics are normative terms, and not easily captured empirically. This thesis will demonstrate that there seems to be a tendency of market movements from the announcements of ethical behaviour. In the studies by Beck & Fidora (2008) and Dewenter et al. (2010) they have analysed the GPFG's divestments as non economical events. Both studies had relatively small data sets, and neither of them found any significant effects from the Council's public announcements. Sun & Hesse (2009, p. 14) emphasises that when measuring the empirical impact of SWFs, institutional knowledge and data availability are two crucial points. Our analysis contains institutional knowledge from extensive reading, and a personal interview with the Council. In addition, we have been able to construct a larger data set, since

we are conducting this analysis almost ten years later than previous research. We have divided the total number of firms into different portfolios based on which criteria they are violating. Analysing different portfolios makes us able to investigate more deeply what is driving the possible announcement effect.

In addition, there are two facets that can be highlighted in this thesis. First, the thesis can demonstrate empirical evidence for the rationale behind the divestment process itself. The Fund divests from the firms two months prior to the event, which Beck & Fidora (2008, p. 358) describes as a design to minimise the losses. Second, this thesis can be used as a test of market efficiency, since the event study method is an important tool itself for testing this theoretical proposition (Kothari & Warner, 2007, p. 5). Despite interesting insights, outcome about these two facets would only be as a result of our main research question.

It must be emphasised that our intention is not to provide an assessment of the Funds recommendation policy as a political tool. The intention is to highlight the possible effect that the recommendations could have on financial markets. How the recommendations are perceived by the market, has received attention from the policy makers themselves. In the process of creating the ethical guidelines, the policy makers stated that the Fund alone is not an effective tool to attend *all* the ethical commitments that the Norwegian society has through their foreign investments (NOU, 2003:22, p. 16). On the other hand, Moses & Letnes (2017, p. 215) claim that at least the exclusion policy can be argued to be an effective tool. Thus, in the discussion about the effect of the exclusion policy, our study can be used as an empirical assessment of firms' valuation after the public announcements.

This thesis proceeds in ten chapters. In Chapter 2 we give a description of the institutions behind the Fund and its ethical framework and guidelines. In Chapter 3, we will briefly review earlier literature and provide some insights on how this analysis can contribute to the existing research. In Chapter 4, we present relevant theory explaining why stock prices could change after the announcements. In Chapter 5, we present the data collection and the variables we have used in the analysis. In Chapter 6, we give a description of the event study methodology and the model specification. In Chapter 7, we highlight some of the challenges with our data set and the empirical method itself. In Chapter 8, we present the results from the analysis. In Chapter 9, we perform different robustness tests to assess our findings, and summarise the empirical analysis. In Chapter 10, we provide a discussion, and a conclusion regarding the results.

2. The Institutions behind Ethical Decisions

The rather extraordinary Norwegian oil adventure has resulted in the worlds largest sovereign wealth fund (SWF) (Moses & Letnes, 2017, p.12; Wood et al., 2017, p. 463). The Government Pension Fund Global (GPFG) is currently valued at above eight trillion NOK, an amount that is updated live for the public at any time (NBIM, 2018).

The GPFG is often viewed as the most transparent SWF in the world (Caner & Grennes, 2010, p. 603-604; Wood et al., 2017, p. 466), and often described as an *exception* compared to other SWFs. In this chapter, we provide an introduction to the Fund's different institutions behind the responsible investment practice. First, in Section 2.1, we elaborate extensively on the Council on Ethics. Last, in Section 2.2 we provide a presentation of the current ethical investment practise of the Fund.

2.1 The Council on Ethics

The Fund is built to serve not only the living generations in Norway, but also the future generations. This intergenerational focus requires a long term investment perspective in order to secure long term rents, which depend on sustainable economic development (NOU 2003:22, 2003, p. 11). The ethical guidelines are meant to secure this facet.

However, securing sustainable economic development is only one of the motivations behind the ethical investment guidelines. In the middle of the 1990s, there was an increased focus on non economic investment factors, and the investments end production (Reiche, 2010, p. 3571). The central-liberal government, led by former prime minister Bondevik, appointed the Graver Committee in 2002, whose mission was to propose an ethical framework for the Fund (Norwegian Ministry of Finance, 2013). The Council on Ethics was formally established in 2004. The establishment of the Council was made at the same time as the Fund's ethical guidelines were adopted and published (The Council On Ethics, 2005, p. 5).

The Fund has two ethical commitments. First, it is committed to secure wealth for future generations, and second, it is committed to protect human rights and sustainable development (NOU 2003:22, 2003, p. 47; The Council On Ethics, 2005, p. 62). It has been argued that there

could be a potential conflict between these two commitments. However, the Graver Report argues that a violation of widely accepted principals would affect firms' valuation in a long term perspective (NOU 2003:22, 2003, p. 15). Hence, according to the Graver report there is no need to be concerned about any conflict of interests, because the two commitments serve each other. According to the Council themselves, there is an increasing focus on ethical investments globally, as it is commonly believed that such investments will give a better outcome in the long run (Pia Goyer, 9.03.18, personal interview).

One intertwined discourse to these commitments, is whether the Fund's investment practise can be used as a political instrument to secure responsible development. The Graver Report states that it is necessary to discuss how effective the ethical guidelines can be as a tool (NOU 2003:22, 2003, p. 16). There are potentially other more fruitful ways for the Norwegian state to contribute to development of well functioning markets and sustainable market outcomes, for instance through the Ministry of Foreign Affairs.

Reiche (2010, p. 3570) describes the Fund as a "pioneer" for inclusion of morality in its investment standards. Norway and the Fund took part in undertaking the "Santiago-principles", which are practices and principles of SWF's activities. The "Santiago-principles" are meant to secure objectives such as maintaining financial stability, applicability and transparency (IWG, 2008, p. 4). Former members of the Council describe these as *"An underlying idea (...) to avoid political interference by SWFs"* (Nystuen et al., 2011, p. 5). Hence, the ethical guidelines of the Fund are more extensive and beyond the "Santiago principles".

2.1.1 The Ethical Guidelines

From the establishment of the Council on Ethics, the principle has been that firms should be judged in relation to how they are anticipated to behave and not on their previous behaviour. The Graver Report states that ownership in stocks or bonds where there is a reason to presume that the firm operates on unethical terms, can be thought of as a contribution to unethical actions (NOU 2003:22, 2003, p. 14). Thus, suggestions by the Council should not come as a punishment on previous behaviour. Rather the Council's recommendations should punish, and in this way avoid, the risk of unethical behaviour in the future.

Based on the same principle, focusing on the future, firms may be readmitted to the Fund as soon as the reason for exclusion is no longer present (The Council On Ethics, 2016, p. 11). The Council does also contact the firms before they make a recommendation, in order

for the firms to provide documentation or defend themselves against accusations on unethical behaviour (The Council On Ethics, 2016, p. 10).

The Product and Conduct based Criteria

The Council can make recommendations based on two different criteria; either the *product based criterion* or the *conduct based criterion*.

The product based criterion states that firms may be excluded or put under observation if the product itself is recognised as unethical and does not follow the guidelines (Norwegian Ministry of Finance, 2016, p. 100). The screening task is outsourced from the Council and performed by consultants (The Council On Ethics, 2015, p. 7). There have been different kinds of products under the product criterion throughout the years. Today, firms producing weapons that violate fundamental humanitarian principles, or weapons that are sold to certain states, and tobacco producers, may be excluded based on the product criterion (The Council On Ethics, 2016, p. 39).

For the conduct based criterion, the Council examines firms where the risk of future violation of the guidelines is most prevalent. The Council uses consultants also for this task, together with enquiries from Norges Bank and the civil society about specific firms. From these enquiries, the Council chooses which firms to evaluate more extensively, based on the risk factors the firms represent (Norwegian Ministry of Finance, 2016, p. 101). The Council recommend to observe or exclude firms based on the conduct criterion if there is an unacceptable risk of serious or systematic violations of human rights, rights of individuals during war, environmental damage, unacceptable greenhouse gas emissions, gross corruption, or other serious violations of fundamental ethical norms (The Council On Ethics, 2016, p. 39).

There have been different target areas throughout the years that the Council has existed. During their first year the focus was for instance on cluster and nuclear weapons (The Council On Ethics, 2005, p. 21 & 25). New guidelines entered into force in 2015, along with extensive work on two new criteria on climate and coal (The Council On Ethics, 2015, p. 5). Table 2.1 illustrates the frequencies of the different criteria we will use in our data set. The most frequently used criteria are the ones on environmental damage, tobacco and human rights.

Table 2.1: Recommendations from the Council on Ethics

	Recommendation	Frequency
Product	Tobacco production	19
	Nuclear weapons	13
	Cluster munitions	10
	Sale of military equipment to certain states	1
Conduct	Severe environmental damage	21
	Serious violations of human rights	15
	Gross corruption	7
	Other particular serious violation of fundamental ethical norms	3
	Serious violations of individuals' rights in situations of war or conflict	3

Note: This table only includes those recommendations that are used in our study.

The Coal Criterion

The concern about severe environmental damage has been one of the focus areas of the Council since its establishment. In 2016, two new criteria were introduced, namely the climate criterion and the coal criterion (The Council On Ethics, 2016, p. 16). The climate criterion assesses firms that dispose greenhouse gas emissions, whilst the coal criterion assesses firms that produce coal or use coal in the production line.

The coal criterion provides Norges Bank with the autonomy to exclude mining companies and power producers that base 30% or more of their production on coal (The Council On Ethics, 2016, p. 5). An expert group appointed by the Norwegian Parliament argued that the use of the Fund to address climate changes would be inappropriate and inefficient, both in terms of exclusion and exercise of ownership (Norwegian Ministry of Finance, 2014, p. 66).

However, the expert group does also emphasise that there exists ethical considerations, which should be addressed. Therefore, they recommended the Fund to target the most harmful firms, a policy which the Ministry agreed to. The Norwegian Ministry of Finance (2015, p. 73-74) gave Norges Bank the formal responsibility of exclusion under the coal criterion, whilst the Council only has an advisory role in this matter. The coal criterion is therefore the newest and most significant change in the ethical investment strategy of the Fund.

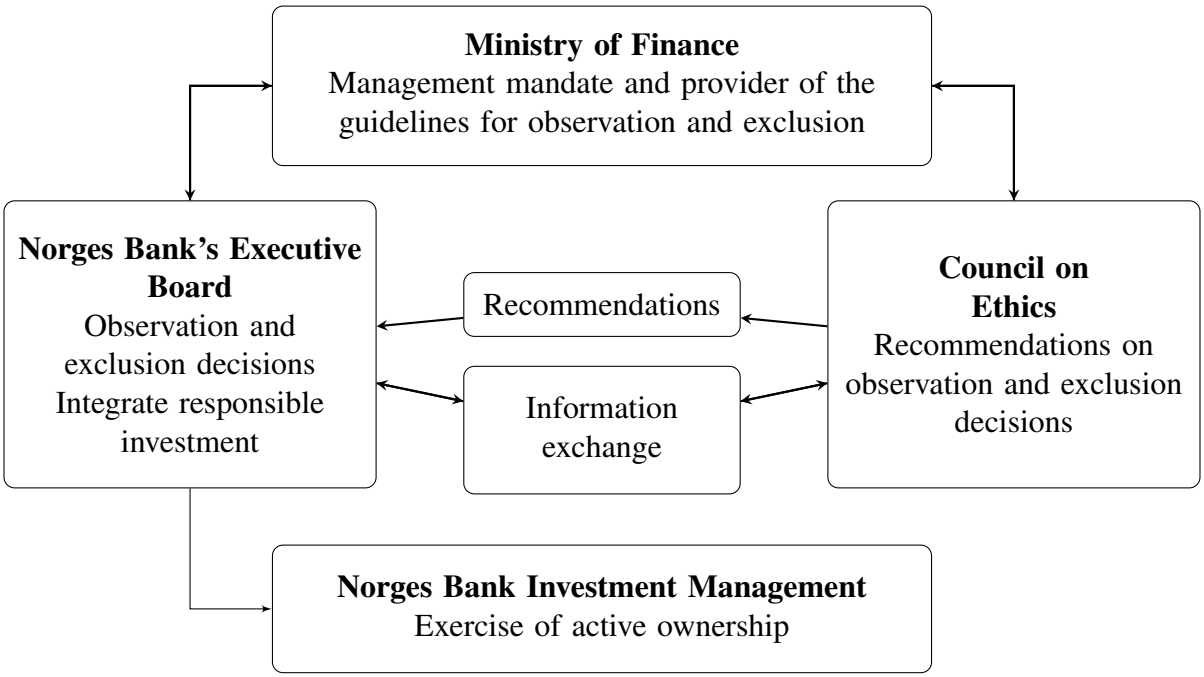
2.2 The Institutions behind the Ethics

There are three main institutions behind the ethical policies of the Fund; the Ministry of Finance, Norges Bank and the Council on Ethics. The different responsibilities and dialogue lines can

be found in Figure 1. First, the Ministry of Finance, as the owner of the Fund. The Ministry is in charge of the overall strategy for responsible investments and provides the criteria and guidelines for exclusion of firms based on company products and conduct. The Ministry does also appoint the five members of the Council, by recommendation from Norges Bank.

Second, Norges Bank is responsible for the exercise of ownership rights and thus functions as the operational manager of the Fund. However, it is Norges Bank Investment Management (NBIM) that exercises the ownership of the Fund. NBIM promotes active ownership through voting, dialogue, and raises concern especially around climate changes and corporate taxes (NBIM, 2017, p. 13).

Figure 1: Ethical responsibilities and dialogue lines



Note: This information can be found in NBIM (2016, p. 85) and the Norwegian Ministry of Finance (2016, p. 98).

Third, the Council on Ethics is responsible for research and evaluation of different companies, and to provide recommendations to Norges Bank's Executive Board (NBIM, 2016, p. 84). Similar to the Council, the Executive Board also emphasises the probability of norm violation in the future. However, it is important to point out that the Council has the opportunity to communicate with firms on a different level than Norges Bank (Pia Goyer, personal interview, March 9, 2018). The Council's independence from Norges Bank secures a different kind of ethical assessment opportunity.

After 2015, recommendations are no longer given from the Council to the Ministry of Finance for approval before they are given to Norges Bank. Today, the recommendations are handed over directly to Norges Bank (The Council On Ethics, 2015, p. 5). When the Norges Bank's Executive Board agrees with the Council's recommendation, NBIM gets two months to divest from the particular firm. After two months, there is a public announcement of the decision.

Following the new framework in 2015, other important propositions for the Council's assignment and behaviour were suggested. It was proposed that the Council's recommendations should not be made public any longer. The Council disagreed on this for two main reasons: first, because they believed that publications can give the general public useful insights to the work that the Council does, second, because it is likely that the open and transparent practice has given international attention and recognition to the Fund (The Council On Ethics, 2013, p. 12). This failed attempt to curb the Council, makes it feasible to evaluate the possible effect that the Council has on the excluded firm's value and hence financial markets. We will do this evaluation through an event study. The next two chapters provide a review of earlier literature and the theoretical framework.

3. Earlier Literature and Contributions

This chapter contains a review of literature regarding event studies. Further it contains specific event studies that assess similar events as in our analysis. In Section 3.1, we explain the research project and how event studies previously have been used to assess economic and non economic events. Then, we continue by summarising directly related articles for our event study in Section 3.1.1. Finally, we contrast our study with earlier literature in Section 3.2, in order to demonstrate how our study can contribute to existing research.

3.1 Measuring Impact from Various Kind of Events

The pioneering paper by Fama et al. (1969) on how stock prices react to new information, started the use of event studies to measure impact from a considerable amount of events on financial markets. MacKinlay (1997, p. 13) specifies that event studies assess questions about how an economic event affects the value of firms. Kothari & Warner (2007, p. 5) note that the method is used to measure the effects from corporate events on stock markets. However, our event study is in nature somewhat different; recommendations from the Council are exogenous events for the firms, and the analysis can be treated as a non economic event study (Beck & Fidora, 2008). Accordingly, these events cannot be defined entirely as corporate events.

Political event studies are essentially different compared to a typical economic or corporate event study. An example is Guidolin & La Ferrara (2007, p. 1978), which conduct an event study to assess how violent conflicts are perceived by the market. Another example is Fisman (2001, p. 1095), which measures whether political connections affect valuation on firms. These types of events are directly political in nature, but empirically, they have impact in a financial context. Our event study, on the other hand, considers events that occur due to both economic and political reasons. As explained in Section 2.1, the Fund has two ethical commitments: securing wealth for future generations and to protect human rights and sustainable development. The former is more economic in nature, whilst the latter is rather political. Hence, our event study can be placed somewhere between economic and political event studies, nevertheless closer to an economic event study.

3.1.1 Divestment by Sovereign Wealth Funds

The popular press has had a higher focus on financial stability and SWFs in the aftermath of the global financial crisis. The academic literature has responded with a gradual emergence of studies, which look into the impact of these funds (Sun & Hesse, 2009, p. 3; Knill & Mauck, 2017, p. 298).

Beck & Fidora (2008) conducted a case study similar to our study, where they looked at the impact of divestment from the Fund in financial markets based on advise from the Council. They did not find any significant effects from the Fund's divestment (Beck & Fidora, 2008, p. 357). It should be noted that their study only entailed 28 firms, as the Council had only existed for roughly three years.

Another paper that looks into how financial markets react to announcements by SWFs, is Dewenter et al. (2010, p. 256). They study the effects of both investment and divestment from SWFs. For their full divestment sample, they found a negative abnormal return at the 5% significance level, meaning that the market reacts negatively to divestment announcements. However, when excluding observations from the GPFG, the negative abnormal return has significance at the 1% level, hence higher significance. Dewenter et al. (2010, p. 265) cannot reject their null hypothesis of zero abnormal returns, for their Norwegian subsample of 22 firms. This result shows that divestment announcements by the GPFG do not have a significant negative effect in the market. Nevertheless, they do find a negative tendency.

Sun & Hesse (2009, p. 12) generally found low significance levels in the abnormal returns from divestment made by SWFs. They examined many different subsamples that are rather small. However, for firms in developed countries and firms in countries with low level of governance, they did find a negative significant effect. Knill & Mauck (2017, p. 310) did not find any effect of divestments by SWFs in a long term perspective.

On the other hand, both Kotter & Lel (2011, p. 370) and Dewenter et al. (2010, p. 265) found positive effects from investments by SWF. Fernandes (2017, p. 340) did a study on firms' value and SWF ownership where he used the GPFG as a special case by estimating the regression with and without the Fund in the sample. He found a positive relation in both estimations. This indicates that even though divestments have no or little effect, at least investments by SWFs in general generate some market movements. To summarise, SWF divestments from a non economical aspect have not empirically been found to provide

significant negative abnormal returns in the market.

3.2 Our Contribution

As opposed to many existing studies looking both at the market effect of investment and divestment of multiple SWFs, we will only study the impact of divestment exclusively from one SWF, namely the GPFG. The literature often considers the GPFG as an anomaly. One of the reasons for treating the Fund differently, is because of its high level of transparency, which is found to give higher announcement returns (Fernandes, 2017, p. 343). Besides studying divestment, we will investigate the effect of being put on a list of observation.

Our study contains data on 168 firms from 2005 until 2018, which is noticeably larger than the divestment samples in Beck & Fidora (2008) and Dewenter et al. (2010). The number of firms in our sample, and the fact that the Council has existed for a longer period of time than when previous studies have been carried out, might produce different results. The former, because the estimations from few firms are more likely to suffer by false inference. The latter, because the investment practise of the Fund has gained validity in financial markets. Hence, other large investors could be mimicking the Fund's behaviour to a higher extent now than before, which would imply that the decisions made by the Fund have more impact today.

Another important element in our analysis is that we split the sample of firms into different portfolios based on the criteria under which they are excluded. To our knowledge, there is no event study that has done this exactly. By doing this, we are able to study two potential effects. First, we can analyse the effect the ethical investment policy may have on financial markets. Second, we can study whether the effect is general for all firms in our sample, or not. Results from these different portfolios may also to some degree explain why similar empirical assessments of the Fund have not produced significant results.

4. Theory

In order to analyse market movements driven by public announcements about ethical divestments, we need to establish a theoretical framework for reasons why the market could react to this type of information. It is not given *a priori*, that this *blacklist* (Wood et al., 2017, p. 467), can generate market movements. We will therefore put forward theories of the relationship between public recommendations from the Fund, and reactions in the stock price. This includes the efficient market hypothesis, ethics and other possible theoretical linkages.

4.1 Market Efficiency and Investor Behaviour

The efficient market hypothesis (EMH) is the foundation for the theoretical concept of efficient markets. The hypothesis states that prices fully represent all available information in the market, and that the market instantly reacts to new information (Fama, 1970, p. 383).[1]

Michael C. Jensen famously defined market efficiency as: *"A market is efficient with respect to information set [ϕ_t], if it is impossible to make economic profits by trading on the basis of information set [ϕ_t]."* (Jensen, 1978, p. 96). In other words, the prices reflect information to the extent that the marginal benefits do not exceed the marginal cost of acting on the information.

Based on the definition of the information, ϕ_t, market efficiency can be divided into three forms: the *weak form*, the *semistrong form* and the *strong form*. In the *weak form*, prices reflect historic information about markets and about past prices. In the *semistrong from*, prices additionally include all other public information. Lastly, in the *strong form*, prices reflect all information that can be acquired (Brealey et al., 2011, p. 345-346).

Following this theory, prices would react immediately to public recommendations by the Council on the announcement date. However, if a large amount of market agents are painstakingly studying the GPFG's behaviour, the prices of the firms would in theory also include the exact divestment time, which is prior to the announcement date.[2] However, the

[1] Meaning that the expected value, E of the price of the security, could be written $E(P_{j,t+1}|\phi_t) = [1 + E(r_{j,t+1}|\phi_t)]P_{jt}$ where P_{jt} is the price of the security j, at time t, r_{jt} is the one period return and ϕ_t is the information (Fama, 1970, p. 384). This implies that the information is fully utilised and fully reflected in the price.

[2] The framework behind GPFG's divestment procedure is described in Section 2.2.

events are most likely to be unanticipated.

It is important to mention that the EMH, especially under the strong form, which requires that prices reflect all information, has been criticised. Grossman & Stiglitz (1980, p. 404) for instance, state that market information is costly, and informed traders can take advantage of "better" information. They further point out that if information is not costly, competitive markets cannot exist because informed traders can not earn an excess return on their information. Hence, competitive markets rarely reflect all information.

4.1.1 Are Markets Efficient?

Binder (1998, p. 111) emphasises that event studies have been used for two main reasons: (i) testing the null hypothesis of an efficient market, and (ii) examine the impact of an event on asset prices. It is also noteworthy to point out that we in fact have the joint hypothesis problem in (i); if the the null is rejected it could either happen because the EMH fails, or because the model used to calculate abnormal returns is wrong (Barberis & Thaler, 2003, p. 1061). We will come back to the choice of the model in Section 6.1.

The EMH would predict that markets should react immediately to relevant information and equivalently not react to non-information, which is information that is not relevant for the firms fundamental value (Shleifer, 2000, p. 5). However, an important assumption for EMH is that economic agents are rational. This means that agents update their beliefs correctly when they acquire new information, and further make an acceptable choice (Barberis & Thaler, 2003, p. 1055).

Shleifer (2000, p. 10) argues that two linked facets in the assumption about rational economic agents are challenging. First, the assumption itself. Second, the proposition that economic agents may deviate from optimum, but in a similar manner. Psychological evidence on the other hand, demonstrates that individuals do not deviate similarly (Shleifer, 2000, p. 12). Hence, behavioural finance shows that the EMH only by chance can be proven empirically.

From the theory of EMH, our analysis could be seen as an effort to empirically test for market efficiency. However, our main research question is to assess the impact on the firms valuation, not to test market efficiency per se. Hence, testing for market efficiency would only be as a consequence of our research question.

4.2 On Ethics and Economic Behaviour

In this thesis, we investigate whether we can find a connection between unethical behaviour and price reactions. There are generally ambiguous conclusions on whether an empirical relationship between these can be found. This is perhaps due to challenges when trying to measure ethics and morality as economic variables.

However, theoretically there are proponents, who advocate that ethics can be thought to influence financial decisions. Amartya Sen (1987, p. 9) for instance, argues that economics itself can gain from consolidating ethics and morality into economic theory, especially how these features could influence human behaviour. Neoclassical economics, and much of its positive analysis, could lead to more insights, by embodying ethical perplexities. Sen (1987, p. 7) argues that inadequate focus on the normative part have caused economics to ignore how ethical questions affect human behaviour. He argues that this is the result of how neoclassical economics have simplified Adam Smith, and his thoughts on *self-interest* (Sen, 1987, p. 28). Smith demonstrated that when market agents act primarily in their own self-interest, markets will allocate resources efficiently. However, Smith as a moral philosopher also emphasised the importance of ethical responsibilities of individuals in a society (Kurtz, 2008, p. 255). One of his substantial questions was really about our actions, whether they are taken by complete self-interest, or from a variety of other motivations not easily measured, such as ethics and morality. Smith himself described this conflict in human beings:

> *"When our passive feelings are almost so sordid and so selfish, how comes it that our active principles should often be so generous and so noble? When we are always so much more deeply affected by whatever concerns ourselves, than by whatever concerns other men; what is it which prompts the generous, upon all occasions, and the mean upon many, to sacrifice their own interests to the greater interest of others?"* (Smith, 2002, p. 158)

Rational economic agents, motivated by profits alone, cannot sacrifice their own interest occasionally. Smith's complicated notion of self-interest and human beings, illustrates that unethical behaviour by firms may affect investment decisions. Hence, we could at least establish two theoretical possibilities of how ethics and morality could influence economic agents. First, the agents could perceive firms' behaviour, in terms of morality and ethics as relevant price

information. Then it could be a theoretical possibility that the valuation of the firm will be affected, when the Fund divests from what they generally describe as "unethical" firms. This is either because of *what* the firms produce or *how* they produce their goods. If we assume this as negative relevant price information, it would by profit motivation be rational for economic agents to decrease their valuation of the firms. Second, economic agents could react, solely out from the *mean upon many*, and by this sacrifice financial interests for what they at least believe to be *to the greater interest of others*. Announcements from a serious actor, such as the Fund, about violations on ethical norms, could then lead other large shareholders to divest from the firms announced. This explanation is only derived from the conflict embodied in human beings, when facing ethical dilemmas in terms of their financial belongings.

4.3 Sovereign Wealth Funds

This section contains several important aspects of the GPFG and SWFs in general. SWFs can be defined as special purpose investment funds, owned by the government, and established because of budget surpluses (Sun & Hesse, 2009, p. 4; Fotak et al., 2017, p. 17). How these funds are perceived by the market, can explain the theoretical link between their announcements and market reactions.

The academic literature has raised some concerns about the incentives behind SWFs. Clark & Dixon (2017, p. 155) describes a SWF as a political tool of the state, and that it may be used in illegitimate ways. Also, since SWFs are state owned, it may lead them to behave differently than other institutional investors (Fernandes, 2017, p. 324). For example, SWFs could be less efficient compared to private investors. These theories tend to establish a negative theoretical relationship between investments by SWFs and firm value. However, we argue in the following subsections that the GPFG should be treated differently, and as an exception in the theory of SWFs. As Wood et al. (2017, p. 469) states, the GPFG is a much less *controversial player* compared to others.

In Section 4.3.1, we define the Fund as a social responsible investor. Further, we discuss the increased focus on ethics through corporate social responsibility, and the Fund's role on this matter in Section 4.3.2. Lastly, in Section 4.3.3, we have a broader theoretical discussion explicitly about different theoretical mechanisms, which could lead to a decrease in the prices because of the Fund's public recommendations about divestments or observations.

4.3.1 The GPFG as a Social Responsible Investor

Kurtz (2008) defines a social investor as an agent who above all considerations of financial risks and returns, makes investment decisions based on social, ethical, religious, and environmental concerns. Hence, by this strong definition the Fund is not a social investor. However, the fact that the Ministry of Finance has appointed the Council to monitor social and ethical aspects of the Fund's investment portfolio, provides some similarities to a social investor. In this perspective we can argue that the Fund, because of the Council, often behaves as a social investor.

According to Kurtz (2008, p. 257), we can use Hirschman's (1970) *Exit, Voice and Loyality* to explain the different options social investors have when implementing their practises. These options are not specific for social investors, but they apply to situations where an organisation, firm or institution fails to live up to the behaviour that is expected (Hirschman, 1970, p. 4).

The first option, *exit*, is to simply divest from the firm. Exit is perhaps the best option for funds that do not have an intention of changing the firms' behaviour, but rather wishes to hold a portfolio consistent with its ethical beliefs. However, this option leaves no direct opportunity for the firm to change things for the better. The second option, *voice*, is when the investor will raise its concerns about the behaviour of the firm, with the firm's management. In this way, the firm gets a chance to change its behaviour. The difficulty is to decide when to exit, and when to voice.

The choice of exit or voice is mediated with *loyalty*, which is the coexistence of both concepts (Hirschman, 1970, p. 77). Loyalty is when the investor does a rational assessment of the likelihood that the firm will change its behaviour over time or not. In the context of social investments, this means that firms which are acting unethical, might still be in the portfolio of a social investor as long as they appear to be willing to change behaviour (Kurtz, 2008, p. 258). To our understanding the Council operates according to loyalty. The Council contacts firms and makes assessments of the severity of the behaviour. Firms have the opportunity to change their behaviour and demonstrate the change to the Council. After this, the Fund decides whether or not the firms should be excluded based on the recommendation of the Council, explained in Section 2.2.

From Section 2.1.1, we know that the Council does not judge firms on past behaviour, but rather on how they are anticipated to behave. Hence, this theory supports the argument that the

GPFG acts as a social investor and that its ethical guidelines follows Hirschman's theory.

4.3.2 Increased Focus on CSR and Ethics

The increased focus on corporate social responsibility (CSR) has resulted in an equivalently higher focus on social responsible investment. Carroll (2008, p. 41) calls CSR a global phenomenon, with increased significance, especially in Europe since the 2000s.

For instance, there has been a general increased focus on the importance of CSR, which is directed at the behaviour of the firms themselves (Nystuen et al., 2011, p. 2). It is also likely that the Principles for Responsible Investments, promoted by the United Nations' institutions, is contributing to an increased development of ethical practises among investors (Nystuen et al., 2011, p. 3-4). Lastly, also discussed by Nystuen et al. (2011, p. 5), the Santiago Principles combined with more focus on SWFs, is perhaps making investors more influenced by the Fund's behaviour. Jensen & Seele (2013, p. 278) also mentions that the Fund is one of the few SWFs, which can influence corporate behaviour, because of their public ethical guidelines. Cumming et al. (2017, p. 8) notes that SWFs can play an important role in implementing principles of ethical investments.

Despite this, we know from Chapter 3 that those few studies that have been conducted on the effect of excluding companies that violate the ethical guidelines of the Fund, do not find any negative effects in the firms value. However, increased focus on ethical aspects of investments practises internationally, might have an impact on the findings in our study, especially considering that our sample includes more recent data compared with studies conducted in the previous decade. If all the above explanations lead to a more painstaking analysis of the Fund's behaviour, thus making this kind of information more likely to be price relevant, the announcements could have an effect in the market.

4.3.3 Possible Mechanisms from Public Recommendations by the GPFG

There are several reasons as to why prices in theory may react to the announcements by the Council. First, asymmetric information could lead to a decreased asset price. Treating the Fund as the agent, and market participants as the principal, the Fund sends a signal to the market about its information. The market participants may think that the Fund has better information than themselves, thus leading them to mimic the Fund's behaviour. For example, the Fund may hold costly information which other shareholders might not have access to.

Second, the signal itself can lead to a change in the demand for these firms' equity. If we assume that the market perceives the announcements as negative information, the signal would lead to a negative shift in the demand. Put differently, the market interprets the assets as less popular. It would then be riskier to keep these assets, which leads other investors to divest when the Fund announces that it already have divested.

Third, the announcement could be followed by a liquidity effect. If we keep assuming that the market perceives the announcements as negative information, it would lead to fewer investors. When the number of investors is reduced, the firms' liquidity drops. When a firm's liquidity is reduced, the existing shareholders would require a higher liquidity premium. For a given return, the assets prices would then need to decrease.

Fourth, when the Fund puts firms on a "shaming" list, it follows that agents could associate this with generally higher risk, which is similar to the asymmetric information example above. Firms on the list may be more exposed to lawsuits or other kind of "negative" events. If a firm has violated fundamental human rights, it would be likely for the market to assume that it could behave unethical again. Once negative information has reached the market, the market would rationally be worrying about other possible negative information regarding the same firm. Higher risk would also lead to a decrease in asset prices.

All these theoretical connections between the public recommendations from the Fund and the firms' asset prices, would lead to a decrease in asset prices. Thus, it is in theory possible that a negative effect could be present after the announcements. In the next chapter, we will present our own constructed data set, and later assess whether this relationship could be proven empirically.

5. Data

In this chapter we thoroughly describe our own constructed data set. In Section 5.1 we describe key information about the firms in our sample. In Section 5.2 we present the different variables used in the empirical specification. Lastly, in Section 5.3 we discuss some characteristics and limitations of our data set.

5.1 Sample Data

We have collected data on 168 firms that have been excluded from the Fund's investment universe or put on the list of observation.[3] Our data set is arranged into time series. Table 5.1 shows that 92 firms are excluded or observed based on advise from the Council on Ethics. The rest of the 76 firms are coal based energy producers that Norges Bank has decided to exclude or observe based on the product based coal criterion. A total of 185 firms have been excluded or put under observation since the establishment of the Council. In the analysis, 17 firms are not included due to lack of information on the stock price.

Table 5.1: Total firms

	The Council on Ethics	The Coal Criterion	Total
Excluded	83	64	147
Observed	9	12	21
Total	92	76	168

In Table 5.2, the country and the continent of the firms in our data set are listed. Most of the firms come from Asia, Europe and North America, and more specifically USA and China. The Fund invests mostly in USA and Europe. China is also well represented, predominately due to coal producing firms. An overview of which industries the firms belong to can be found in Table A.1 in the Appendix.

In the empirical analysis, we have used the publication date on which the Council announced the divestment as the event date. The source of information about the announcement events and the firms has been collected from the annual reports written by the

[3]Extensive firm characteristics for each firm, can be found in Section A.1 in the Appendix, Table A.2.

Table 5.2: Country and continent of target firms

	The Council on Ethichs	**The Coal Criterion**
Australia	1	2
Bermuda	1	-
Brazil	1	1
Canada	2	3
Chile	-	2
China	6	12
Czech Republic	1	1
France	3	-
Germany	2	-
Greece	-	1
Hong Kong	1	2
India	4	7
Indonesia	2	-
Ireland	1	-
Israel	4	-
Italy	1	-
Japan	1	8
Jersey	1	-
Malaysia	7	1
Mexico	1	-
Peru	1	-
Philippines	-	2
Poland	1	3
Portugal	-	1
Russia	1	-
South Africa	1	1
South Korea	8	1
Spain	1	1
Sweden	1	-
Thailand	2	2
United Kingdom	7	1
USA	28	24
Total	**92**	**76**
Africa	1	1
Asia	35	37
Europe	21	8
North America	31	25
Oseania	1	2
South America	3	3
Total	**92**	**76**

Council on Ethics. We have collected the firms' stock prices from 250 trading days prior and posterior to the event. These daily stock prices and price indices are gathered for events with a span from June 6, 2005 to January 17, 2018. Key data about the firms has been extracted from Thompson Reuters Datastream and annual reports by the Council on Ethics. Price data is extracted exclusively from Datastream.

5.2 Variables

The data set consists of mainly firms price data and stock exchange indices. We will first present the dependent variable and secondly the independent variables. Lastly, we will explain the use of dummy variables. Table 5.3 display all the different variables.

Table 5.3: The variables

Variable	Description
Price	Daily stock prices
Local index	Return to local stock markets
Global index	Return to the global stock market
Dummies	Event date and firm dummy variables

5.2.1 Dependent Variable: Price

For firm stock returns, we use Datastream's default option for price. The price variable from Datastream represents the official stock closing price and is further adjusted for subsequent capital actions, such as splits, which makes it possible to compare prices over time. The studies by Kotter & Lel (2011, p. 364) and Dewenter et al. (2010, p. 259) have also extracted target stock price data from Datastream.

5.2.2 Independent Variables: Local and Global Price Index

The other variables measure the return to the local and global stock market. The local index measures the return to the local domestic stock market where the firms are listed. We use Datastream's default option for the local index for each specific firm, in lack of other data opportunities and for simplicity.

Similar studies, such as Sun & Hesse (2009), use only a local index when calculating abnormal returns, when they assess how stock markets react to announcements of investments

and divestments by SWFs. However, we would also calculate the abnormal returns with both a local and a global market index, similar to the approach in Dewenter et al. (2010).

The global market indices measure the return to the global stock market. We use two different global indices in our analysis, because there is no global index that includes all stock markets in the data set. We use the MSCI World Index that represents equity performance across 23 developed markets countries (MSCI, 2018). The second global index is the FTSE All-World Index, which represents the performance of large and mid cap stocks and covers $90 - 95\%$ of the worlds investable market (FTSE Russel, 2018). We will estimate the market model with these two global indices separately, as a robustness check.

5.2.3 Dummy Variables

To be able to measure if an event influences the outcome of a variable in an event study, binary explanatory variables are particularly important (Wooldridge, 2013, p. 347). The dummy variable will indicate when the event occurred. In the regression, we extensively use dummies to be able to control for different time windows, both in the event and estimation windows. With the different windows we check if the model is well specified. Dummies are also used in our study to specify the characteristics of the firms, in order to create different portfolios.

5.3 Characteristics and Limitations

The data set has the advantage of using the GPFG as a case study because the Fund practises a high degree of transparency, relative to other large SWFs. Open access to different types of important information is available on several platforms, either from the Fund itself, the Ministry or from the Council.

In other event studies, there can be some confusion around the event dates. In our case, there is no reason to believe that information from the Ministry, Norges Bank or the Council is leaked before the announcement date. This comes from one of the goals itself, namely to secure the highest possible return on the portfolio for future generations. Unless market agents are painstakingly observing market movements, it should not be reflected in the prices before the announcement day.

However, some firms have important characteristics. For example, a few firms have been excluded, but then changed behaviour and been included again. If a firm has been excluded

or put under observation more than once, the first event is the only one that has been used in the analysis. The same applies if the reason for exclusion has changed. For instance, if a firm changes their production from nuclear weapons to cluster munitions, this firm would no longer be excluded based on the nuclear production criterion. However, the Council would still recommend the firm to be excluded due to production of cluster munitions. In this case, data from the first announcement date will be used. This is to avoid over- or underestimation, which could occur because we do not know if the market perceives the information in a similar manner for a second announcement.[4]

5.3.1 Publicity on the Council

Publicity in international newspapers can be an indicator of the possible effect from the Council's recommendations. Unfortunately, we do not have access to the proper databases to assess this. The only relevant papers we have access to is The Economist (until 2014) and the Financial Times (until 2010). Our search on different keywords, gives only one article in the Economist about one of the Council's recommendations. Other important financial news journals, like the Wall Street Journal and International Business Times, we do not have access to.

However, we do have access to Retriever, which is a Norwegian news archive that gives us all publications on the Council on Ethics in Norway. We get more than 6000 results in Retriever when searching for news articles about the Council after the establishment in 2004. This tells us that the Council receives much publicity in Norwegian media. However, publications from the Norwegian press are not likely to be reflected in international financial markets.

Nonetheless, the Council itself is immediately contacted by Bloomberg and Reuters after the recommendations are made public (Pia Goyer, personal interview, March 9, 2018). This is also the case when they publish their yearly reports. Also, Rose (2017, p. 175) proclaim that the exclusion list at least, gets much attention from the press. Investors and other financial actors therefore have the chance to pick up this kind of information from these media sources.

[4] In the analysis, the number of firms is larger than the number of firms that is currently under observation or excluded. This is because, as already in mentioned Section 2.1.1, firms are removed from the lists if the reason for exclusion or observation is no longer present.

6. The Event Study Methodology and the Empirical Specification

In this chapter we provide a description of the event study methodology and the specific empirical specification we will use in the analysis. However, it is important to keep in mind that there is not one specifically correct technique, but instead many appropriate ones (Peterson, 1989, p. 57). First, in Section 6.1, we explain the methodology behind event studies. Second, in Section 6.2, we describe the empirical specification and discuss how we will change important aspects to test for misspecifation.

6.1 The Event Study Methodology

Event studies have a long history and many applications (MacKinlay, 1997, p. 13). In our study we use the methodology to assess how and whether stock markets react to the Council's recommendations. This exercise will therefore evaluate the short term impact of recommendations by the Council on financial markets.

Using the event study methodology, we need to determine the selection criteria for the data set, which is explained in Chapter 5. Further, we need to define the event of interest. In our study, the event is the announcement date when the Council publishes which firms they have decided to exclude or put on their list of observation.

Assumptions for Event Studies

In order to conduct an event study, there are some important assumptions that need to be taken into account, as discussed in Chapter 4. Following the efficient market hypothesis, the basic assumption is that markets are efficient and rational, meaning that financial markets react instantly to the event. Thus, the events should immediately be reflected in stock prices (Sun & Hesse, 2009, p. 9).

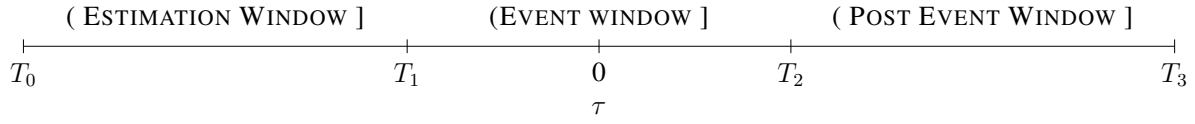
In order for event studies to provide credible results, we need to assume that there are no leakage of the news before the event day and that no events coincide. Meaning that no news leakage, or other events interact both with the dependent and independent variables. Said

differently, an important question is whether the event can be anticipated by market agents and whether the anticipation is expected to vary across firms (Kothari & Warner, 2007, p. 20). In our study, market agents are unlikely to anticipate the event. This is because the shares that the Fund holds generally represents less than 2% of the firms' equity (Wood et al., 2017, p. 463), which means that it would be costly to acquire this type of information. Also, since the Fund, directly from the exclusion framework, hedges itself from financial loss, the information is unlikely to be leaked to market agents.

Event and Estimation Windows

Figure 2 illustrates the different "windows" in an event study. We define, τ, as the event date, which is the date of announcements and hence day 0. It can be useful to define the event window to be larger than the specific date as this will allow examination of the period around the event (MacKinlay, 1997, p. 14). The length of the event window will always depend on the nature of the study, however, it should not be too long (McWilliams & Siegel, 1997, p. 636). In our main specification we employ a three day event window, T_1 to T_2 in Figure 2, for estimation of the abnormal returns. This is similar to the event window in Dewenter et al. (2010), meaning the day before the announcement, the event date and the day after (-1, 0 and $+1$).

Figure 2: The time line in event studies (MacKinlay, 1997, p. 20)



The length T_0 to T_1 in Figure 2 is defined as the estimation window, which consists of one year in our study. In trading days, this is approximately 250 days, which is the length used in the study by Dewenter et al. (2010). All dates in the sample are trading days, and we use daily data. MacKinlay (1997, p. 35) states that daily data is more beneficial than monthly or weekly data, and the use of shorter time intervals are limited. The estimation window is ending one day prior to the event date (meaning day -2) in order for the normal return estimates not to be contaminated by the event itself. As MacKinlay (1997, p. 20) states, the estimation window and the event window should not overlap. This is because inclusion of the event window in the estimation window could lead to "event-influence" when estimating the normal returns. The post event window, T_2 to T_3 in Figure 2, is not included in the estimation window in our study,

as MacKinlay (1997, p. 20) notes happens by occasion.

The Market Model

The market model is a statistical model that gives the return of any stock to the return of the market portfolio (MacKinlay, 1997, p. 18). We estimate the normal return, assuming the event is not taking place, with stock price data using ordinary least square (OLS). When assuming the general conditions for OLS, this is a consistent estimation procedure (MacKinlay, 1997, p. 20).

There are other models that can be used to measure normal performance, such as the Capital Asset Pricing Model. However, MacKinlay (1997, p. 19) states that the gains from using economic models are small, and statistical models are dominating in event studies. Binder (1998, p. 126) also states that several studies conclude that the market model works well.

We will estimate normal performance using indices for the return to the market portfolio. The normal return is the expected return, without conditioning for the event. We estimate the market model, using the same framework as Dewenter et al. (2010, p. 263) and MacKinlay (1997, p. 18).

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \tag{6.1}$$

Where R_{it} is the stock return for firm i at time t. R_{mt}, is the return to the market index, m, at time t. We assume that the regression disturbance term, ε_{it}, is normally distributed with mean equal to zero.

The market model in (6.1) is a one-factor model. We will expand the general market model by including global indices. Multifactor market models have been discussed by many researchers, and according to MacKinlay (1997, p. 18), the gain from employing more factors are limited. He states that the limited gains are due to the fact that the marginal explanatory power of additional factors is small, and therefore there is little reduction in the variance of the abnormal return.

Abnormal Returns

When the market model parameters are estimated, we can measure the abnormal returns. The abnormal return is the difference between the observed return and the normal return of the security on each specific day in the event window (MacKinlay, 1997, p. 15). Equation (6.2) captures this difference mathematically:

$$AR_{it} = R_{it} - R^*_{it} = R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_{Lt} \tag{6.2}$$

Where R_{it} is the actual return when we condition for the event, and R^*_{it} is the estimated return without conditioning for the event. Empirically the abnormal returns can be captured with dummies, as we will come back to.

Testing for significance

The abnormal returns must be aggregated over time and across securities in order to test for inference and significance (Sun & Hesse, 2009, p. 10). This will give us the cumulative abnormal return (CAR).

$$CAR_i = \sum_{t=1}^{T} AR_{it} \tag{6.3}$$

When we do the aggregation, it is assumed that there is no overlap in the event windows and that the distributional assumptions are maintained. This means that there is no clustering and that the CAR will be independent across the securities (MacKinlay, 1997, p. 24). We find the CARs by aggregating the abnormal return for each day of the event window. Finally, we aggregate across securities to calculate the average CAR, namely the CAAR.

$$CAAR = \frac{1}{N} \sum_{i=1}^{N} CAR_{it} \tag{6.4}$$

When we have aggregated the abnormal return across securities and across time, we can finally perform tests to see whether the cumulative abnormal returns for different samples are significant. The null hypothesis in event studies is that the abnormal returns are equal to zero (MacKinlay, 1997, p. 24). The null hypothesis is given by:

$$H_0 : CAAR = 0$$

which states that the cumulative average abnormal returns are equal to zero. This is tested against the alternative, H_A:

$$H_A : CAAR \neq 0$$

Since we cannot state *a priori* the sign of the CAAR, we have to perform a two-sided test. The test statistic is given by:

$$t = \frac{CAAR_{it}}{\sqrt{var(CAAR_{it})}} \sim N(0,1) \tag{6.5}$$

H_0 is tested using a standard t-test and robust standard errors. The two-sided test, will make the ability to recognise abnormal performance more difficult (Brown & Warner, 1980, p. 227). In Section 7.2, we will elaborate further on difficulties with inference testing in event studies.

6.2 The Empirical Specification

In the first part of this section, 6.2.1, describe the model specification. In the second part of this section, 6.2.2, we present the different portfolios and event and estimation windows.

6.2.1 Model Specifications

For evaluating the divestment effect in our event study, we will use two main empirical specifications. These are taken from two different studies, which also measure divestment effects by SWFs. The simplest one is based on a one-factor model from Sun & Hesse (2009, p. 10) and MacKinlay (1997, p. 18), which both only use one explanatory variable to measure abnormal returns.

$$R_{it} = \alpha_i + \beta_{i1} R_{Lt} + \delta_{i-1} T_{i-1} + \delta_{i0} T_{i0} + \delta_{i+1} T_{i+1} + \varepsilon_{it} \tag{6.6}$$

R_{it} is the stock return for firm i at time t. The explanatory variable, R_{Lt}, is the return to the local market index, L, at time t. The three effects on the different dummy variables, δ_{i-1}, δ_{i0} and δ_{i+1}, will together give us firm i's cumulative abnormal return, in our main three day event window. For other event windows we will add or exclude date dummies to correctly specify the model. Wooldridge (2013, p. 347) denotes specification (6.6) as a simple version used in event studies. However, following Dewenter et al. (2010, p. 263), we will also use a similar specification, which is given by:

$$R_{it} = \alpha_i + \beta_{i1} R_{Lt} + \beta_{i2} R_{Gt} + \delta_{i-1} T_{i-1} + \delta_{i0} T_{i0} + \delta_{i+1} T_{i+1} + \varepsilon_{it} \tag{6.7}$$

This specification includes, R_{Gt}, which is a global market index, G, at time t. By using

(6.7), we control for both local and global market trends. However, it is important to recall the limited gains from applying more explanatory variables, discussed in Section 6.1.

6.2.2 Different Portfolios and Windows

Since we are studying firms from only one SWF, we have the ability to examine the different types of firms in terms of reason for being recommended excluded or observed through a portfolio approach. We will therefore divide our sample data into specific subsamples of firms. This is one of the strengths with our study, because the different portfolios will make it possible to capture what kind of firms that are the main drivers behind a potential effect. Table 6.1 summarises the different portfolios that we assess with the different model specifications.

Table 6.1: Different portfolios in the event study

The Council on Ethics			**The Coal Criterion**			
Excluded		**Observed**	**Excluded**	**Observed**	**Sample Name**	**Sample Size**
Conduct	**Product**					
x	x	x	x	x	Total firms	168
x	x		x		Total Excluded	147
		x		x	Total Observed	21
x	x	x			Total Council	92
			x	x	Total Coal	76
x	x				Council Excluded	83
		x			Council Observed	12
x					Excluded Conduct	40
	x				Excluded Product	43

Note: These samples enable us to perform the Portfolio approach, which is useful in our clean sample of firms with public announcements from the GPFG.

Table 6.1 shows how we separate and combine the firms that have been excluded or observed by the different institutions. Distinct perceptions of the institutions could lead to different effects. However, we will focus more on the samples with only excluded firms, than on the sample with only observed firms.

Event studies can also be particular influenced by the choice of event and estimation windows. Both the event window and the estimation window can influence the effect. It is therefore necessary to estimate all the specifications with different estimation and event windows.

We use the longest estimation window of 250 trading days as our main estimation window, since the sampling error vanishes for large windows (MacKinlay, 1997, p. 21). However, we

will use several smaller estimation windows as robustness checks.

Our main event window, following Dewenter et al. (2010), is the three day event window, meaning day -1, 0 and $+1$. Furthermore, we will employ a one day event window (meaning day 0) and a seven day event window from day -1 to $+5$, as specification tests. The former is employed to check the immediate effect, whilst the latter controls for possible delays in the market. Table 6.2 summarises all the different windows we will look at. The first column displays the event windows, whilst the second column displays the estimation window.

Table 6.2: Different Event and Estimation Windows

	Event Windows	**Estimation Windows**
Main	-1, 0, +1	[-250, -2]
	0	[-250, -21]
	[-1, +5]	[-250, -41]
Other	[-1, +10]	[-200, -2]
	[-40, +1]	[-150, -2]
	[-40, +5]	[-100, -2]
		[-200, -44]
		[-150, -44]
		[-100, -44]

Note: These are the windows on which we report the results. Most of the event windows are regressed with all the estimation windows, as long as they do not overlap.

More specifically, we will also employ a two months event window, for only excluded firms, starting at day -40 and ending at $+1$. This is because NBIM usually gets two months to sell out the stocks prior to the announcement (Beck & Fidora, 2008, p. 357). By using this two month event window, we can study whether the market reacts to the divestment rather than the announcement of exclusion. Since NBIM in general have small investments, the market should not be able to pick up this information. Hence, the effect is expected to be marginal.

By looking at different portfolios, adding different event and estimation windows and using different model specifications and robustness checks, we are able to thoroughly study the effect of an exclusion or observation by the Fund.

7. Econometric Challenges

There are several econometric challenges that can be highlighted in our analysis. Some challenges are general in dealing with time-series data, others are more specific to the event study method. We will focus on the most relevant problems facing our specific event study. This will both serve as a guidance for us in the result and robustness chapters, but also provide the readers with extensive knowledge on what terms our results should be discussed and interpreted.

7.1 Inference in Event Studies

When the Gauss-Markov assumptions are fulfilled, we can assume that ordinary least squares (OLS) is a consistent estimation procedure for the parameters in the market model.[5] Further, we assume that asset returns are jointly multivariate normal, independently and normally distributed through time. This will be a sufficient assumption for a statistical model, such as the market model, to be correctly specified and efficient (MacKinlay, 1997, p. 20). With these properties, the estimator is said to be BLUE.[6] However, as MacKinlay (1997, p. 17) points out, inference testing is in general robust when facing deviations from the assumption above.

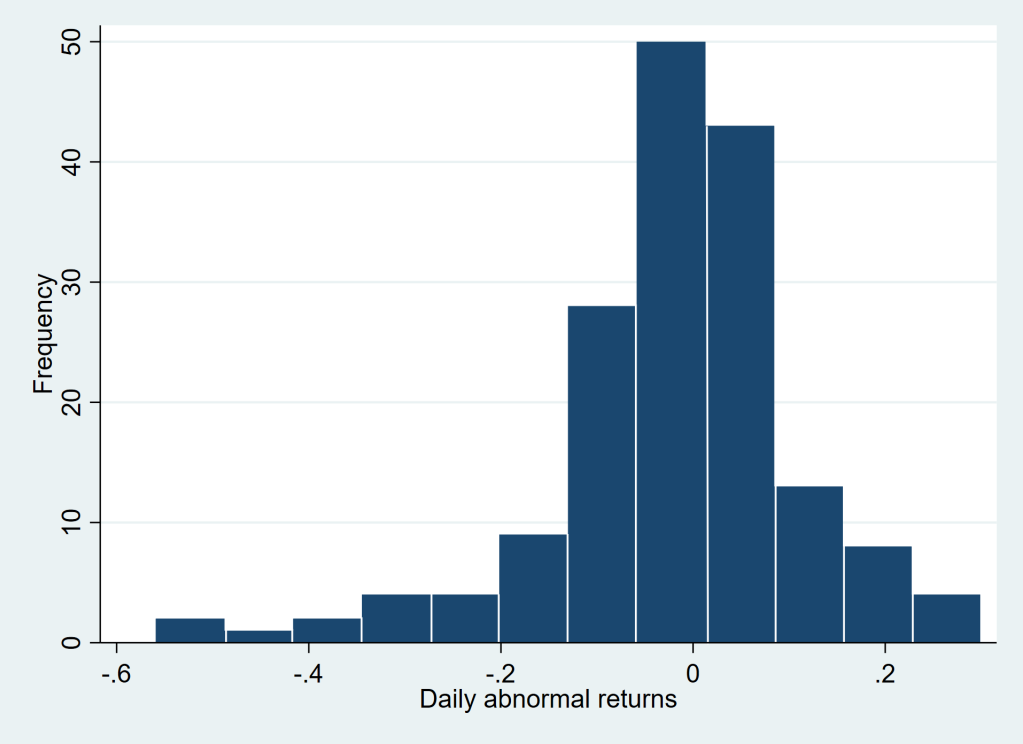
One way to look at possible deviations from the assumptions, is to look at the frequency distribution of the daily cumulative abnormal return (CAR) in Figure 3. This figure displays the frequency distribution for the daily CAR for each firm, using the three day event window and a 250 day estimation window, with only the local index as an explanatory variable.[7] The daily CAR is found by dividing the CAR by the number of days in the event window. However, we will for simplicity often refer to this as just the abnormal returns. The horizontal axis represents the daily abnormal returns, whilst the vertical axis represents the frequency. The figure illustrates that the frequency of the abnormal returns, for the total sample is mainly

[5] The appropriate Gauss-Markov assumptions for time series application can be found in Wooldridge (2013, p. 337-344).

[6] An estimator is said to be BLUE, when it is the Best, Linear, Unbiased Estimator. Said differently, it has the lowest variance compared with all other linear unbiased estimators. Thus, it outperforms all other estimators, and will provide the most reliant estimate of the true value.

[7] Our more complex estimation of abnormal returns, which is controlling for a world index as well, gives a similar figure as Figure 3, but slightly more centred around zero.

Figure 3: Frequency distribution



Note: For all firms, using the market model only with the local index.

located around zero. However, the abnormal returns are slightly leaning towards left, but the skewness is not substantial.

False inference among event studies has been a major concern among many researchers. Brown & Warner (1980, p. 206) specifically study the likelihood of doing a Type I error - rejecting the null hypothesis when it is in fact true and Type II error - keeping the null hypothesis when it is false. Despite some concerns, they generally find that estimation of the market model, using OLS and standard parametric tests, is well specified and that the methodology can be used straightforward.[8] However, in some instances it would be necessary to perform non parametric tests, as we will come back to.

Other more or less relevant violations of the OLS assumptions in event studies could be the omitted variable problem, measurement error or multicollinearity. The omitted variable bias can result in biased estimates of the abnormal returns, if the omitted variable is correlated with one of the explanatory variables (Wooldridge, 2013, p. 86). Especially, an inclusion of an explanatory variable can be irrelevant or may overspecify the model. Most event studies include

[8] In an e-mail correspondence with Jerry Warner, he explained that the basics of event studies have not changed. However, if conducting a long horizon study, he recommended to look at further problems.

very few explanatory variables, and as already discussed, the gains of including more variables are generally limited (MacKinlay, 1997, p. 18). This is one of the strength with the event study method.

Multicollinearity occurs if two exogenous variables are perfectly linear dependent. This would make it difficult to differentiate the independent effect from these variables. In our case this could only be a problem in the market model with two independent variables, the local and global market indices. However, looking at the correlation between these variables, it is generally low and we can look past this problem.

Measurement error is when we have a deviation between a correctly specified variable and the variable we observe (Wooldridge, 2013, p. 307). One of the advantages with our model is its simplicity. We are looking at few variables; asset prices and three different indices. The firms' asset price is fully reflected through our price variable and we follow Datastream's recommendations for the different indices. Since neither the omitted variable problem, measurement error or multicollinearity are major concerns in our study, we can look pass these problems.

7.2 Possible Challenges in Our Event Study

There are two more potential challenges with our event study. First, we could have possible violations of the assumptions of no serial correlation and homoskedastic error terms. Second, the fact that an event could have different impact on the firms, and that some of the firms have the same event date, could lead to false inference.

Serial correlation and Heteroskedasticity

We have serial correlation and/or heteroskedasticity when the errors correlate through time (Wooldridge, 2013, p. 399). If this occurs, standard inference testing is not valid. These concerns are common when dealing with time-series data.

One way to deal with serial correlation in event studies, is by employing a long estimation window (MacKinlay, 1997, p. 21). The conditional variance has two components: the disturbance variance and the sample error variance. The sampling error stems from the fact that we use an event window, hence a sample not representing the whole population. It is the sampling error that leads to serial correlation of the abnormal returns, and would make our

estimations invalid (MacKinlay, 1997, p. 21). As the length of the estimation window becomes larger, the sampling error converges towards zero and the variance will be closer to the normal disturbance term. Thus, with our relatively long estimation window of 250 trading days, we are able to control for serial correlation.

Harrington & Shrider (2007, p. 252) stress the importance of employing robust standard errors in event studies, in order to control for cross-sectional variation in the abnormal returns, which may cause heteroskedastisity. We will therefore employ robust standard errors when we run the regression, which corrects for heteroskedastisity and serial correlation.

Robust standard errors require larger samples. As some of our sub samples are quite small, this is important to keep in mind. However, the studies that we are comparing our results with use the same method despite having even smaller samples.

Event-Induced Variance and Event Day Clustering

Our case study can suffer from two different "event related" problems. They arise from the fact that the event can have a different effect on the firms, *event-induced variance*, and some of the firms have the same event date, *event day clustering*.

Under event-induced variance, the economic effect of the event differs by firm and leads to an increase in the cross sectional variation of the abnormal returns. This affects the ability to test whether the abnormal return is significantly different from zero (Boehmer et al., 1991, p. 254). Event studies work well when the event has the same effect on all firms in the sample. However, when an event has different effects on the firms, the variation of the abnormal return will increase and may lead to Type I error. The problem can be addressed by using the sign test in conjunction with the standard parametric test. However, Boehmer et al. (1991, p. 268) suggests that usage of standardised cumulative abnormal returns (SCAR) solves the problem more easily.

Event studies with event day clustering are prone to cross-sectional variation in the abnormal returns, when the event date is the same for many firms (Kolari & Pynnönen, 2010, p. 3996). We have multiple event dates, but many of these are clustered. This would also make the independence assumption for the abnormal returns invalid and give incorrectly estimated test statistic (Kothari & Warner, 2007, p. 11).

In general, there are many ways to deal with clustering. Articles focusing on the same type of event as us, use different methods to solve these problems. For example, Dewenter et al.

(2010, p. 264) use SCAR, whilst Kotter & Lel (2011, p. 369) use the sign test.

Both event-induced variance and event day clustering will potentially lead to a Type I error (Brown & Warner, 1980; 1985). Kothari & Warner (2007, p. 11) emphasise that even though SCAR is in principle superior, it would not empirically provide large differences in short-horizon event studies. Since we have a relatively short event window, we will address both of these challenges with the non-parametric sign test, explained and performed in Section 9.1.3. First, we turn to the main results.

8. Results

In this chapter, we report and discuss our main results from the different model specifications. In the first part, Section 8.1, we explore our benchmark estimation. In the second part of this chapter, Section 8.2, we report on estimations using several different event and estimation windows, to compliment our results from the first part. The main results are reported in the text, whilst some additional results can be found in the Appendix section A.2.

8.1 Benchmark Estimation

As explained in the empirical specification, in Section 6.1, we use the market model to estimate the abnormal returns. In this section, we will report on results from the market model. We use an estimation window of 250 days, and a three day event window as the standard, following similar studies, explained in Section 6.2.2.

Table 8.1 below, reports on the results from the benchmark estimation, with the three day event window, $-1, 0, +1$. We will report the cumulative average abnormal return (CAAR), which we divide on the number of event days and by doing so denote daily average CAAR. This will make interpretation and comparison between the different event windows more accessible. The CAAR, as noted in equation (6.4) in Section 6.1, is found by aggregating the CAR for all firms and dividing it on the total number of firms. Next, we report the test statistic, which is indicated by one star if the daily average CAAR is significant at 10%, two stars if significant at 5% and three stars if significant at 1%. We also report on the number of firms that have negative abnormal returns, and the number of firms in the different portfolios. The different panels, from A to J, report the results for the different portfolios for both market models. The models are found in equation (6.6) and equation (6.7) in Section 6.2.1. The first market model uses only the local index as the explanatory variable, whilst the second uses both local and global indices.[9] In the following, we will also here, often refer to the daily average CAAR as the abnormal returns for simplicity.

[9]Initially, we regressed the specifications using two different world indices. Since they provided nearly the exact same result, we only report results for the FTSE world index. This index represents stocks from most of the countries in our sample.

Table 8.1: Results from the benchmark estimation

Event Window (-1, 0, +1)	Daily Average CAAR	Test Statistic	Percent Negative	Number of Firms
Panel A: Total Firms				
Local index	-0.020	-1.93*	56	168
Local and Global indices	-0.009	-1.00	51	
Panel B: Total Excluded Firms				
Local index	-0.023	-1.93*	55	147
Local and Global indices	-0.009	-0.85	48	
Panel C: Total Observed				
Local index	-0.002	-0.2	62	21
Local and Global indices	-0.011	-0.86	71	
Panel D: Total The Council on Ethics				
Local index	-0.034	-2.16**	55	92
Local and Global indices	-0.020	-1.42	53	
Panel E: Total The Coal Criterion				
Local index	-0.003	-0.26	57	76
Local and Global indices	0.005	0.45	49	
Panel F: The Council on Ethics, only excluded				
Local index	-0.004	-2.15**	54	83
Local and Global indices	-0.019	-1.22	51	
Panel G: The Council on Ethics, only observed				
Local index	-0.005	-0.21	67	9
Local and Global indices	-0.031	-1.48	78	
Panel H: The Coal Criterion, only excluded				
Local index	-0.004	-0.25	56	64
Local and Global indices	-0.005	-0.42	45	
Panel I: The Council on Ethics, only excluded by conduct				
Local index	-0.091	-3.18***	75	40
Local and Global indices	-0.049	-1.89*	67	
Panel J: The Council on Ethics, only excluded by product				
Local index	0.012	0.69	35	43
Local and Global indices	0.010	0.59	35	

Note: Stock market reaction from recommendations concerning ethics from the GPFG. Results from using the market model with a 250 days estimation window, and a three day event window. The daily average CAAR is the CAAR divided on the number of days, in the event window. * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

Panel A reports the results for all firms, and shows an abnormal negative effect at around 2% at the 10% significance level. The interpretation of the result is that the daily abnormal negative return in the three day event window is around 2%. The results indicate that public announcements about ethical recommendations by the Fund may lead to a negative return on firm value, for all firms. However, the results are only significant when we employ the market model with the local index, not when we employ both indices. It turns out that only one of our portfolios has significant abnormal returns when the global index is imposed in the regressions, namely Panel I, which we will discuss later. Inclusion of the world index in a multifactor market model such as ours, can be treated as a robustness check, as in Guidolin & La Ferrara (2007, p. 1990). Almost none of the abnormal returns in Table 8.1 are significant at any level for the multifactor market model. Hence, most of the portfolios do not pass this kind of robustness check according to our analysis.

Further, Panel B reports the abnormal return for only excluded firms, with similar results as in Panel A. Abnormal returns for firms that are put on the list of observation, in Panel C, are not significant. Hence, the driving effect seems to come from the firms that the GPFG are in fact divesting from, and not only put under observation.

Panel D and E report on firms that are excluded or observed, and recommendations are given by the Council, or under the coal criterion subsequently. Interestingly, the abnormal return for the local index market model in Panel D, is now statistically significant at the 5% level, whilst none of the abnormal returns in Panel E has any significance. This result indicates that the driving effect comes from the abnormal returns when analysing only firms excluded under recommendations by the Council. Surprisingly, the abnormal returns from the multivariate market model are positive for the coal criterion, however not significant. Not even the abnormal returns for Panel H are significant, which are only excluded firms under the coal criterion.[10]

Panel F and G look exclusively at public recommendations from the Council, in an attempt to single out the effect even further. By separating this sample into only excluded firms (Panel F) and only observed firms (Panel G), we find that the abnormal return with the local index is significant for the excluded sample, at the 5% significance level.

Lastly, we report on firms that are recommended to be excluded by the Council under the conduct criterion, Panel I, and the product criterion, Panel J. For the firms recommended

[10]We do not report the results for firms observed under the coal criterion, since these results are the same.

excluded under the conduct criterion, and using only the local index, we get negative abnormal returns at around 9%, statistically significant at 1%. Further, the multifactor market model gives a negative abnormal return around 5%, significant at the 10% level. On the other hand, firms that are recommended to be excluded under the product criterion, have positive abnormal returns, but are not significant.

Generally, our main model has low significance levels. However, there is a tendency of a negative performance around the announcement date for the firms when recommendations are published. The negative tendency in the abnormal return is primarily driven by the firms excluded under the conduct criterion. However, we explore if these results still hold after different specifications and robustness checks later in Section 8.2 and Chapter 9. Compared with Dewenter et al. (2010, p. 266), who also studied divestments by the GPFG, using the same estimation technique, the daily average CAARs in our study are more negative and show some significance. However, their data set did mostly include product based exclusions and only contained 22 firms.[11]

We recommend not to put too much weight into the value of the daily average CAAR itself, and the interpretation of it. The abnormal returns can be driven by one or a few firms as we will discuss more in the robustness chapter. However, the emphasis should be put on the tendency of the effect, negative or positive. The effect on firms that are put under observation is insignificant, which may be expected. The most interesting result is that the effect is insignificant for the firms that are excluded based on the product criterion, such as the production of tobacco or coal. We get the highest significance in the sample that only contains the firms that are excluded based on the firms' behaviour, such as pollution, deforestation or breach with fundamental human rights.

8.2 Specification Tests

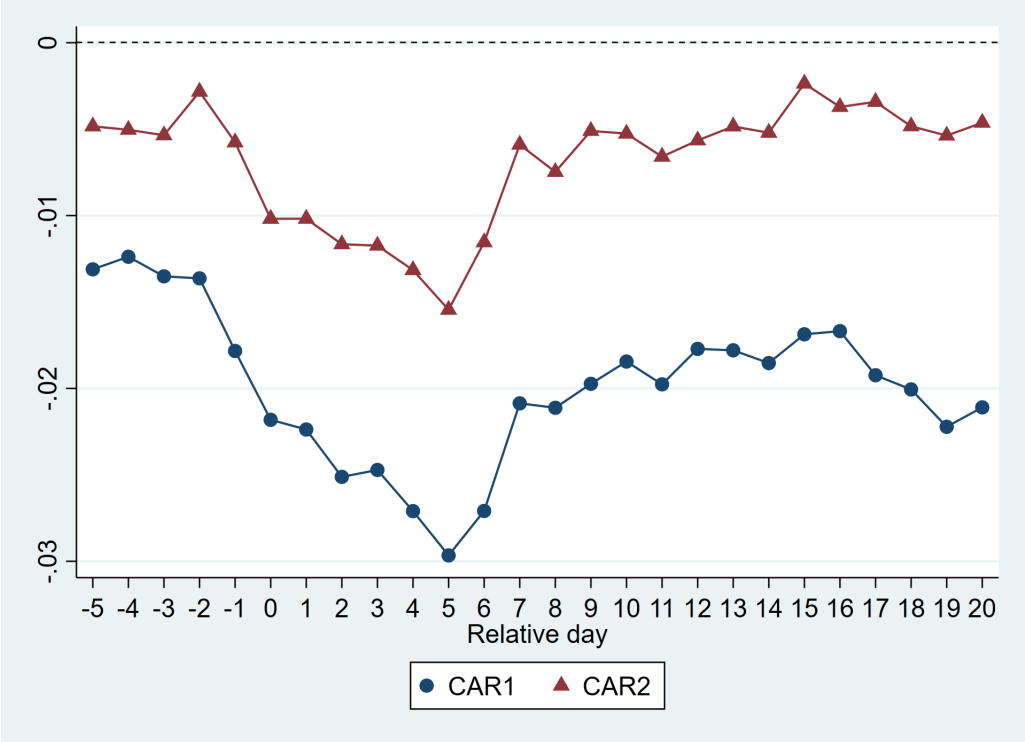
Event studies can be biased as a result of the choice of event and estimation windows. It is therefore important to employ different event and estimation windows as specification tests to our benchmark model.

[11] We ran the regression on the same sample as Dewenter et al. (2010), and got the same daily average CAAR at 0.22% and no significance. However, inclusion of three more firms which were excluded right after their study in 2008, altered the results a lot. This illustrates how sensitive event studies are to small changes in the data set.

8.2.1 Various Event Windows

We can explore more extensively the nature of the abnormal returns for the firms when we impose different event windows. Similarly to Kotter & Lel (2011, p. 369), we plot the development of the average abnormal return (AAR) for all firms from 5 days prior to the publication date until 20 days after the event day. Figure 4 illustrates the development of the abnormal returns, thus showing the cumulative average abnormal return (CAAR) for a longer period of time. The blue line (circles), is estimated using only the local index, whilst the red line (triangles), is estimated using the multifactor market model. The trend of the curves is nearly identical, yet, the simple market model is more negative. However, both curves show a clear downward tendency from day -1 to day $+5$ in terms of the event day. After day $+5$, both curves seem to stabilise at a less negative level.

Figure 4: Development of abnormal returns



Note: This figure plots the development of the abnormal returns for all firms with an event window from day -5 to $+20$, following the study by Kotter & Lel (2011, p. 369). The development of CAAR1 (circles) is estimated using the market model including only the local index. The development CAAR2 (triangles) is estimated using the market model including both local and global indices.

From the framework of the exclusion policy, explained in Section 2.2, we know that the market could pick up information about the recommendations before the event day. Market

agents could potentially observe the divestments in the market. As the Fund's shares are usually quite small, it will be fair to assume that the market will not take notice when the fund sells out. However, Table 8.2 implies the opposite. Table 8.2 reports on the average abnormal returns (AAR) for the total sample for each event day, noted ED, from 50 days prior to the event, and until 9 days posterior to the event. Note that we are now only looking at one day and therefore not using cumulative terms, as we did in Section 8.1. AAR1 and AAR2 are the abnormal returns using first the market model with the local alone, and second using both local and global index. TS1 and TS2 are the tests statistics for the different models.

In Table 8.2, it is demonstrated that there is a significant negative abnormal return around 40 trading days or two months prior to the actual event, which is when the Fund divests. The table also suggests that something is affecting the stock prices around 20 trading days or one month prior to the event. This is not unambiguously nor clear, but it could imply that the Fund is divesting from the firms around these dates as well.

The abnormal returns are also significantly negative at the 5% level from day 0 to day $+6$. This indicates that there is a lag in the way the market incorporates new information. It is also likely that we will find stronger effects from event windows when we look at these particular days. The results from Table 8.2 motivate further analysis of different event windows, with all the portfolios.

One Day Event Window

As seen in Table 8.2, the abnormal return is around 2%, and significant at the 5% level for all firms, which is the same as with the three day event window. However, it can be interesting to examine whether the abnormal returns for the other portfolios matches the results from our benchmark model with the three day event window.

Table 8.3 below, reports the results for the same portfolios as the three day event window in Table 8.1. However, Table 8.3 reports the average abnormal return (AAR) instead of the daily average CAAR, since we only have one day in this event window. Besides from this fact, the table follows the same structure.

The results in Table 8.3 are quite consistent compared with the daily abnormal returns in the three day event window. There are also higher significance levels in many of the different portfolios. In most of the panels, the abnormal returns point in a negative direction. The abnormal return in Panel I has a negative return at around 5%, with a significance at the 5%

Table 8.2: Abnormal return before and after the event

ED	AAR1	TS1	AAR2	TS2	ED	AAR1	TS1	AAR2	TS2
-50	-0.011	-1.24	-0.004	-0.50	**-20**	-0.019	-1.88*	-0.014	-1.69*
-49	-0.010	-1.01	-0.002	-0.20	**-19**	-0.021	**-2.05****	-0.013	-1.67*
-48	-0.009	-0.99	-0.001	-0.09	**-18**	-0.018	-1.73*	-0.009	-1.18
-47	-0.007	-0.77	0.003	0.44	**-17**	-0.015	-1.41	-0.009	1.07
-46	-0.008	-0.84	0.001	0.15	**-16**	-0.016	-1.45	-0.008	-0.97
-45	-0.013	-1.47	-0.003	-0.38	**-15**	-0.016	-1.60	-0.010	-1.26
-44	-0.013	-1.45	-0.004	-0.59	**-14**	-0.016	-1.59	-0.011	-1.34
-43	-0.015	-1.73*	-0.006	-0.81	**-13**	-0.015	-1.51	-0.01	-1.16
-42	-0.018	**-2.20****	-0.010	-1.43	**-12**	-0.017	-1.81*	-0.011	-1.39
-41	-0.020	**-2.37****	-0.013	-1.81*	**-11**	-0.017	-1.80*	-0.008	-1.10
-40	-0.020	**-2.28****	-0.012	-1.55	**-10**	-0.010	-1.13	-0.003	-0.039
-39	-0.021	**-2.46****	-0.013	-1.75*	**-9**	-0.010	-1.10	-0.002	-0.26
-38	-0.023	**-2.52****	-0.015	-1.91*	**-8**	-0.008	-0.83	0.002	0.26
-37	-0.020	**-2.26****	-0.013	-1.51	**-7**	0.007	-0.83	0.001	0.11
-36	-0.020	**-2.25****	-0.013	-1.59	**-6**	-0.011	-1.21	-0.002	-0.30
-35	-0.016	-1.72*	-0.013	-1.56	**-5**	-0.129	-1.40	-0.005	-0.63
-34	-0.015	-1.66*	-0.013	1.54	**-4**	-0.012	-1.32	-0.005	-0.62
-33	-0.011	-1.25	-0.011	-1.29	**-3**	-0.013	-1.34	-0.006	-0.63
-32	-0.010	-1.03	-0.009	-1.15	**-2**	-0.013	-1.33	-0.003	-0.34
-31	-0.011	-1.22	-0.010	-1.31	**-1**	-0.018	-1.66*	-0.006	-0.67
-30	-0.013	-1.50	-0.009	-1.29	**0**	-0.021	**-2.00****	-0.010	-1.14
-29	-0.014	-1.49	-0.009	-1.29	**+1**	-0.022	**-2.11****	-0.010	-1.16
-28	-0.014	-1.55	-0.010	-1.28	**+2**	-0.025	**-2.26****	-0.012	-1.21
-27	-0.137	-1.35	-0.011	-1.30	**+3**	-0.024	**-2.11****	-0.012	-1.10
-26	-0.014	-1.38	-0.012	-1.38	**+4**	-0.027	**-2.25****	-0.013	-1.21
-25	-0.016	-1.51	-0.013	-1.51	**+5**	-0.029	**-2.39****	-0.016	-1.34
-24	-0.016	-1.42	-0.014	-1.68*	**+6**	-0.027	**-2.16****	-0.012	-0.99
-23	-0.018	-1.57	-0.014	-1.55	**+7**	-0.020	-1.72*	-0.006	-0.54
-22	-0.018	-1.66*	-0.014	-1.71*	**+8**	-0.021	-1.75*	-0.008	-0.69
-21	-0.020	-1.90*	-0.016	-1.97*	**+9**	-0.019	-1.64	-0.006	-0.50

Note: Stock market reaction from recommendations concerning ethics from the GPFG. Results from using the market model with different event days from -50 to $+9$ for all firms. Average abnormal return is estimated with one day event windows. Similar analogy can be found in MacKinlay (1997, p. 22). * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

level utilising a multifactor market model. Table 8.3 even displays stronger results with the one day event window, compared to the results in the three day event window, when interpreting the multifactor model as a robustness check.

Table 8.3: Results from the one day event window estimation

Event Window (Day 0)	AAR	Test Statistic	Percent Negative	Number of Firms
Panel A: Total Firms				
Local index	-0.021	-2.00**	55	168
Local and Global indices	-0.010	-1.14	51	
Panel B: Total Excluded Firms				
Local index	-0.024	-2.02**	55	147
Local and Global indices	-0.010	-1.02	49	
Panel C: Total Observed				
Local index	0.00	0.00	52	21
Local and Global indices	-0.010	-0.75	67	
Panel D: Total The Council on Ethics				
Local index	-0.037	-2.24**	54	92
Local and Global indices	-0.022	-1.55	57	
Panel E: Total The Coal Criterion				
Local index	-0.003	-0.24	55	76
Local and Global indices	0.004	0.42	45	
Panel F: The Council on Ethics, only excluded				
Local index	-0.040	-2.26**	54	83
Local and Global indices	-0.022	-1.37	54	
Panel G: The Council on Ethics, only observed				
Local index	-0.001	-0.03	56	9
Local and Global indices	-0.028	-1.41	78	
Panel H: The Coal Criterion, only excluded				
Local index	-0.004	-0.24	56	64
Local and Global indices	0.004	0.38	42	
Panel I: The Council on Ethics, only excluded by conduct				
Local index	-0.097	-3.29***	75	40
Local and Global indices	-0.056	-2.09**	70	
Panel J: The Council on Ethics, only excluded by product				
Local index	0.012	0.67	35	43
Local and Global indices	0.010	0.61	40	

Note: Stock market reaction from recommendations concerning ethics from the GPFG. Results from using the market model with a 250 days estimation window, and a one day event window. The average abnormal return (AAR) is reported, since we now only have one event day. The interpretation is similar to the daily average CAAR. * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

Seven Day Event Window

The seven day event window, from 2 days prior to the event date, until 5 days posterior, controls for potential delays in the market. We know from Table 8.2 above, that we have significant abnormal returns until 6 days after the event date. This indicates that we will find a stronger negative effect in an event window containing most of these days.

As expected, the effect is more statistically significant for the seven day event window compared to the three day event window, with a significance level at 5% for all firms. Again, all of the portfolios have the same tendency as our benchmark event window, with high significance levels, especially firms excluded by the conduct criterion.[12]

Referring to the efficient market hypothesis in Section 4.1, the results in this section indicate that the market has some delays in how the prices reflect the announcements. The market does not react immediately, but uses a few days to incorporate the information.

Other Event Windows

There are almost endless of opportunities for different event windows, which can help explain how the market reacts on these ethical recommendations. For instance, it could be interesting to analyse at what time range there no longer are significant abnormal returns. When using an event window from -1 until 10 trading days after the event, meaning two weeks, the general results seem to hold, however with lower significance.[13]

Another noteworthy event window is -40 trading days, meaning two months prior to the event, until $+1$ and $+5$ trading days posterior to the event. These windows include the time period before, which is when the Fund divests, and the days after the event. This tests if the entire period provides significant abnormal returns. The results from both windows illustrate the same tendency as before.[14]

In both estimations, the portfolio with only observed firms has significant negative abnormal returns at the 1% level, which is surprising. However, this result follows the same tendency that the observation portfolios in providing conflicting results. Therefore, we need to be careful in drawing conclusions about the announcement effect on these firms.

[12]The complete results are reported in Table A.4 in the Appendix, with the same structure as both Table 8.1 and 8.3.

[13]These results are reported in Table A.5 in the Appendix, with the same structure as both Table 8.1 and 8.3.

[14]These results are reported in Table A.6 and Table A.7 in the Appendix. These do also follow the same structure as the other tables.

8.2.2 Various Estimation Windows

As stated in Section 6.2.2, different estimation windows can influence the results. Until now, all the estimations in this thesis are done with a 250 day long estimation window, consisting of days before the event date. We therefore estimate the market model with different estimation windows to see if this can influence the results. We only report results for the benchmark event window of three days, since all other event windows give similar results when estimated.

First, we test whether or not our results change when we exclude the days between -40 to -2, meaning two months prior to the event day. By doing this, we use an estimation window from day -250 to -41. As seen in Section 2.2, this is the period when the Fund divests from the firms, which could distort the results.

Using this estimation window provide similar results as the benchmark estimation. However, when we look at the portfolio with only firms excluded or observed by the Council, there is now a significance level at 5% for the abnormal return estimated with the multifactor market model. For the firms excluded under the conduct criterion, the effect is similar. Another interesting result, is that the abnormal return in the total observed sample now becomes significantly negative. Thus, it follows the same conflicting results of samples containing only observed firms.[15]

In the estimation with the one day event window, we found significance around -40 trading days and -20 days prior to the event date. In order to investigate whether the estimations are affected by the benchmark estimation window that includes the days around -40 days prior to the event, we also run a regression with an estimation window from -250 to -21. However, the results are now even more similar to our main model, with some decreased significance level for the sample with firms excluded or observed by the Council.[16]

Another specification test is to employ different lengths of the estimation window. We do this by regressing models with 50, 100, 150, and 200 days shorter estimation windows. We estimate the abnormal return both excluding, and including, the days from the divestment period, as described above in this section.

The abnormal returns illustrate the same trend as before, but the value and the significance levels are reduced with shorter estimation windows.[17] However, as we mentioned in Section 7.2,

[15] These results are reported in Table A.8 in the Appendix. It follows the same structure as the other tables.
[16] These results are reported in Table A.9 in the Appendix. It follows the same structure as the other tables.
[17] We do only report the results from the 100 days shorter estimation window, not excluding the days -2 to -43,

models with short estimation windows may be prone to serial correlation, which will distort the results. Also, in multi-country event studies such as this, it is likely that the estimation window contains country specific events that may lead to unusual market movements. Employing a long estimation window can reduce the impact of these type of events, because the impact on the estimation will be smaller (Park, 2004, p. 660). Therefore, we have reason to believe that our benchmark estimation with a 250 day estimation window, gives more convincing results.

Overall, the results from different event and estimation windows are similar as to the results from our benchmark estimation in Section 8.1. For most of the firms, the abnormal returns are significant at the same levels. Since our results are not sensitive to different event and estimation windows, the results hold for several specifications. However, the results also indicate that we need to assess and use our results from our benchmark model in a critical way. Some panels, especially the samples containing firms under observation, show highly conflicting results. Thus, the results from these samples should be used with caution. Nonetheless, the panels with all firms, excluded firms, excluded firms only by the Council and excluded firms under the conduct criterion, are consistent across all the different windows.

since all the different estimation window provide similar results. These results are reported in Table A.10 in the Appendix. It follows the same structure as the other tables.

9. Robustness and Summary

In this chapter we perform different robustness checks, in order to check the consistency of the results in Chapter 8. Some of the checks are performed on the entire sample, however, most of them are only done on the sample of firms excluded under the conduct criterion. This is where we find the highest significance levels, and thus, the most reliant effects. Hence, it should be analysed further.

9.1 Different Robustness Checks

9.1.1 Placebo Tests

One way to directly address the issue of event study properties, is to perform a placebo test. This test check whether the model predicts significant abnormal returns around dates, which to our knowledge, have no common events for all firms. We do this by applying two different event windows, where the event window does not include the actual announcement day. Similar to the benchmark estimation in Section 8.1, we will use a three day long event window. We randomly selected these to be day 100 to 102 and day 200 to 202, posterior to the actual event date.

For both tests, we use a 250 day estimation window, similar to the benchmark estimation. However, the first placebo test will imply that the actual announcement date from the Council and the divestment period by the Fund, occur in the estimation window. In order to control for a possible biased estimation window, we estimate this placebo test with and without day -40 to -2 prior to the actual event date. The results from both estimations were nearly identical. Thus, Table 9.1 only reports the results for the whole period, meaning day -51 to 199, which does not exclude any days.

Table 9.1 reports results for both placebo tests. Similar as before, we report the daily average CAAR and the test statistics for all the different portfolios, in Panel A to J. Interestingly, we do not find any effects in the samples where we previously estimated significant results. Also, the results do not point in any directions, but are both positive and negative. Again, the total observed portfolio, Panel C, shows conflicting results compared to earlier estimations. The abnormal returns for the coal portfolio are significant at the 10% level, which could be due to a

Table 9.1: Results from placebo tests

	Event Window (100, 101, 102) Estimation Window [-151,+99]		Event Window (200, 201, 202) Estimation Window [-51,+199]	
	Daily Average CAAR	**Test Statistic**	**Daily Average CAAR**	**Test Statistic**
Panel A: Total Firms (168 firms)				
Local index	-0.015	-1.55	-0.005	-0.63
Local and Global indices	-0.009	-1.23	-0.004	-0.66
Panel B: Total Excluded Firms (147 firms)				
Local index	-0.016	-1.50	0	0
Local and Global indices	-0.011	-1.26	-0.001	-0.07
Panel C: Total Observed (21 firms)				
Local index	-0.004	-0.64	-0.038	-2.65**
Local and Global indicies	0.001	0.18	-0.032	-2.12**
Panel D: Total The Council on Ethics (92 firms)				
Local index	-0.017	-1.20	0.003	0.27
Local and Global indicies	-0.008	-0.79	0.004	0.44
Panel E: Total the Coal Criterion (76 firms)				
Local index	-0.013	-0.98	-0.014	-1.30
Local and Global indicies	-0.109	-0.96	-0.015	-1.80*
Panel F: The Council on Ethics, only excluded (83 firms)				
Local index	-0.018	-1.19	0.004	0.37
Local and Global indicies	-0.010	-0.89	0.005	0.49
Panel G: The Council on Ethics, only observed (9 firms)				
Local index	-0.001	-0.14	-0.012	-0.99
Local and Global indices	0.010	1.45	-0.004	-0.27
Panel H: The Coal Criterion, only excluded (64 firms)				
Local index	-0.014	-0.91	-0.006	-0.50
Local and Global indicies	-0.012	-0.89	-0.008	-0.92
Panel I: The Council on Ethics. only excluded by conduct (40 firms)				
Local index	-0.020	-0.79	0.023	1.28
Local and Global indicies	-0.001	-0.05	0.018	1.03
Panel J: The Council on Ethics, only excluded by product (43 firms)				
Local index	-0.016	-0.92	-0.013	-0.90
Local and Global indicies	-0.018	-1.25	-0.006	-0.45

Note: Placebo tests with event windows 100 days and 200 days posterior to the actual event. Calculating stock market reaction from recommendations concerning ethics from the GPFG. Results from using the market model with a estimation window from -151 until $+99$ and -51 until 199, and by using a three day event window (100 to 102 and 200 to 202). All days are numbered from the actual announcement date. The cumulative abnormal average return (CAAR) is divided by the number of days in the event window. * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

sector specific event. However, this does not seem to influence the overall results.

The placebo test makes it likely to assume that the probability of making a Type 1 error, meaning rejecting the null hypothesis when it is in fact true, is small in our study (Kothari & Warner, 2007, p. 13). The placebo tests support our findings in Chapter 8. This is because our model does not predict significant abnormal returns around dates, where we do not have information about a common event for the firms.

9.1.2 Jackknife

Jackknife is a simple resampling method used for bias correction, described as a "rough and ready" method by Cameron & Trivedi (2005, p. 374-375). The jackknife can tell us if one or a few of the firms alone, drive the significance for the negative abnormal returns. The method consists of removing one firm at the time, thus $N - 1$, where N is the total number of firms, when estimating the model.

Similar as before in the benchmark estimation, we use the market model with a three day event window and a 250 day estimation window. However, we will only perform this test on the conduct sample, Panel I in the previous tables, because this is where we find the most negative significant abnormal returns. If one firm alone drives the significance for this sample, it is likely that it drives the effect for all firms as well. Therefore, we perform this test to make sure that this is not the case. The conduct sample firms, as described in Section 2.1.1, are excluded based on criteria such as human rights violations or gross corruption.

Table 9.2 reports the different daily average CAARs and test statistics. First, this is done for all firms, then for estimations excluding the firm noted in the first column. The abnormal returns are quite consistent through all estimations and are always significant at the 1% level. The negative abnormal returns vary between around 8% to 10%, which illustrates that the model is sensitive to changes, but still consistent throughout the portfolio. We stress again that the sign of the abnormal return is more important than interpreting the value itself.

When we drop one firm at a time, this could lead to more variation in the estimator (Cameron & Trivedi, 2005, p. 375). However, it seems that this does not affect the significance in our estimations, since all of them are significant at the 1% level. Thus, we can look past this issue.

Table 9.2: Results from the Jackknife resampling method

Firm removed	Daily Average CAAR	Test Statistic
No firm removed	**-0.091**	**-3.18*****
Africa Israel Investments Ltd	-0.080	-2.96***
Samling Global Ltd	-0.091	-3.10***
Atal SA/Poland	-0.092	-3.13***
Barrick Gold Corp	-0.101	-3.63***
Cairn Energy Plc	-0.098	-3.42***
DRD Gold Limited	-0.092	-3.14***
Posco Daewoo Corp	-0.085	-2.96***
Danya Cebus Ltd	-0.090	-3.06***
Dongfeng Motor Group Co. Ltd	-0.101	-3.66***
Duke Energy Corp	-0.094	-3.20***
Elbit Systems ltd	-0.093	-3.20***
Evergreen Marine Corp Taiwan ltd	-0.092	-3.13***
FMC Corp	-0.095	-3.28***
Freeport-McMoRan Inc	-0.093	-3.19***
Genting Bhd	-0.093	-3.17***
IJM Corp. Bhd	-0.092	-3.12***
Korea Line Corp	-0.090	-3.07***
Kosmos Energy Ltd	-0.091	-3.11***
Lingui Developments Berhad	-0.096	-3.31***
Monsanto Co	-0.088	-3.03***
Norilsk Nickel	-0.092	-3.12***
Posco	-0.084	-2.95***
Potash Corp. of Saskatchewan	-0.090	-3.07***
Precious Shipping PLC	-0.092	-3.13***
Reliance Industries	-0.092	-3.12***
Repsol YPF / Repsol S.A	-0.093	-3.18***
Rio Tinto Ltd	-0.089	-3.04***
Rio Tinto Plc	-0.088	-3.01***
San Leon Energy Plc	-0.083	-2.95***
Vedanta Limited	-0.094	-3.24***
Shikun & Binui Ltd	-0.093	-3.19***
Ta Ann Holdings Berhad	-0.093	-3.18***
Thoresen Thai Agencies plc	-0.092	-3.12***
Vedanta Resources plc	-0.087	-2.99***
Volcan Compañia Minera SA	-0.092	-3.14***
WTK Holdings Berhad	-0.096	-3.30***
Walmart Inc	-0.094	-3.20***
ZTE Corp	-0.090	-3.07***
Zijin Mining Group Co. Ltd	-0.087	-3.00***
Zuari Agro Chemicals Ltd	-0.079	-2.97***

Note: Stock market reactions from recommendations concerning exclusions by the conduct criterion. Results from using the market model with a 250 day estimation window and a three day event window. The cumulative abnormal average return (CAAR) is divided on the number of days in the event window. Estimations done with $N-1$ for firms excluded by the conduct criterion, using our benchmark model. *** indicates significance at the 1% level.

As indicated above, we can be confident that no firm from the conduct Portfolio alone drives the conduct sample effect, neither the effect for all firms. Thus, the Jackknife exercise also supports our results from Chapter 8, since no firm alone can be said to drive the effect.

9.1.3 The Sign Test

The sign test offers another way to check the robustness of our results. It will serve as a test to check for false inference, from event-induced variance and event day clustering, as explained in Section 7.2. Under the null hypothesis in event studies, it is equally likely that the abnormal returns will be positive or negative. We use the sign test to check the significance that more than half of the firms in our portfolios have negative abnormal returns in the event window (MacKinlay, 1997, p. 32). For most of our portfolios, more than half of the firms have negative abnormal returns, but the question is really whether we can state if this is significant or not. The null hypothesis is that half or more of the abnormal returns are positive,

$$H_0 : P \geqslant 0.5$$

and the alternative hypothesis is that less than half of the firms have positive abnormal returns,

$$H_A : P < 0.5$$

where P is between 0 and 1, giving the percentage of positive abnormal returns. Note that we are now performing a one-sided test, not a two tailed test as we have done for all inference tests above. There are no specific assumptions about the distribution of returns in the sign test approach (MacKinlay, 1997, p. 32).

To find the test statistic we need the total number of firms in the sample, N, and the number of firms with negative abnormal returns, $N^{\div}$. The test statistic is given

$$\theta = \left[\frac{N^{\div}}{N} - 0.5 \right] \frac{\sqrt{N}}{0.5} \tag{9.1}$$

Table 9.3 reports the results from the sign test.[18] The test is performed on the results from Table 8.1 and 8.3. We report the results from the sign test on the three day and the one day event windows. For both windows, the percentage of firms with negative abnormal returns and

[18]The critical values for the sign tests can be found in Johnson & Kuby (2007, p. 824)

Table 9.3: Results from the sign test

	Event Window (-1, 0, 1)		Event Window (0)	
	Percent Negative	**Sign test Statistic**	**Percent Negative**	**Sign test Statistic**
Panel A: Total Firms (168 firms)				
Local index	56	1.55*	55	1.30*
Local and Global indices	51	0.26	51	0.26
Panel B: Total Excluded Firms (147 firms)				
Local index	55	1.21	55	1.21
Local and Global indices	48	0.49	49	-0.24
Panel C: Total Observed (21 firms)				
Local index	62	1.10	52	0.18
Local and Global indices	71	1.92**	67	1.56*
Panel D: Total The Council on Ethics (92 firms)				
Local index	55	0.96	54	0.77
Local and Global indices	53	0.58	57	1.34*
Panel E: Total the Coal Criterion (76 firms)				
Local index	57	1.22	55	0.87
Local and Global indices	-	-	-	-
Panel F: The Council on Ethics, only excluded (83 firms)				
Local index	54	0.73	54	0.73
Local and Global indices	51	0.18	54	0.73
Panel H: The Coal Criterion, only excluded (64 firms)				
Local index	56	0.96	56	0.96
Local and Global indices	45	-0.80	-	-
Panel I: The Council on Ethics. only excluded by conduct (40 firms)				
Local index	75	3.16***	75	3.16***
Local and Global indices	67	2.15**	70	2.53***

Note: Using the results on the daily average CAARs from Table 8.1 and 8.3, we perform the sign test, as equation 9.1, for all portfolios, besides the samples containing positive daily abnormal returns, since our one sided tail test would not be feasible (indicated by -). Sample J had positive daily abnormal returns for all estimations, and are taken out. Sample G is taken out because of too few negative firms to be able to prove significance. * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

the sign test statistic are reported. We report the results for all previous panels, except for Panel G and J, since these portfolios did not have the requirements to perform the sign test.

The results for total firms, Panel A, are still significant, which means that more than half of the firms have negative abnormal returns. Hence, our main result from Chapter 8 still holds. However, the sign test distorts the results on the portfolios with total excluded firms, Panel B,

total firms recommended by the Council, Panel D, and only excluded firms by the Council, Panel F, compared to the results in Chapter 8. Earlier we had significant abnormal returns for all these samples, but now we cannot reject the null. Therefore, we cannot state that more than half of the firms have negative abnormal returns for these portfolios.

Again, we find the highest significance levels in Panel I, the conduct sample, which is consistent with our results from Chapter 8. Almost all of the estimations in Panel I, both with the local and the multimarket model, are significant at the 1% level. By looking at the multivariate model as a robustness check, the results hold.

We observe that the test is primarily driven by the percentage of firms with negative abnormal returns, combined with the number of firms in each portfolio. For example, Panel B and D have one percentage point less firms with negative abnormal returns compared with Panel A, but keeps the null hypothesis. When the number of firms in the portfolio gets lower, the percentage of firms with negative abnormal returns needs to be higher.

More importantly it is necessary to recognise the weakness of the test, when the distribution of abnormal return is skewed (MacKinlay, 1997, p. 32). We know from Figure 3 in Section 7.1, that our sample has some skewness. Because of this, the test may not be well specified. However, since this skewness is not essential, the sign test does provide some useful insights.[19]

As in the previous robustness checks, the main message from Chapter 8 still holds. However, some samples do not pass this robustness check, which indicates that we need to be careful in drawing definite conclusions based on these samples.

9.1.4 Matching Pairs

Matching pairs is a common control design in event studies. It consists of matching each target firm to a control firm (Guidolin & La Ferrara, 2007, p. 1989), and comparing the stock prices around the time of the event. When doing this, it is possible to check if the event has significantly different impact on the abnormal returns, for the matched firm. Our study could be interpreted as a natural experiment, where we have one treatment group that is affected by the event and a control group that is not affected by the event (Wooldridge, 2013, p. 441). In our study, the treatment group is the excluded firms. We assume that the firms in both groups,

[19] A possible solution to this problem, is to use an approach developed by Corrado (1989), the non parametic rank test.

without treatment, would have an equal trend.

We only apply this robustness check to the portfolio consisting of firms excluded under the conduct criterion, because this is where we find the highest significant abnormal returns. For each of these 40 firms, we select a matched control firm. We will use the same two criteria behind the matching, as Guidolin & La Ferrara (2007, p. 1990). First, the control firms have to be listed on the same stock exchange, which will net out the effect of the market index. Second, the firms need to be of similar size, measured by total assets in US dollars.

We are extracting our data from Datastream, and use the same variables, stock price, local index and global index as described in Chapter 5. A list of the matched pairs and their characteristics can be found in Table A.3 in the Appendix. We use the same market model to calculate the abnormal return for the control firms, using our benchmark event window of three days and one day, and estimation window with 250 days.

First, we estimate the abnormal returns for the control firms and find the difference between their abnormal return, and the firms in the conduct sample. When we apply the market model with the local market index, we find that 28 of the 40 firms have negative difference. This means that in 28 cases, the abnormal return of the excluded firm is more negative than for the control firm.

To test if the results are significant, we apply the Wilcoxon signed-rank test. This way we test if the difference in abnormal returns is significantly negative. The null hypothesis is that the cumulative abnormal returns (CAR) for the control firm minus the CAR for the conduct sample firm is equal to zero. This is similar to state that we test the null of equal CARs,

$$H_0 : CAR_{Excluded} = CAR_{Control}$$

against the alternative hypothesis that the CAR of the excluded firm is more negative than the CAR of the control firm. The test is done by ranking, from smallest to largest difference, the abnormal returns before testing if the difference is significantly different from zero.

The test results are reported in Table 9.4. We report the number of pairs with positive and negative difference, which are 40 in total. This is done for both event windows, for both models, constructed by the local index alone or together with the global index.

For the simplest market model, we reject the null hypothesis at the 1% significance level for both event windows. When we apply both indices, we can only marginally reject the null at

Table 9.4: Matching pairs results

Only Using the Local Index		
Event Window	**(-1, 0, +1)**	**(0)**
Positive	12	12
Negative	28	28
Total	40	40
Z-Score	-2.917***	-3.038***
Prob>|Z|	0.004	0.002
Using both Indices		
Event Window	**(-1, 0, +1)**	**(0)**
Positve	14	13
Negative	26	27
Total	40	40
Z-Score	-1.626*	-1.761*
Prob>|Z|	0.10	0.08

Note: Results from the matching pair analysis, using the Wilcoxon signed-rank test. We test the null hypotheses that the abnormal returns for each of the conduct sample firms have identical abnormal returns as the control sample firms, against the alternative, that the abnormal returns are not identical. * indicates significance at the 10% level, and *** indicates significance at the 1% level or less.

10% significance for both windows.

We also performed a mean paired comparison t-test in the statistical software Stata, with the same null hypothesis as before. This is to test the equality of the means directly. It takes the actual difference between the firms abnormal returns between the two groups, and utilise the size of the difference relatively more compared to the Wilcoxon signed-rank test. However, when performing the test, we get nearly the exact same results at the same significance levels as in Table 9.4. This indicates that the Wilcoxon signed rank test is well specified.

The results from the matched pair robustness check support our initial results from Chapter 8, as well as the other robustness checks above. The matching pairs test indicates that the abnormal returns for these firms are significantly more negative than for similar firms, around the exact same dates. Further, the abnormal returns around the announcement for the firms excluded under the conduct criteria can be said to have a significant negative tendency.

9.2 Summary of Results and Robustness

The results from Chapter 8 gave us significant negative abnormal returns around the announcement date of the recommendations by the Fund. By splitting the total sample into different portfolios before running the regression, we were able to identify that the firms excluded under the conduct criteria had the most significant negative abnormal returns. These are firms that violate the ethical guidelines concerning serious violations of human rights, severe environmental damage, serious violations of individuals' rights in situations of war or conflict, gross corruption, or other particularly serious violations of fundamental ethical norms. The firms where we find less negative abnormal returns are those firms that directly violate the guidelines through their product. These firms engage in tobacco production, sale of military equipment to certain states, anti personnel landmines, nuclear weapons and cluster munitions. Similarly we do not find any significant results in the coal portfolio. Further, we have performed robustness checks to find out if our data could be suffering from factors that make inference testing difficult, which we discussed in Chapter 7. We especially investigated the portfolio containing firms excluded under the conduct criteria. The checks reinforce that the initial results hold and that our data should not be suffering from neither heteroskedasticity, serial correlation, event induced variance or event day clustering. It should also be pointed out that we can be quite confident that the conduct portfolio does not suffer from event date clustering because most of the event dates are different for the firms and includes firms listed on many different stock markets.

However, it should be noted that we cannot exclude the possibility that our model estimates the abnormal returns wrongly, as mentioned in Section 4.1. Despite this, MacKinlay (1997) describes the market model as well specified for this purpose, and its also used by Dewenter et al. (2010) and Kotter & Lel (2011). Thus, we should remain quite confident that our results hold, since they generally pass all robustness tests, and are consistent throughout several windows.

The overall findings show that there could be a negative effect in the returns for firms publicly announced by the GPFG. The effect is highest for firms recommended excluded by the Council, and especially for the firms excluded under the conduct criterion. The robustness checks confirm that our results hold and that our model seems to be well specified for its purpose.

10. Conclusion and Discussion

This thesis demonstrates, for the first time, empirical evidence of a negative tendency in abnormal returns due to divestment from a non economic perspective by the Government Pension Fund Global (GPFG). More specifically, it demonstrates that public recommendations concerning ethics, from the GPFG provide significant negative abnormal returns for the firms concerned. Using the event study method with the market model, and the portfolio approach on a self constructed data set, we identify that the negative effect is driven by the firms that the Council on Ethics recommend to exclude, and more specifically, firms excluded under the conduct criterion. Further, these results pass several robustness checks, and hold for several event and estimation windows. The results are especially strong when studying the sample containing firms excluded under the conduct criterion. This sample passes almost all the specification and robustness checks.

These findings differ from the studies by Dewenter et al. (2010) and Beck & Fidora (2008), who have also assessed divestments by the Fund. However, both of these studies had a relatively small data set, and were not able to conduct a portfolio approach. Nevertheless, Dewenter et al. (2010, p. 265) did find significant negative abnormal returns, for their non-Norway divestment sample. Our estimations on the Funds divestment are very similar to these estimations when we use the local index only. This may indicate that their conclusion about the Fund is subject to data limitations. When looking at the average effect for all firms in our larger data set, we find a similar effect as Dewenter et al. (2010) find for their divestment sample excluding observations from the GPFG.

The results illustrate several important aspects. First, divestment by sovereign wealth funds in a non economic perspective can lead to a decrease in the value of affected firms. Market agents seem to be influenced by Sovereign Wealth Fund's (SWF) actions. This can be explained through the theory of asymmetric information. The Council puts great effort into acquiring information about firms, which may lead other market agents to mimic their investment behaviour.

Second, the Fund secures itself from a possible financial loss by divesting from the firms two months prior to the announcement date. This illustrates the objective behind the divestment

framework, which is explicitly designed to avoid possible financial losses (Beck & Fidora, 2008, p. 358). Negative abnormal returns in this period, can also be explained by asymmetric information. Further, since agents can observe that the Fund divests, they also divest.

Third, our results indicate that it takes some time for the prices to fully reflect the new information from the announcements. This demonstrates that the efficient market hypothesis in its pure form does not hold. However, we do find highest abnormal returns on the specific event day, which tells us that a substantial part of the information is rapidly incorporated into the prices. It also tells us that these announcements can be treated as relevant price information. This is especially true when we consider the abnormal returns in the divestment period, before the announcement, which could indicate that market actors in fact are observing the Fund's actions closely.

Fourth, our results can be used as an example of how ethics can influence economic agents. It could either be from a market perspective, where agents perceive the information as the firms' likelihood of future violations that impact their valuation, or from a purely ethical perspective, where market agents react out from conscience. Agents could feel compassion towards undoing against others than themselves and sacrifice their own self-interest.

The explanations above can also demonstrate why we find most significance in the conduct portfolio. For example, it might be more costly to acquire information about the firms' conduct than the product itself. Those agents who divest from stocks based on conduct are less likely to acquire this information by themselves. Hence, asymmetric information can be more eminent.

Further research that can be done in this particular area are mainly cross sectional tests of the abnormal return and a long horizon analysis of the divested firms. The former, cross sectional tests, explore the nature behind the abnormal returns, and is frequently used in event studies (Kothari & Warner, 2007, p. 19). However, because of lack of data and resources, we have not gone further into this. Possible inclusions in these kinds of estimations could be year and industry dummies, or a measure of total asset share that the Fund holds. We have chosen to explore some of the nature behind the abnormal returns with a simpler portfolio approach, which makes the interpretation easier (Kothari & Warner, 2007, p. 19). Also, since we have a relative clean sample, it is not rather straightforward to value the benefits of such an analysis. Other comparable studies have used events by different sovereign wealth funds, which makes it interesting to look at other factors that can explain different reactions from actions by various

sovereign wealth funds.

The latter, a long horizon event study, could explore to a larger degree the long term impact of the divestment. However, these studies are found to generally overestimate abnormal returns, and extreme caution in the conclusions is needed (Kothari & Warner, 1997, p. 301). Nevertheless, insights on how the market treats the information in the long horizon could explain more about their investment nature, and whether the effect is only observable in the short-run, not in a longer period of time. Another kind of a long term analysis which can be made, is looking into specific firms' behaviour, and see if they change their way of production after the Fund has given a public recommendation.

In this thesis we wanted to immerse into possible economic consequences of the Funds ethical guidelines. In particular, we wanted to highlight the extensive work done by the Council on Ethics, a unique institution in SWFs compared globally, and explore if their work also generated market movements. Our event study demonstrates that the Council is not only an institution that secures the Fund's ethical principles, but also an institution that seems to be able to provide market movements.

Our intention has not been to evaluate the Fund's ethical policies as a political tool or the effectiveness of it. Our goal has been to provide a description and highlight the possible impacts that these kinds of policies could carry out in the market. During the establishment of the Council, the policy makers stated that they did not believe the Council to be an effective tool for influencing firms' behaviour (NOU, 2003:22, p. 24). If we assume that firms are keenly interested to remain in the Funds investment universe, our findings might suggest that the Fund's announcements keep firms aware of their ethical practises if they know that their valuation could fall after an exclusion. Thus, the ethical guidelines and the divestment framework for the GPFG could at least be described as an available tool to influence firms' behaviour. Whether it is an effective tool or not, cannot be concluded from this empirical analysis.

One last, yet important remark is that we do find evidence suggesting that ethics influences investors' decisions. Even though we are not aware of the reason *why* investors act on the information, whether it is because they actually care about ethics and moral, or because they believe other agents care, ethics seem to matter. Wood et al. (2017, p. 469) asserts that the GPFG will be important in the SWF ecosystem in the years to come, and we believe that the Council on Ethics will have an essential role in this manner.

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A. Appendix

The Appendix includes extensive information of firm characteristics in Section A.1, and more results on the different event and estimation windows, Section A.2.

A.1 Characteristics of the Firms in the Study

The information about the firms is gathered from Thomson Reuters Datastream, and the yearly reports from the Council on Ethics and Norwegian Banking Investment Management. Table A.1 describes the frequency of firms in different business sectors, for the firms recommended to be excluded or put under observation by the Council on Ethics. We have grouped sectors that are similar.

Table A.2 goes into the specifics of each firm and reports the firm name, announcement date, country, stock market, whether it was recommended excluded or observed, business industry, criterion behind recommendation and the RIC ticker. In the note under each of these tables, there is extra information about firms name changes and a comment if a recommendation has later been repealed.

Table A.3 provides information about the firms used in the matched pairs robustness check. The 40 firms from the conduct sample are matched after two criteria: (1) Both firms are on the same stock market, and (2) they are of a similar size measured in total assets in $\$$ dollars. In the table, we report firm names, announcement date, stock market, business sector, total assets and the RIC ticker for all pairs, 40 in total.

Table A.1: Business sector of target firms

Business Sector	**Frequency**
Aerospace and Defence	18
Automobile	2
Chemicals	4
Construction	6
Cotton Farming	1
Diversified Industrials	1
Diversified Metals and Mining	9
Electricity	2
Engineering Services	1
Financial Services	1
Forest and Wood Products	4
Gold Mining	3
Homebuilding	1
Industrial and Military Technology	1
Industrial Machinery and Equipment Wholesalers	1
Marine	1
Metal Service Centres	1
Oil and Gas	7
Shipping and Ports	4
Supermarkets and Convenience Stores	1
Telecommunications	1
Textiles and Apparel	2
Tobacco	20
Total	**92**

Note: We do only report results for the announcements by the Council on Ethics, since all other firms are under the coal criterion.

Table A.2: Firm characteristics of the total event study sample

Firm	Announcement Date	Country	Stock Market	Excluded	Observed	Industry	Criterion	RIC
Alliant Techsystems Inc	02.09.2005	USA	New York Stock Exchange	1	0	Aerospace & Defense	Cluster munitions/Nuclear weapons	OA.N
EADS Co	02.09.2005	Netherlands	Euronext Paris	1	0	Aerospace & Defense	Cluster munitions/Nuclear weapons	AIR.PA
General Dynamics Corporation	02.09.2005	USA	New York Stock Exchange	1	0	Aerospace & Defense	Cluster munitions	GD.N
L3 Communications Holdings Inc	02.09.2005	USA	New York Stock Exchange	1	0	Aerospace & Defense	Cluster munitions	LLL.N
Lockheed Martin Corp	02.09.2005	USA	New York Stock Exchange	1	0	Aerospace & Defense	Cluster munitions/Nuclear weapons	LMT.N
Raytheon Co	02.09.2005	USA	New York Stock Exchange	1	0	Aerospace & Defense	Cluster munitions	RTN.N
Thales SA	02.09.2005	France	Euronext Paris	1	0	Aerospace & Defense	Cluster munitions	TCFP.PA
BAE Systems Plc	05.01.2006	United Kingdom	London Stock Exchange	1	0	Aerospace & Defense	Nuclear weapons	BAES.L
Boeing Co	05.01.2006	USA	New York Stock Exchange	1	0	Aerospace & Defense	Nuclear weapons	BA.N
Finmeccanica Sp.A	05.01.2006	Italy	Milan Stock Exchange	1	0	Aerospace & Defense	Nuclear weapons	LDOF.MI
Honeywell International Inc	05.01.2006	USA	New York Stock Exchange	1	0	Aerospace & Defense	Nuclear weapons	HON.N
Northrop Grumman Corp.	05.01.2006	USA	New York Stock Exchange	1	0	Aerospace & Defense	Nuclear weapons	NOC.N
Safran SA	05.01.2006	France	Euronext Paris	1	0	Aerospace & Defense	Nuclear weapons	SAF.PA
United Technologies Corp	05.01.2006	USA	New York Stock Exchange	1	0	Aerospace & Defense	Nuclear weapons	UTX.N
Freeport McMoRan Copper & Gold Inc	06.06.2006	USA	New York Stock Exchange	1	0	Diversified Mining	Severe Environmental damage	FCX.N
Wal-Mart Stores Inc.	06.06.2006	USA	New York Stock Exchange	1	0	Convenience Stores	Serious violations of Human rights	WMT.N
DRD Gold Limited	04.11.2007	South-Africa	Johannesburg Stock Exchange	1	0	Gold Mining	Severe Environmental damage	DRDJ.J
GenCorp Inc	11.01.2008	USA	New York Stock Exchange	1	0	Aerospace & Defense	Nuclear weapons	AJRD.N
Hanwha Corp	11.01.2008	South-Korea	Korea Exhcange	1	0	Chemicals	Cluster munitions	000880.KS
Rheinmetall AG	11.01.2008	Germany	Xetra	1	0	Industrial & Military Technology	Nuclear weapons	RHMG.DE
Serco Group Plc	11.01.2008	United Kingdom	London Stock Exchange	1	0	Chemicals	Nuclear weapons	SRP.L
Monsanto Co	09.09.2008	USA	New York Stock Exchange	1	0	Cotton Farming	Serious violations of Human rights	MON.N
Rio Tinto Ltd.	09.09.2008	Australia	Australien Stock Exchange	1	0	Diversified Mining	Severe Environmental damage	RIO.AX
Rio Tinto Plc.	09.09.2008	United Kingdom	London Stock Exchange	1	0	Diversified Mining	Severe Environmental damage	RIO.L
Barrick Gold Corp	30.01.2009	Canada	The Toronto Stock exchange	1	0	Gold Mining	Severe Environmental damage	ABX.TO
Textron Inc	30.01.2009	USA	New York Stock Exchange	1	0	Aerospace & Defense	Cluster munitions	TXT.N
Dongfeng Motor Group Co. Ltd.	01.03.2009	China	The Stock Exchange of Hong Kong Ltd	1	0	Automobiles	Sale of military equipment	0489.HK
Siemens AG	13.03.2009	Germany	Xetra	0	1	Diversified Industrials	Gross Corruption	SIEGn.DE
Elbit Systems ltd.	03.09.2009	Israel	Tel Aviv Stock Exchange	1	0	Aerospace & Defense	Violation of ethical norms	ESLT.TA
Norilsk Nickel	19.11.2009	Russia	Moscow Interbank Currency Exchange	1	0	Diversified Mining	Severe Environmental damage	GMKN.MM
Alliance One International Inc	19.01.2010	USA	New York Stock Exchange	1	0	Tobacco	Tobacco Production	AOI.N
Altria Group Inc	19.01.2010	USA	New York Stock Exchange	1	0	Tobacco	Tobacco Production	MO.N
British American Tobacco BHD	19.01.2010	Malaysia	Bursa Malaysia	1	0	Tobacco	Tobacco Production	BATO.KL
British American Tobacco plc.	19.01.2010	United Kingdom	London Stock Exchange	1	0	Tobacco	Tobacco Production	BATS.L
Gudang Garam tbk pt.	19.01.2010	Indonesia	Indonesia Stock Exchange	1	0	Tobacco	Tobacco Production	GGRM.JK
Imperial Tobacco Group plc.	19.01.2010	United Kingdom	London Stock Exchange	1	0	Tobacco	Tobacco Production	IMB.L
ITC Ltd.	19.01.2010	India	National Stock Exchange of India	1	0	Tobacco	Tobacco Production	ITC.NS
Japan Tobacco Inc.	19.01.2010	Japan	Tokyo Stock Exchange	1	0	Tobacco	Tobacco Production	2914.T
KT&G Corp.	19.01.2010	South-Korea	Korea Exhcange	1	0	Tobacco	Tobacco Production	033780.KS
Lorillard Inc	19.01.2010	USA	New York Stock Exchange	1	0	Tobacco	Tobacco Production	LO.NF̂15
Philip Morris CR AS	19.01.2010	Czech Republic	PSA CASH MARKET L1 and L2	1	0	Tobacco	Tobacco Production	TABK.PR

Note: Some comments about the firms follows; Alliant Techsystems Inc has changed name to Orbital ATK INC and the recommendation repealed in 2013. EADS Co has changed name to Airbus SE and recommendation repealed in 2006. L3 Communications Holdings Inc has changed name to L3 Technologies Inc and the recommendation repealed in 2010. In 2013, the criterion on which Lockheed Martin Corp was excluded on from cluster monitions, to key components of nuclear weapons. Exclusion of Raytheon CO was repealed in 2016. Exclusion of Thales SA was repealed in 2009. Exclusion of BAE Systems Plc was repealed in 2012, but excluded again 16.01.2018. Finmeccanica Sp.A change name to Leonardo SpA. The recommendation was repealed in 2012, but put on the observation list again 05.05.2017. Exclusion of United Technologies Corp was repealed in 2009. Freeport McMoRan Copper & Gold Inc changed name to Freeport-McMoRan Inc. Exclusion of DRD Gold Limited was repealed in 2009. GenCorp Inc change name to Aerojet Rocketdyne Holdings Inc. Recommendation of Rheinmetall AG was repealed the same day as the announcement date. The recommendation for Monsanto Co was not followed by the Fund. The Recommendation of Dongfeng Motor Group Co Ltd was repealed in 2014. The recommendation for Siemens AG was repealed in 2012. Imperial Tobacco Group plc changed name to Imperial Brands plc.

Firm	Announcement Date	Country	Stock Market	Excluded	Observed	Industry	Criterion	RIC
Philip Morris Int. Inc.	19.01.2010	USA	New York Stock Exchange	1	0	Tobacco	Tobacco Production	PM.N
Reynolds American Inc	19.01.2010	USA	New York Stock Exchange	1	0	Tobacco	Tobacco Production	RAIĜ17
Swedish Match AB	19.01.2010	Sweden	OMX Nordic Exchange Stockholm AB	1	0	Tobacco	Tobacco Production	SWMA.ST
Universal Corp VA	19.01.2010	USA	New York Stock Exchange	1	0	Tobacco	Tobacco Production	UVV.N
Vector Group Ltd.	19.01.2010	USA	New York Stock Exchange	1	0	Tobacco	Tobacco Production	VGR.N
Samling Global Ltd.	23.08.2010	Malaysia	The Stock Exchange of Hong Kong Ltd	1	0	Forest	Severe Environmental damage	3938.HKF̂12
Africa Israel Investments Ltd .	22.09.2010	Israel	Tel Aviv Stock Exchange	1	0	Financial Services	Violations of individuals' rights	AFIL01.TA
Danya Cebus Ltd	22.09.2010	Israel	Tel Aviv Stock Exchange	1	0	Construction	Violations of individuals' rights	DNYA.TAĜ15
Lingui Developments Berhad	16.02.2011	Malaysia	Bursa Malaysia	1	0	Forest	Severe Environmental damage	LGDS.KLĈ13
Shanghai Industrial Holdings Ltd.	15.03.2011	China	The Stock Exchange of Hong Kong Ltd	1	0	Tobacco	Tobacco Production	0363.HK
Grupo Carso SAB CV	24.08.2011	Mexico	Bolsa Mexicana de Valores S.A de C.V	1	0	Tobacco	Tobacco Production	GCARSOA1.MX
Alstom SA	06.12.2011	France	Euronext Paris	0	1	Engineering Services	Gross corruption	ALSO.PA
FMC Corp	06.12.2011	USA	New York Stock Exchange	1	0	Diversified Chemicals	Violation of ethical norms	FMC.N
Potash Corp. of Saskatchewan	06.12.2011	Canada	Toronto stock exchange	1	0	Mining	Violation of ethical norms	POT.TOÂ18
Shikun & Binui Ltd.	15.06.2012	Israel	Tel Aviv Stock Exchange	1	0	Construction & Housing	Violations of individuals' rights	SKBN.TA
Jacobs Engineering Group Inc.	11.01.2013	USA	New York Stock Exchange	1	0	Construction & Engineering	Nuclear weapons	JEC.N
Huabao Intl. Holdings Ltd.	08.05.2013	China (Hong Kong)	The Stock Exchange of Hong Kong Ltd	1	0	Tobacco	Tobacco Production	0336.HK
Schweitzer-Mauduit Int.	08.05.2013	USA	New York Stock Exchange	1	0	Tobacco	Tobacco Production	SWM.N
Ta Ann Holdings Berhad	14.10.2013	Maylasia	Bursa Malaysia	1	0	Forest & Wood Products	Severe Environmental damage	TAAN.KL
Volcan Compañia Minera SA	14.10.2013	Peru	Bolsa de Valores de Lima S.A.	1	0	Diversified Metals & Mining	Severe Environmental damage	VOLa.LM
WTK Holdings Berhad	14.10.2013	Maylasia	Bursa Malaysia	1	0	Forest & Wood Products	Severe Environmental damage	WTKH.KL
Zijin Mining Group Co. Ltd.	14.10.2013	China	Shanghai Stock Exchange	1	0	Diversified Mining	Severe Environmental damage	601899.SS
Zuari Agro Chemicals Ltd.	14.10.2013	India	National Stock Exchange of India	1	0	Agricultural Chemicals	Serious violations of Human rights	ZUAR.NS
Sesa Sterlite	30.01.2014	India	National Stock Exchange of India	1	0	Diversified Metals & Mining	Severe Environmental damage	VDAN.NS
Vedanta Resources plc	30.01.2014	United Kingdom	London Stock Exchange	1	0	Diversified Metals & Mining	Environmental damage/Human rights	VED.L
Reliance Industries	17.09.2014	India	National Stock Exchange of India	1	0	Oil & Gas Refining & Marketing	Serious violations of Human rights	RELI.NS
Repsol YPF	17.09.2014	Spain	BME Spanish Exchange	1	0	Oil & Gas Refining and Marketing	Serious violations of Human rights	REP.MC
Randgold Resources Ltd.	10.12.2014	Jersey	London Stock Exchange	0	1	Gold Mining	Violations of individuals' rights	RRS.L
Daewoo International Corp	17.08.2015	South-Korea	Korea Exhcange	1	0	Industrial Machinery and Equipment	Severe Environmental damage	047050.KS
Genting Bhd	17.08.2015	Maylasia	Bursa Malaysia	1	0	Electric Power Distribution	Severe Environmental damage	GENT.KL
IJM Corp. Bhd	17.08.2015	Maylasia	Bursa Malaysia	1	0	Construction & Engineering	Severe Environmental damage	IJMS.KL
Posco	17.08.2015	South-Korea	Korea Exhcange	1	0	Metal Service Centers	Severe Environmental damage	005490.KS
PT Astra International Tbk	13.10.2015	Indonesia	Indonesia Stock Exchange	0	1	Automobile Manufacturers	Severe Environmental damage	ASII.JK
ZTE Corp.	07.01.2016	China	Shenzhen Stock Exhange	1	0	Telecommunications	Gross Corruption	000063.SZ
Petroleo Brasileiro SA	28.01.2016	Brasil	BM&F IBOVESPA	0	1	Oil & Gas	Gross Corruption	PETR4.SA,
San Leon Energy Plc	04.03.2016	Ireland	London Stock Exchange	1	0	Oil & Gas Exploration & Production	Violation of ethical norms	SLEN.L
AES Corp/VA	14.04.2016	USA	New York Stock Exchange	1	0	Coal & Mining	Coal	AES.N
Aboitiz Power Corp	4/14/16	Philippines	Phillippines Stock Exchange Inc	1	0	Coal & Mining	Coal	AP.PS
AES Gener SA	14.04.2016	Chile	Bolsa de Comercio de Santiago	1	0	Coal & Mining	Coal	ASG.SN
ALLETE Inc	14.04.2016	USA	New York Stock Exchange	1	0	Coal & Mining	Coal	ALE.N
Ameren Corp	14.04.2016	USA	New York Stock Exchange	1	0	Coal & Mining	Coal	AEE.N

Note: Some comments about the firms follows; Lorillard Inc merged with Reynolds 12.06.2015 Samling Global Ltd is a Maylasian company, but on the Stock Exchange of Hong Kong. The council recommended exclusion of Alstom SA, but the minestry of finance decided to put under observation and the recommendation was repealed in 2015. Recommendation for FMC Corp was Repealed in 2013. Sesa Sterlite changed name to Vedanta Limited. Repsol YPF changed name to Repsol S.A. Daewoo International Corp changed name to Posco Daewoo Corp. Posco is the parent company to Daewoo.

Firm	Announcement Date	Country	Stock Market	Excluded	Observed	Industry	Criterion	RIC
American Electric Power Co Inc	14.04.2016	USA	New York Stock Exchange	1	0	Coal & Mining	Coal	AEP.N
Capital Power Corp	14.04.2016	Canada	The Toronto Stock Exchange	1	0	Coal & Mining	Coal	CPX.TO
CESC Ltd	14.04.2016	India	National Stock of India	1	0	Coal & Mining	Coal	CESC.NS
China Coal Energy Co Ltd	14.04.2016	China	Shanghai Stock Exchange	1	0	Coal & Mining	Coal	601898.SS
China Power International Development Ltd	14.04.2016	China	The Stock Exchange of Hong Kong Ltd	1	0	Coal & Mining	Coal	2380.HK
China Resources Power Holdings Co Ltd	14.04.2016	China	The Stock Exchange of Hong Kong Ltd	1	0	Coal & Mining	Coal	0836.HK
China Shenhua Energy Co Ltd	14.04.2016	China	Shanghai Stock Exchange	1	0	Coal & Mining	Coal	601088.SS
CLP Holdings Ltd	14.04.2016	Hong Kong	The Stock Exchange of Hong Kong	1	0	Coal & Mining	Coal	0002.HK
Coal India Ltd	14.04.2016	India	National Stock of India	1	0	Coal & Mining	Coal	COAL.NS
Datang International Power Generation Co Ltd	14.04.2016	China	Shanghai Stock Exchange	1	0	Coal & Mining	Coal	601991.SS
Drax Group PLC	14.04.2016	United Kingdom	London Stock Exchange	1	0	Coal & Mining	Coal	DRX.L
DTE Energy Co	14.04.2016	USA	New York Stock Exchange	1	0	Coal & Mining	Coal	DTE.N
Dynegy Inc	14.04.2016	USA	New York Stock Exchange	1	0	Coal & Mining	Coal	DYN.N
E.CL SA	14.04.2016	Chile	Bolsa de Comercio de Santiago	1	0	Coal & Mining	Coal	ECL.SN
Exxaro Resources Ltd	14.04.2016	South-Africa	Johannesburg Stock Exchange	1	0	Coal & Mining	Coal	EXXJ.J
FirstEnergy Corp	14.04.2016	USA	New York Stock Exchange	1	0	Coal & Mining	Coal	FE.N
Gujarat Mineral Development Corp Ltd	14.04.2016	India	National Stock of India	1	0	Coal & Mining	Coal	GMDC.NS
Hokkaido Electric Power Co Inc	14.04.2016	Japan	Tokyo Stock Exchange	1	0	Coal & Mining	Coal	9509.T
Huadian Power International Corp Ltd	14.04.2016	China	Shanghai Stock Exchange	1	0	Coal & Mining	Coal	600027.SS
Huaneng Power International Inc	14.04.2016	China	Shanghai Stock Exchange	1	0	Coal & Mining	Coal	600011.SS
IDACORP Inc	14.04.2016	USA	New York Stock Exchange	1	0	Coal & Mining	Coal	IDA.N
Lubelski Wegiel Bogdanka SA	14.04.2016	Polen	Warsawa Stock Exchange	1	0	Coal & Mining	Coal	LWBP.WA
MGE Energy Inc	14.04.2016	USA	NASDAQ Global Selected Consolidated	1	0	Coal & Mining	Coal	MGEE.O
New Hope Corp Ltd	14.04.2016	Australia	Australian Stock Exchange	1	0	Coal & Mining	Coal	NHC.AX
NTPC Ltd	14.04.2016	India	National Stock of India	1	0	Coal & Mining	Coal	NTPC.NS
Okinawa Electric Power Co Inc/The	14.04.2016	Japan	Tokyo Stock Exchange	1	0	Coal & Mining	Coal	9511.T
PNM Resources Inc	14.04.2016	USA	New York Stock Exchange	1	0	Coal & Mining	Coal	PNM.N
Public Power Corp SA	14.04.2016	Greece	Athens Stock Exchange	1	0	Coal & Mining	Coal	DEHr.AT
Reliance Infrastructure Ltd	14.04.2016	India	National Stock of India	1	0	Coal & Mining	Coal	RLIN.NS
Reliance Power Ltd	14.04.2016	India	National Stock of India	1	0	Coal & Mining	Coal	RPOL.NS
Shikoku Electric Power Co Inc	14.04.2016	Japan	Tokyo Stock Exchange	1	0	Coal & Mining	Coal	9507.T
Tata Power Co Ltd	14.04.2016	India	National Stock of India	1	0	Coal & Mining	Coal	TTPW.NS
TransAlta Corp	14.04.2016	Canada	The Toronto Stock Exchange	1	0	Coal & Mining	Coal	TA.TO
WEC Energy Group Inc	14.04.2016	USA	New York Stock Exchange	1	0	Coal & Mining	Coal	WEC.N
Whitehaven Coal Ltd	14.04.2016	Australia	Australian Stock Exchange	1	0	Coal & Mining	Coal	WHC.AX
Xcel Energy Inc	14.04.2016	USA	NASDAQ Global Selected Consolidated	1	0	Coal & Mining	Coal	XEL.O
Yanzhou Coal Mining Co Ltd	14.04.2016	China	Shanghai Stock Exchange	1	0	Coal & Mining	Coal	600188.SS
Cairn Energy Plc.	28.06.2016	Great Britain	London Stock Exchange	1	0	Oil & Gas Exploration & Production	Violation of ethical norms	CNE.L
Kosmos Energy Ltd.	28.06.2016	Bermuda	NYSE Consolidated	1	0	Oil & Gas Exploration & Production	Violation of ethical norms	KOS
Duke Energy Corp.	07.09.2016	USA	New York Stock Exchange	1	0	Electricity	Severe Environmental damage	DUK.N
Alliant Energy Corp	21.12.2016	USA	New York Stock Exchange	1	0	Coal & Mining	Coal	LNT.N
Chugoku Electric Power Co Inc/The	21.12.2016	Japan	Tokyo Stock Exchange	1	0	Coal & Mining	Coal	9504.T
CMS Energy Corp	21.12.2016	USA	New York Stock Exchange	0	1	Coal & Mining	Coal	CMS.N
DMCI Holdings Inc	21.12.2016	Philippines	Phillippines Stock Exchange Inc	1	0	Coal & Mining	Coal	DMC.PS
EDP Energias de Portugal SA	21.12.2016	Portugal	Euronext Lisbon	0	1	Coal & Mining	Coal	EDP.LS
Electric Power Development Co Ltd	21.12.2016	Japan	Tokyo Stock Exchange	1	0	Coal & Mining	Coal	9513.T
Electricity Generating PCL	21.12.2016	Thailand	The Stock Exchange of Thailand	1	0	Coal & Mining	Coal	EGCO.BK
Emera Inc	21.12.2016	Canada	The Toronto Stock Exchange	1	0	Coal & Mining	Coal	EMA.TO
Endesa SA	21.12.2016	Spania	BME Spanish Exchange	0	1	Coal & Mining	Coal	ELE.MC
Glow Energy PCL	21.12.2016	Thailand	The Stock Exchange of Thailand	0	1	Coal & Mining	Coal	GLOW.BK
Great Plains Energy Inc	21.12.2016	USA	New York Stock Exchange	1	0	Coal & Mining	Coal	GXP.N
Guangdong Electric Power Development Co Ltd	21.12.2016	China	Shenzhen Stock Exchange	1	0	Coal & Mining	Coal	000539.SZ
Hokuriku Electric Power Co	21.12.2016	Japan	Tokyo Stock Exchange	1	0	Coal & Mining	Coal	9505.T
Inner Mongolia Yitai Coal Co Ltd	21.12.2016	China	Shanghai Stock Exchange	1	0	Coal & Mining	Coal	900948.SS
Jastrzebska Spolka Weglowa SA	21.12.2016	Polen	Warsawa Stock Exchange	1	0	Coal & Mining	Coal	JSW.WA
Kyushu Electric Power Co Inc	21.12.2016	Japan	Tokyo Stock Exchange	0	1	Coal & Mining	Coal	9508.T
NRG Energy Inc	21.12.2016	USA	New York Stock Exchange	1	0	Coal & Mining	Coal	NRG.N

Note: Some comments about the firms follows; Duke Energy Corp has three subsidiaries as well, however not included in our sample: Duke Energy Carolinas LLC, Duke Energy Progress LLC, Progress Energy Inc.

Firm	Announcement Date	Country	Stock Market	Excluded	Observed	Industry	Criterion	RIC
OGE Energy Corp	21.12.2016	USA	New York Stock Exchange	0	1	Coal & Mining	Coal	OGE.N
Pinnacle West Capital Corp	21.12.2016	USA	New York Stock Exchange	0	1	Coal & Mining	Coal	PNW.N
SCANA CORP	21.12.2016	USA	New York Stock Exchange	0	1	Coal & Mining	Coal	SCG.N
Southern Co	21.12.2016	USA	New York Stock Exchange	0	1	Coal & Mining	Coal	SO.N
Tenaga Nasional Bhd	21.12.2016	Maylasia	Bursa Malaysia	1	0	Coal & Mining	Coal	TENA.KL
Tohoku Electric Power Co Inc	21.12.2016	Japan	Tokyo Stock Exchange	0	1	Coal & Mining	Coal	9506.T
Westar Energy Inc	21.12.2016	USA	New York Stock Exchange	1	0	Coal & Mining	Coal	WR.N
CEZ AS	07.03.2017	Czech Republic	PSE Cash Market L1 and L2	1	0	Coal & Mining	Coal	CEZP.PR
Eneva SA	07.03.2017	Brasil	BM&F Bovespa SA Bolsa de Valores Mercadorias e Futuros	1	0	Coal & Mining	Coal	ENEV3.SA
HK Electric Investments Ltd	07.03.2017	Hong Kong	The Stock Exchange of Hong Kong	1	0	Coal & Mining	Coal	2638.HK
Huadian Energy Co Ltd	07.03.2017	China	Shanghai Stock Exchange	1	0	Coal & Mining	Coal	600726.SS
Korea Electric Power Corp	07.03.2017	South-Korea	Korea Exchange	1	0	Coal & Mining	Coal	015760.KS
NorthWestern Corp	07.03.2017	USA	New York Stock Exchange	0	1	Coal & Mining	Coal	NWE.N
Otter Tail Corp	07.03.2017	USA	NASDAQ Global Selected Consolidated	1	0	Coal & Mining	Coal	OTTR.O
PGE Polska Grupa Energetyczna SA	07.03.2017	Polen	Warsawa Stock Exchange	1	0	Coal & Mining	Coal	PGE.WA
Portland General Electric Company	07.03.2017	USA	New York Stock Exchange	0	1	Coal & Mining	Coal	POR.N
SDIC Power Holdings Co Ltd	07.03.2017	China	Shanghai Stock Exchange	1	0	Coal & Mining	Coal	600886.SS
PetroChina co ltd	05.05.2017	China	Shanghai Stock Exchange	0	1	Integrated Oil & Gas	Gross Corruption	601857.SS
Hansae co ltd	29.06.2017	South-Korea	Korea Exhcange	0	1	Textiles & Apparel	Serious violations of Human rights	105630.KS
Hansae Yes24 Holdng co ltd	29.06.2017	South-Korea	Korea Exhcange	0	1	Textiles & Apparel	Serious violations of Human rights	016450.KS
AECOM	16.01.2018	USA	NYSE Consolidated	1	0	Construction & Engineering	Nuclear weapons	ACM
Atal SA/Poland	16.01.2018	Poland	Warsaw Stock Exchange	1	0	Homebuilding	Serious violations of Human rights	1AT.WA
Evergreen Marine Corp Taiwan ltd	16.01.2018	China	Taiwan Stock Exchange	1	0	Shipping & Ports	Environmental damage/ Human rights	2603.TW
Fluor Corp	16.01.2018	USA	NYSE Consolidated	1	0	Construction & Engineering	Nuclear weapons	FLR
Huntington Ingalls Industries Inc	16.01.2018	USA	NYSE Consolidated	1	0	Aerospace & Defense	Nuclear weapons	HII
Korea Line Corp	16.01.2018	South-Korea	Korea Exhcange	1	0	Shipping & Ports	Environmental damage/Human rights	005880.KS
Pan Ocean Co ltd	16.01.2018	South-Korea	Korea Exchange	0	1	Shipping & Ports	Serious violations of Human rights	028670.KS
Precious Shipping PLC	16.01.2018	Thailand	The Stock Exchange of Thailand	1	0	Shipping & Ports	Environmental damage/Human rights	PSL.BK
Thoresen Thai Agencies plc	16.01.2018	Thailand	The Stock Exchange of Thailand	1	0	Marine	Environmental damage/Human rights	TTA.BK

Table A.3: Firm Characteristics for the Matched Pairs Analysis

Pair	Firm	Public Announcement Date	Stock Market	Business Sector	Total Assets ($)	RIC
1	Africa Israel Investments Ltd	22.09.2010	Tel Aviv Stock Exchange	Real Estate	7462859	AFIL01.TA
	B Communications	-	Tel Aviv Stock Exchange	Telecommunications Services	6746148	BCOM.TA
2	Samling Global Ltd	23.08.2010	The Stock Exchange of Hong Kong Ltd	Applied Resources	1273034	3938.HK^F12
	Hengan International Group Company Ltd	-	The Stock Exchange of Hong Kong Ltd	Personal & Household Products & Services	2377345	1044.HK
3	Atal SA/Poland	16.01.2018	Warsaw Stock Exchange	Cyclical Consumer Products	510574	1AT.WA
	Firma Oponiarska Debica SA	-	Warsaw Stock Exchange	Automobiles & Auto Parts	471636	DBC.WA
4	Barrick Gold Corp	30.01.2009	The Toronto Stock exchange	Mineral Resources	26125991	ABX.TO
	Enbridge Inc	-	The Toronto Stock exchange	Energy - Fossil Fuels	26655884	ENB.TO
5	Cairn Energy Plc	28.06.2016	London Stock Exchange	Energy - Fossil Fuels	2458009	CNE.L
	Intercontinental Hotels Group PLC	-	London Stock Exchange	Cyclical Consumer Services	2879010	IHG.L
6	DRD Gold Limited	11.04.2007	Johannesburg Stock Exchange	Mineral Resources	276035	DRDJ.J
	Capitec Bank Holdings Ltd	-	Johannesburg Stock Exchange	Banking & Investment Services	300471	CPIJ.J
7	Daewoo International Corp / Posco Daewoo Corp	17.08.2015	Korea Exhcange	Industrial & Commercial Services	6730772	047050.KS
	Samsung Electro-Mechanics Co Ltd	-	Korea Exhcange	Technology Equipment	6137803	009150.KS
8	Danya Cebus Ltd	22.09.2010	Tel Aviv Stock Exchange	Cyclical Consumer Products	1385958	DNYA.TA^G15
	Nice Ltd	-	Tel Aviv Stock Exchange	Software & IT Services	1528747	NICE.TA
9	Dongfeng Motor Group Co. Ltd.	02.03.2009	The Stock Exchange of Hong Kong Ltd	Automobiles & Auto Parts	12351633	0489.HK
	China Resources Land Ltd	-	The Stock Exchange of Hong Kong Ltd	Real Estate	12395734	1109.HK
10	Duke Energy Corp	07.09.2016	New York Stock Exchange	Utilities	132761000	DUK.N
	Procter and Gamble Co	-	New York Stock Exchange	Personal & Household Products & Services	127136000	PG.N
11	Elbit Systems ltd	03.09.2009	Tel Aviv Stock Exchange	Industrial Goods	3045684	ESLT.TA
	Bezeq Israeli Telecommunication Corp Ltd	-	Tel Aviv Stock Exchange	Telecommunications Services	3572058	BEZQ.TA
12	Evergreen Marine Corp Taiwan ltd	16.01.2018	Taiwan Stock Exchange	Transportation	6720818	2603.TW
	Catcher Technology Co Ltd	-	Taiwan Stock Exchange	Technology Equipment	7040674	2474.TW
13	FMC Corp	06.12.2011	New York Stock Exchange	Chemicals	3496600	FMC.N
	Perkinelmer Inc	-	New York Stock Exchange	Healthcare Services & Equipment	3834198	PKI.N
14	Freeport McMoRan Copper & Gold Inc/Freeport-McMoRan Inc	06.06.2006	New York Stock Exchange	Mineral Resources	5389802	FCX.N
	United Rentals Inc	-	New York Stock Exchange	Industrial & Commercial Services	5366000	URI.N
15	Genting Bhd	17.08.2015	Bursa Malaysia	Cyclical Consumer Services	20735453	GENT.KL
	YTL Corporation Bhd	-	Bursa Malaysia	Utilities	17664005	YTLS.KL
16	IJM Corp.Bhd	17.08.2015	Bursa Malaysia	Industrial & Commercial Services	5272573	IJMS.KL
	PPB Group Bhd	-	Bursa Malaysia	Food & Beverages	5104690	PEPT.KL
17	Korea Line Corp	16.01.2018	Korea Exhcange	Transportation	2407230	005880.KS
	Hotel Shilla Co Ltd	-	Korea Exhcange	Retailers	2101022	008770.KS
18	Kosmos Energy Ltd	28.06.2016	NYSE Consolidated	Energy - Fossil Fuels	3303638	KOS
	Edwards Lifesciences Corp	-	NYSE Consolidated	Healthcare Services & Equipment	4306200	EW
19	Lingui Developments Berhad	16.02.2011	Bursa Malaysia	Applied Resources	883195	LGDS.KL^C13
	Nestle (Malaysia) Bhd	-	Bursa Malaysia	Food & Beverages	628662	NESM.KL
20	Monsanto Co	09.09.2008	New York Stock Exchange	Chemicals	16991000	MON.N
	Nike Inc	-	New York Stock Exchange	Cyclical Consumer Products	12105200	NKE.N

Pair	Firm	Public Announcement Date	Stock Market	Business Sector	Total Assets ($)	RIC
21	Norilsk Nickel	19.11.2009	Moscow Interbank Currency Exchange	Mineral Resources	22702003	GMKN.MM
	Rossiyskiye Seti PAO	-	Moscow Interbank Currency Exchange	Utilities	23610351	RSTI.MM
22	Posco	17.08.2015	Korea Exhcange	Mineral Resources	67229202	005490.KS
	Samsung Fire & Marine Insurance Co Ltd	-	Korea Exhcange	Insurance	52533792	000810.KS
23	Potash Corp. of Saskatchewan	06.12.2011	Toronto Stock Exchange	Chemicals	16237964	POT.TO^A18
	Brookfield Renewable Partners LP	-	Toronto stock exchange	Utilities	15402000	BEP_u.TO
24	Precious Shipping PLC	16.01.2018	The Stock Exchange of Thailand	Transportation	885469	PSL.BK
	Siam Global House PCL	-	The Stock Exchange of Thailand	Retailers	866136	GLOBAL.BK
25	Reliance Industries	17.09.2014	National Stock Exchange of India	Energy - Fossil Fuels	71445244	RELI.NS
	Axis Bank Ltd	-	National Stock Exchange of India	Banking & Investment Services	64075824	AXBK.NS
26	Repsol YPF / Repsol S.A	17.09.2014	BME Spanish Exchange	Energy - Fossil Fuels	57946803	REP.MC
	Gas Natural SDG SA	-	BME Spanish Exchange	Utilities	59484893	GAS.MC
27	Rio Tinto Ltd	09.09.2008	Australien Stock Exchange	Mineral Resources	88248840	RIO.AX
	BHP Billiton Ltd	-	Australien Stock Exchange	Mineral Resources	72172446	BHP.AX
28	Rio Tinto Plc	09.09.2008	London Stock Exchange	Mineral Resources	89408230	RIO.L
	National Grid PLC	-	London Stock Exchange	Utilities	75043765	NG.L
29	San Leon Energy Plc	04.03.2016	London Stock Exchange	Energy - Fossil Fuels	364644	SLEN.L
	Fidessa Group PLC	-	London Stock Exchange	Software & IT Services	362910	FDSA.L
30	Sesa Sterlite /Vedanta Limited	30.01.2014	National Stock Exchange of India	Mineral Resources	35672119	VDAN.NS
	NTPC Ltd	-	National Stock Exchange of India	Utilities	33326652	NTPC.NS
31	Shikun & Binui Ltd.	15.06.2012	Tel Aviv Stock Exchange	Industrial & Commercial Services	2815751	SKBN.TA
	Alrov Properties & Lodgings Ltd	-	Tel Aviv Stock Exchange	Real Estate	2848221	ALRPR.TA
32	Ta Ann Holdings Berhad	14.10.2013	Bursa Malaysia	Applied Resources	548590	TAAN.KL
	Ekovest Bhd	-	Bursa Malaysia	Industrial & Commercial Services	638990	EKOV.KL
33	Thoresen Thai Agencies plc	16.01.2018	The Stock Exchange of Thailand	Transportation	1083123	TTA.BK
	Muangthai Capital PCL	-	The Stock Exchange of Thailand	Banking & Investment Services	1134439	MTC.BK
34	Vedanta Resources plc	30.01.2014	London Stock Exchange	Mineral Resources	44150688	VED.L
	WPP PLC	-	London Stock Exchange	Cyclical Consumer Services	41299158	WPP.L
35	Volcan Compañia Minera SA	14.10.2013	Bolsa de Valores de Lima S.A.	Mineral Resources	2892328	VOLa.LM
	Union Andina de Cementos SAA	-	Bolsa de Valores de Lima S.A.	Mineral Resources	2830774	CEL.LM
36	WTK Holdings Berhad	14.10.2013	Bursa Malaysia	Applied Resources	528842	WTKH.KL
	Eversendai Corporation Bhd	-	Bursa Malaysia	Industrial & Commercial Services	537638	ESCB.KL
37	Wal-Mart Stores Inc./ Walmart Inc	06.06.2006	New York Stock Exchange	Food & Drug Retailing	151193000	WMT.N
	Chevron Corp	-	New York Stock Exchange	Energy - Fossil Fuels	131786000	CVX.N
38	ZTE Corp	07.01.2016	Shenzhen Stock Exhange	Technology Equipment	20130321	000063.SZ
	Suning.Com Co Ltd	-	Shenzhen Stock Exhange	Retailers	19425482	002024.SZ
39	Zijin Mining Group Co. Ltd.	14.10.2013	Shanghai Stock Exchange	Mineral Resources	10918928	601899.SS
	China Fortune Land Development Co Ltd	-	Shanghai Stock Exchange	Real Estate	12192277	600340.SS
40	Zuari Agro Chemicals Ltd.	14.10.2013	National Stock Exchange of India	Chemicals	1196589	ZUAR.NS
	Asian Paints Ltd	-	National Stock Exchange of India	Chemicals	1250094	ASPN.NS

A.2 Different Event and Estimation Windows

Table A.4 to A.10 report on the result, using the market model to estimate the abnormal returns with different event and estimation windows used in Chapter 8. On the top of the tables, it is noted which windows that is used. We employ the benchmark estimation window of 250 days, except if something else is stated. The note under the tables gives further description of the estimations.

Table A.4: Results from the seven day event window estimation

Event Window (-1, 0, 1, 2, 3, 4, 5)	CAAR	Test Statistic	Percent Negative	Number of Firms
Panel A: Total Firms				
Local index	-0.166	-2.15**	57	168
Local and Global indices	-0.079	-1.16	52	
Panel B: Total Excluded Firms				
Local index	-0.184	-2.12**	56	147
Local and Global indices	-0.076	-0.98	43	
Panel C: Total Observed				
Local index	-0.038	-0.41	62	21
Local and Global indices	-0.103	-1.07	71	
Panel D: Total The Council on Ethics				
Local index	-0.263	-2.20**	57	92
Local and Global indices	-0.148	-1.33	53	
Panel E: Total The Coal Criterion				
Local index	-0.047	-0.54	57	76
Local and Global indices	0.004	0.05	50	
Panel F: The Council on Ethics, only excluded				
Local index	-0.284	-2.17**	55	83
Local and Global indices	-0.136	-1.11	51	
Panel G: The Council on Ethics, only observed				
Local index	-0.071	-0.40	67	9
Local and Global indices	-0.260	-1.64	78	
Panel H: The Coal Criterion, only excluded				
Local index	-0.054	-0.52	56	64
Local and Global indices	0.002	0.02	47	
Panel I: The Council on Ethics, only excluded by conduct				
Local index	-0.666	-3.22***	75	40
Local and Global indices	-0.353	-1.73*	60	
Panel J: The Council on Ethics, only excluded by product				
Local index	0.072	0.49	37	43
Local and Global indices	0.065	0.48	42	

Note: Stock market reaction from recommendations concerning ethics from the GPFG. Results from using the market model with 250 days estimation window, and a seven-day event window. * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

Table A.5: Results from the two week event window estimation

Event Window ([-1,+10])	CAAR	Test Statistic	Percent Negative	Number of Firms
Panel A: Total Firms				
Local index	-0.270	-2.02**	56	168
Local and Global indices	-0.117	-0.95	51	
Panel B: Total Excluded Firms				
Local index	-0.295	-1.95*	56	147
Local and Global indices	-0.106	-0.76	48	
Panel C: Total Observed				
Local index	-0.097	-0.62	57	21
Local and Global indices	-0.195	-1.21	67	
Panel D: Total The Council on Ethics				
Local index	-0.419	-2.01**	55	92
Local and Global indices	-0.215	-1.06	52	
Panel E: Total The Coal Criterion				
Local index	-0.091	-0.59	57	76
Local and Global indices	0.002	0.02	49	
Panel F: The Council on Ethics, only excluded				
Local index	-0.444	-1.94*	55	83
Local and Global indices	-0.185	-0.83	51	
Panel G: The Council on Ethics, only observed				
Local index	-0.190	-0.59	56	9
Local and Global indices	-0.498	-1.83	67	
Panel H: The Coal Criterion, only excluded				
Local index	-0.103	-0.57	56	64
Local and Global indices	-0.003	-0.02	45	
Panel I: The Council on Ethics, only excluded by conduct				
Local index	-1.111	-3.11***	75	40
Local and Global indices	-0.563	-1.51	65	
Panel J: The Council on Ethics, only excluded by product				
Local index	0.177	0.68	37	43
Local and Global indices	0.168	0.68	37	

Note: Stock market reaction from recommendations concerning ethics from the GPFG. Results from using the market model with 250 days estimation window, and a two week event window, from day -1 until $+10$, meaning two weeks after the event. * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

Table A.6: Results from the two month event window estimation

Event Window ([-40,+1])	CAAR	Test Statistic	Percent Negative	Number of Firms
Panel A: Total Firms				
Local index	-0.847	-1.65*	58	168
Local and Global indices	-0.925	-1.92*	59	
Panel B: Total Excluded Firms				
Local index	-0.855	-1.47	56	147
Local and Global indices	-0.745	-1.38	57	
Panel C: Total Observed				
Local index	-0.791	-1.55	71	21
Local and Global indices	-2.183	-3.08***	71	
Panel D: Total The Council on Ethics				
Local index	-1.099	-1.60	54	92
Local and Global indices	-1.431	-2.28**	58	
Panel E: Total The Coal Criterion				
Local index	-0.541	-0.70	62	76
Local and Global indices	-0.313	-0.42	61	
Panel F: The Council on Ethics, only excluded				
Local index	-1.217	-1.61	54	83
Local and Global indices	-1.264	-1.86*	57	
Panel G: The Council on Ethics, only observed				
Local index	-0.015	-0.02	56	9
Local and Global indices	-2.97	-2.10*	67	
Panel H: The Coal Criterion, only excluded				
Local index	-0.385	-0.42	58	64
Local and Global indices	-0.073	-0.08	58	
Panel I: The Council on Ethics, only excluded by conduct				
Local index	-3.271	-2.41**	68	40
Local and Global indices	-2.864	-2.36**	73	
Panel J: The Council on Ethics, only excluded by product				
Local index	0.694	1.14	45	43
Local and Global indices	0.225	0.38	45	

Note: Stock market reaction from recommendations concerning ethics from the GPFG. Results from using the market model with a 210 day estimation window, and a two month event window, from day -40 until $+1$. * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

Table A.7: Results from the two months and one week event window estimation

Event Window ([-40,+5])	CAAR	Test Statistic	Percent Negative	Number of Firms
Panel A: Total Firms				
Local index	-0.972	-1.73*	56	168
Local and Global indices	-1.048	-1.96*	59	
Panel B: Total Excluded Firms				
Local index	-0.99	-1.55	54	147
Local and Global indices	-0.848	-1.42	57	
Panel C: Total Observed				
Local index	-0.844	-1.48	71	21
Local and Global indices	-2.443	-3.05***	71	
Panel D: Total The Council on Ethics				
Local index	-1.263	-1.64	53	92
Local and Global indices	-1.616	-2.28**	58	
Panel E: Total The Coal Criterion				
Local index	-0.62	-0.75	59	76
Local and Global indices	-0.359	-0.44	59	
Panel F: The Council on Ethics, only excluded				
Local index	-1.395	-1.65	53	83
Local and Global indices	-1.422	-1.85*	57	
Panel G: The Council on Ethics, only observed				
Local index	-0.041	-0.04	56	9
Local and Global indices	-3.414	-2.18*	67	
Panel H: The Coal Criterion, only excluded				
Local index	-0.465	-0.47	55	64
Local and Global indices	-0.105	-0.11	61	
Panel I: The Council on Ethics, only excluded by conduct				
Local index	-3.738	-2.49**	68	40
Local and Global indices	-3.244	-2.38**	73	
Panel J: The Council on Ethics, only excluded by product				
Local index	0.785	1.11	40	43
Local and Global indices	0.273	0.40	42	

Note: Stock market reaction from recommendations concerning ethics from the GPFG. Results from using the market model with a 210 day estimation window, and a two month event window, from day -40 until $+5$, until a week after the announcement. * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

Table A.8: Results from benchmark model excluding two months of the estimation window

Event Window (-1, 0, +1) Estimation Window [-250, -40]	CAAR	Test Statistic	Percent Negative	Number of Firms
Panel A: Total Firms				
Local index	-0.076	-1.84*	57	168
Local and Global indices	-0.076	-1.85*	55	
Panel B: Total Excluded Firms				
Local index	-0.084	-1.80*	54	147
Local and Global indices	-0.062	-1.37	52	
Panel C: Total Observed				
Local index	-0.002	-0.42	71	21
Local and Global indices	-0.017	-2.23**	71	
Panel D: Total The Council on Ethics				
Local index	-0.105	-1.70*	54	92
Local and Global indices	-0.127	-2.13**	57	
Panel E: Total The Coal Criterion				
Local index	-0.042	-0.78	59	76
Local and Global indices	-0.137	-0.25	52	
Panel F: The Council on Ethics, only excluded				
Local index	-0.119	-1.76*	53	83
Local and Global indices	-0.110	-1.71*	54	
Panel G: The Council on Ethics, only observed				
Local index	0.021	0.22	67	9
Local and Global indices	-0.283	-2.16*	78	
Panel H: The Coal Criterion, only excluded				
Local index	-0.040	-0.64	56	64
Local and Global indices	-0.0001	-0.00	50	
Panel I: The Council on Ethics, only excluded by conduct				
Local index	-0.328	-3.01***	72	40
Local and Global indices	-0.274	-2.55**	68	
Panel J: The Council on Ethics, only excluded by product				
Local index	0.076	1.07	35	43
Local and Global indices	0.041	0.61	42	

Note: Stock market reaction from recommendations concerning ethics from the GPFG. Results from using the market model with a estimation window from -250 until -40, and a three day event window. * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

Table A.9: Results from the benchmark model, excluding one month in the estimation window

Event Window (-1, 0, +1) Estimation Window [-250, -21]	CAAR	Test Statistic	Percent Negative	Number of Firms
Panel A: Total Firms				
Local index	-0.069	-1.87*	57	168
Local and Global indices	-0.035	-1.06	51	
Panel B: Total Excluded Firms				
Local index	-0.079	-1.90*	56	147
Local and Global indices	-0.032	-0.84	49	
Panel C: Total Observed				
Local index	0.002	0.03	62	21
Local and Global indices	-0.062	-1.09	67	
Panel D: Total The Council on Ethics				
Local index	-0.105	-1.88*	55	92
Local and Global indices	-0.072	-1.44	54	
Panel E: Total The Coal Criterion				
Local index	-0.025	-0.55	58	76
Local and Global indices	0.010	0.23	47	
Panel F: The Council on Ethics, only excluded				
Local index	-0.12	-1.96*	55	83
Local and Global indices	-0.068	-1.23	53	
Panel G: The Council on Ethics, only observed				
Local index	0.029	0.35	56	9
Local and Global indices	-0.114	-1.36	67	
Panel H: The Coal Criterion, only excluded				
Local index	-0.026	-0.49	56	64
Local and Global indices	0.016	0.32	44	
Panel I: The Council on Ethics, only excluded by conduct				
Local index	-0.313	-3.11***	75	40
Local and Global indices	-0.187	-2.03**	68	
Panel J: The Council on Ethics, only excluded by product				
Local index	0.060	0.96	37	43
Local and Global indices	0.044	0.75	40	

Note: Stock market reaction from recommendations concerning ethics from the GPFG. Results from using the market model with an estimation window from -250 until -21, and a three day event window. * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.

Table A.10: Results from benchmark model, excluding 100 days in the estimation window

Event Window (-1, 0, +1) Estimation Window [-150, -2]	CAAR	Test Statistic	Percent Negative	Number of Firms
Panel A: Total Firms				
Local index	-0.027	-0.99	49	168
Local and Global indices	-0.001	-0.32	44	
Panel B: Total Excluded Firms				
Local index	-0.035	-1.16	51	147
Local and Global indices	-0.011	-0.40	44	
Panel C: Total Observed				
Local index	0.034	0.94	33	21
Local and Global indices	0.032	0.38	38	
Panel D: Total The Council on Ethics				
Local index	-0.076	-1,96*	55	92
Local and Global indices	-0.041	-1.12	52	
Panel E: Total The Coal Criterion				
Local index	0.033	0.93	41	76
Local and Global indices	0.032	0.92	33	
Panel F: The Council on Ethics, only excluded				
Local index	-0.083	-1.96*	57	83
Local and Global indices	-0.040	-0.98*	51	
Panel G: The Council on Ethics, only observed				
Local index	-0.013	-0.19	44	9
Local and Global indices	-0.056	-0.84	67	
Panel H: The Coal Criterion, only excluded				
Local index	0.027	0.63	44	64
Local and Global indices	0.025	0.62	36	
Panel I: The Council on Ethics, only excluded by conduct				
Local index	-0.175	-2.53**	78	40
Local and Global indices	-0.096	-1.47	65	
Panel J: The Council on Ethics, only excluded by product				
Local index	0.002	0.04	37	43
Local and Global indices	0.016	0.35	37	

Note: Stock market reaction from recommendations concerning ethics from the GPFG. Results from using the market model with an estimation window from -150 until -2, and a three day event window. * indicates significance at the 10% level, ** indicates significance at the 5% level, and *** indicates significance at the 1% level.