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The Announcement Effect of Shareholder Activism: Evidence from the Government Pension Fund Global

Navn: Sebastian Ødegården, Jon Laugen

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by

Jon Laugen and Sebastian Ødegården

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Supervisor:

Salvatore Miglietta

Abstract

In this thesis, we study the effects of shareholder activism announcement on company stock returns. We focus on an announcement in the Government Pension Fund Global, on the 23rd of November 2004. We perform an event study where we use a control-firm approach, as well as the Fama-French three-factor model to estimate cumulative abnormal returns in ±1, ±3, and ±6 day(s) event windows. In testing the significance of abnormal performance, simple regressions and t-tests yield a biased result because of issues of event clustering. When mitigating cross-correlation in abnormal returns, using the adjusted BMP-test (Kolari & Pynnönen, 2010), no significant announcement effect is observed. This is supported by a supplementary non-parametric test.

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1.0 Introduction

This thesis will investigate the effects of announcing shareholder activism in the Norwegian Government Pension Fund Global, applying an event study methodology. In the following section, we present the premise, definitions and the outline of the thesis.

1.1 Shareholder Activism

Shareholder activism have been defined differently across studies. We therefore start with establishing a common understanding of how the term “shareholder activism” is applied throughout this thesis. An active shareholder owns stock in a company and executes shareholder rights, e.g. votes at the general assemblies, writes formal proposals and/or provide advice to directors, management, or to the other shareholders. In short, shareholder activism is when owners use their powers with the intention of influencing the firm.

In general, the alternative approach would be a strategy of non-involvement, that is, shareholder passivism. As a result, this strategy, absent other active owners, typically entrust management and the board with control of the firm. Passive owners typically have low monitoring and intervention costs and chase a well-diversified portfolio to make up for the loss of control.

1.2 Government Pension Fund Global

To test for an announcement effect of shareholder activism, we will focus on a policy shift within the Government Pension Fund Global, hereafter the Fund, owned by the Norwegian ministry of finance on behalf of the Norwegian people. The ministry of finance determines the fund’s investment strategy after advice from, amongst others, Norges Bank Investment Management and discussions at Stortinget (the Norwegian parliament).

The Fund was established in 1990 in an effort to invest, and see returns on, petroleum revenues. The fund’s capital is invested abroad to avoid overheating the Norwegian economy and to reduce the exposure towards oil price fluctuations.

The Fund is set to be diversified across countries, industries, and currencies across the globe, and it is invested in equity, fixed-income and real estate (Norges Bank Investment Management, 2019). For the purpose of this thesis, we will focus on equities.

On the 23rd of November 2004, a new law was announced, stating that the Government Pension Fund Global, previously named Government Petroleum Fund, would go from being passive owners to active owners. "Norges Bank shall exercise ownership rights for the Government Petroleum Fund. The primary objective of the exercise of ownership rights is to safeguard the fund's financial interests" (Forskrift om forvaltning av petroleumsfondet, 2004, §11). Prior to this law, the fund only exercised shareholder rights in specific companies, and had, to a large extent, outsourced this task to external managers. The new law meant that the fund would start using internal resources to take on the responsibility of monitoring firms, voting at general assemblies and more, in all portfolio companies.

For the Fund, the main motivation becoming an active owner was to ensure that the shareholders' interests were sufficiently protected within the company. There have been cases where shareholder rights and financial interests have been poorly protected. Such incidents are typically associated with short-termism among corporate management, and a general lack of ethics. Interests of shareholders and the common good had previously been neglected, laws and rules violated, and individuals were giving priority to their own interests. This experience showed that good corporate governance should also include an ethical dimension (Norges Bank, 2005).

With the policy shift in the Fund in mind, we formulated the research question:

"What was the market reaction to the Government Pension Fund Global´s announcement of shareholder activism?"

We will answer this question by examining the relationship between the announcement and abnormal stock returns.

The thesis is structured as follows: Section 2 consists of a relevant literature review. Here, previous findings will be presented, which will develop an understanding of the different elements of activism, and how they may influence stock returns. Furthermore, the findings in previous research will help formulate hypotheses with respect to the research question. In section 3, we establish a theoretical framework. Introducing the design of event studies and its relation to stock returns and the efficient market hypothesis. Section 4, explains the event study methodology applied. We use both a control-firm approach and the Fama-French three-factor model for estimating normal returns, and test abnormal returns using regressions, t-test and the adjusted BMP-test. Data collection is described in section 5. In the 6th section, we present our results and in the last section, number 7, we make a conclusion and discuss some final remarks.

2.0 Literature Review

Shareholder activism is a widely discussed and important topic of corporate governance. Numerous research articles claim that active shareholder has a positive effect on both firm value and on the operation within the firm. However, there is also evidence suggesting a negative or insignificant effect, especially net of fees and other costs. Researchers adopt various views and methods to test the hypotheses on this issue. Some take on a fund-specific view, testing the benefits across a fund's portfolio, e.g. Gantchev (2013). Other researchers choose to look at effects on the firm-level, that is, they test whether there is value added from gaining active owners compared to passive e.g. Kim, Kim and Kwon (2009). There is also evidence to suggest a more comprehensive sphere of effects in governance, e.g. effects of the heterogeneity in the composition of shareholders, which may significantly impact the influence of activism.

Brav, Jiang, Partnoy and Thomas (2008) test the effect of activism in a hedge fund portfolio, and find an abnormal return around the announcement of activism of around 7 %, with no reversion effect in the subsequent year. In addition, they find evidence of increasing payouts, higher operating performance and CEO turnover after activism. Brav et al. (2008) conclude that these findings are consistent with the hypothesis that informed shareholder monitoring could reduce the agency cost of target firms and that this is accomplished by a wide variety of tactics. This includes friendly interactions with management, but they can also be confrontational with entrenched boards and management.

Becht, Franks, Mayer, and Rossi (2008) provide an insight into an activist fund in the UK. Unique to this analysis is the information on the nature of involvement, predominantly private engagements, which is not public information. The researchers observe abnormal returns, which they claim have a relation to activism. The fund in question, the HUKFF, intervened in companies with poor corporate performance as they believed this was where the potential for significant successes was highest. The fund sought corporate restructuring, changes to boards and restrictions to corporate policy. These interventions resulted in substantial gains to the shareholder compared with benchmarks over the same period. Becht et al. (2008) conclude that there is evidence to support gains from shareholder activism, with a particular focus on well-focused engagements.

Kim et al. (2009) test the effect of the announcement of blockholder activism in companies in South-Korea. They find that the share price of a target firm increases around the announcement and that the average cumulative abnormal return over an 11-day (i.e. -5 to +5 days) window is 3.47 %. This effect, they claim, is increasing with the scope of the activism announced.

Schmidt and Fahlenbrach (2017) provide evidence that an exogenous increase in passive ownership is not beneficial to the shareholders as CEOs gain more power, which on average increase agency costs. This cost is observed in that a firm typically perform worse mergers and acquisitions following an exogenous shift to passive ownership. Further, Schmidt and Fahlenbrach (2017) observe negative announcement returns for new director appointments after the exogenous shift, which is consistent with an unease among shareholders with respect to the CEO level of influence and power.

In their paper “Passive Investors, Not Passive Owners”, Appel, Gormley, and Keim (2016) report that the passive institutional investors are an increasingly important player in U.S stock ownership. A passive investor, i.e. funds that employ a passive approach to stock picking, can, at some level, either be passively or actively engaged in their portfolio companies. The latter tend to use their voting blocks to influence companies in order to increase firm value by insisting on basic corporate governance-related changes. Appel et al. (2016) finds that mutual funds influence firms’ governance choices and that the result from this is more independent directors, removal of takeover defenses, and more equal voting rights. According to this research, such changes appear to improve firm value.

Gantchev (2013) looks into the cost-gain relation, i.e. the net return, of shareholder activism. His research provides evidence to suggest that costs play a significant role in activism decisions. Subtracting costs from the abnormal return of activist shareholders reduce the return by two-thirds. In the extension of this, Gantchev (2013) claims that the mean net activism return is close to zero, but that the top quartile earns higher returns when engaged in shareholder activism.

Some papers point to a more complex setting around governance issues. Gillian and Starks (2000) studied the impact on stock prices when giving proposals and voting in companies for different types of owners. In their research, they found that, on average, proposals sponsored by institutions received 175% more votes than proposals sponsored by individuals according to a t-test for difference-in-mean, on a 1% significance level. On short-term performance, they found a statistically negative impact on the stock price when proposals originated from institutions and a statistically positive impact on the stock price when proposals originated from individual active investors.

According to Karpoff, Malatesta, and Walkling (1996), there is little evidence that operating returns improve after proposals. The effects of proposals are negligible on share values and top management turnover. Even though a proposal gets a majority of the votes, there is no share price increases nor discernible changes in firm policies.

Volkova (2017) test the effects of blockholder diversity on performance. As part of her main result, she finds that heterogeneity among blockholders induces significant frictions that decrease performance. Such evidence raises concerns in that the effects of an increase in activism may rely on the composition of the set of shareholders. That is, an active owner could create value, but only in certain environments.

3.0 Theoretical Framework

3.1 Hypothesis

The literature investigating the relationship between shareholder activism, firm value and market reactions help formulate hypotheses on the expected effects.

***H_0**: There is no announcement effect of shareholder activism in the Government Pension Fund Global*

The null hypothesis would suggest that shareholders do not think the new information changes the firms' value. This can be supported by theories of free-riding, since the fund does not typically hold large positions in each firm, and thus both the potential impact and actual effort associated with the activism can be pulled into question.

***H_{A1}:** There is a positive effect of announcing shareholder activism in the Government Pension Fund Global*

Support for alternative hypothesis 1 can be found in Kim et al. (2009), which document positive cumulative abnormal returns in an 11-day event window. A positive effect can be reasoned by value-increasing activities undertaken by the owner, such as monitoring and voting at general assemblies.

***H_{A2}**: There is a negative effect of announcing shareholder activism in the Government Pension Fund Global*

Following Volkova (2017), the composition of shareholders might be influential to the market reception of activism announcement. Substantial frictions between active owners might negatively impact firm value.

3.2 History of Event Studies

An event study describes a technique of empirical financial research that enables an observer to assess the impact of a particular event on stock prices. Event studies have become a popular method for estimating the economic effect of firm-specific events. Mackinlay (1997) reports an early event study by Dolley (1933) examining stock prices reactions to stock splits. This indicates that the event study has been around for a long time, even though modifications and upgrades have been applied. Corrado (2011) report that two pioneering papers, by Ball and Brown (1968) and Fama, Fisher, Jensen, and Roll (1969), introduced event studies to a broader audience and the main elements of event studies can be traced back to these papers. Boehmer, Musumeci, and Poulsen (1991) confirmed that event studies had become the predominant methodology for determining the effects of an event on the distribution of security returns. Kothari and Warner (2005) found that the five major finance journals reported 565 articles containing event studies in the period 1974-2000. It is clear that event studies are a broad and popular approach in the research of capital markets.

3.2.1 Event study's functionality

Event studies are excellent at predicting abnormal returns measured by the deviation of a market model like Fama-French (1993) three-factor, and/or a control-firm approach. Because of its general use and popularity, there is considerable theoretical support for this study. Also, since the event study is not a single method model, it has wide applicability for different purposes.

3.3 The Efficient Market Hypothesis (EMH)

The Efficient Market Hypothesis is a theory stating that share prices include all information in the market, i.e. stocks are neither underpriced nor overpriced (Bodie, Kane & Marcus, 2014, p.11). Consequently, security prices will only change when new information is available. New information is unpredictable, and hence, price changes will also be unpredictable, resulting in security prices following a "random walk". The random walk is a term used in the finance literature to characterize a price series where all subsequent price changes represent random departures from previous prices (Malkiel, 2003). The announcement of being active as a shareholder can convey new information to the market. Thus, the efficient market hypothesis is relevant.

3.3.1 The Efficient Market Hypothesis and Event Studies

If security prices reflect all currently available information, then the price changes must reflect new information. Therefore, one should be able to measure the importance of an event of interest by examining price changes during the period in which the event occurs (Bodie et al., 2014). Fama (1991) argues that event studies give the most direct evidence on efficiency since they come closest to allowing a break between market efficiency and equilibrium pricing issues.

3.4 Announcement

The announcement of shareholder activism on the 23rd of November 2004 constitute the foundation for an event study. This thesis will be investigating the market reactions in the form of abnormal stock returns around the time of the announcement.

4.0 Methodology

4.1 Abnormal Performance

In its core, an event study is the investigation of the realized event output minus the expected output conditional on that the event never took place. In finance, the investigation often addresses the presence of abnormal stock returns at and around the time of the event.

Mackinlay (1997) formulate the calculation of abnormal returns as:

$$AR_{i,t} = R_{i,t} - E[R_{i,t}]$$

Where $E[R_{i,t}]$ represent the expected, or normal, return. As this expected return is not observed, it becomes a matter of estimation.

Abnormal returns and cumulative abnormal returns (CAR) remain a common measure in short-term event studies. Researchers argue whether the use of CAR or Buy-and-Hold Abnormal returns (BHAR) yield the most accurate t-statistic, however, this discussion is more acute in long-term event studies (Fama, 1998). However, Barber and Lyon (1997) report biases in abnormal returns with respect to the positive skewness in the distribution of returns. A skewed distribution would challenge the assumptions under which the p-value is calculated and thus generate biased test statistics, and increased the likelihood of over-rejection of the null hypothesis. We first address skewness by adapting the control-firm approach method for estimating normal returns.

4.2 Control-firm approach

One approach to estimating normal returns is the control-firm approach, in which event firms are matched to control firms based on specified firm characteristics. The idea is that the abnormal return associated with an event can be viewed as the difference between the event firm and the control firm, as the control firms do not experience the event, but are otherwise similar.

In notation, where E and C represent the event and control firm respectively:

$$AR_{E,t} = R_{E,t} - R_{C,t}$$

This approach requires matching on firm characteristics that effectively eliminates irrelevant determinants of return. Barber and Lyon (1997) report that the control-firm approach, when matching companies on the basis of similar market values and book-to-market ratio, yields well-specified test statistics. This in part because the approach mitigates the skewness problem since the event and control firms are equally likely to experience large positive returns. In addition to filtering matches on market value and book-to-market ratios, we also match according to 10 different economic sectors provided by Thomson Reuters (TRBC Economic

Sector), as Dyckman, Philbrick, and Stephan (1984) report that returns tend to cluster by industry.

4.2.1 Clustering

Event studies free of event clustering have the advantage of independence in stock returns, which forms the basis of an assumption of ARs being zero on average. This assumption is violated when events are clustered, as it is in our sample. Thus, not accounting for this correlation can influence the result.

Dyckman et al. (1984) show that event clustering, i.e. overlapping in event windows can lead to an over-rejecting of the null hypothesis, as even small cross-correlations in stock returns can bias the test statistic. By using the control-firm approach and matching on economic sector to calculate the abnormal performance, some of the contemporaneous correlation in idiosyncratic return may be removed (Fama, 1998). As Dyckman et. al (1984) report clustering in returns by industry, matching on economic sector should help address some of the contemporaneous correlation. Gur-Gershgoren, Zender and Hughson (2008) report that their control-firm approach procedure, matching on the industry, size and book-to-market ratio generate measurements of abnormal returns that are only minimally correlated across event firms, and robust t-stats in simulation, even when events are clustered at the same start date.

4.2.2 Regress on CAR

We define three event windows in, and around the time of the event (±6, ±3 and ±1 days). The measurement of abnormal performance throughout each window is the cumulative abnormal return:

$$CAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{i,t}$$

The hypotheses associated with the significance test then become:

$$H_0: CAR(t_1,t_2) = 0$$

$$H_{A1}: CAR(t_1,t_2) > 0$$

$$H_{A2}: CAR(t_1,t_2) < 0$$

The hypothesis is tested in Stata, using the reg command, and observing the significance of the constant term of the regression, i.e.:

reg CAR(t_1,t_2)

As reported in Dyckman et al. (1984), a measure of accumulated return, like CAR, has the advantage of addressing uncertainty about the event date, i.e. potential leakage, exists.

4.2.3 Additional Regressions

We are interested in how different factors relate to abnormal performance. If indeed announcement of shareholder activism yields an effect, it is reasonable to assume that the effect is larger where the percentage ownership is larger. Thus, we run the regression:

$$CAR_{i,t} = \alpha_i + \beta \times \%Out_{i,t} + \varepsilon_i$$

4.2.4 Power

Power is a measure of a test's ability to detect abnormal performance when it is present and can calculated by taking 1 minus the probability of a type II error, i.e. probability of accepting the null hypothesis falsely. (Kothari & Warner, 2006) report powers of 0.8 and above for sample sizes relatively small compared to our sample, (e.g. 200 vs. 664 companies). Secondly, short-term event studies are typically powerful when there is little event date uncertainty.

4.2.5 Potential Weaknesses

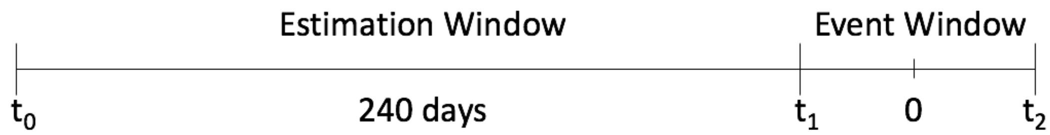
Although Barber and Lyon (1997) report a well-specified significance test, the control-firm approach is not without drawbacks. Researchers run the risk of having an imperfect match of control and event firms if, say, the number of available or adequate control firms are limited. Firm matching can become a trade-off where the matching of industry, might come at the expense of a better fit with respect to market value or book-to-market ratio. Specific risks to our sample can be associated with sub-group correlations within an economic sector. That is, 10 economic sectors might not capture all relevant cross-correlation.

4.3 The Fama-French Model Approach

To get a more robust answer, and provide insights into the event and market-specific effects, we run an additional estimation of normal return using the three-factor model, for both the event and control sample. Testing the presence of abnormal returns in the non-event sample will provide a control check, as the non-event should display no significant effect with the appropriate model. In addition, it will help illustrate the effects of the potential biases associated with event variance and event clustering.
With Fama-French three-factor estimation, the abnormal return becomes:

$$AR_{i,t} = R_{i,t} - \left(Rf_t + \hat{\alpha}_i + \hat{\beta}_{i,MktRf}(R_{m,t} - Rf_t) + \hat{\beta}_{i,SMB}SMB_t + \hat{\beta}_{i,HML}HML_t\right)$$

The normal return is estimated across an estimation of 240 days prior to the event window. The normal return is predicted for each date in the event window by the estimated coefficients and subtracted from the realized return.



Timeline for estimation and event, inspired by Mackinlay (1997)

4.3.1 Bad Model Problem

According to Fama (1998, p. 296) “all common asset pricing models, including the Fama-French three-factor model, have systematic problems explaining average returns on categories of small stocks”. Such problems would be more severe in equal-weighted average returns, compared to a value-weighted approach. Therefore, we test and draw graphs on both equal- and value-weighted averages, for which calculations are found below.

Additionally, bad-model errors in expected returns grow faster with the return horizon than the volatility of return, hence, Fama (1998) states that bad-model problems are more serious in long-term returns. Put in another way, in event studies, bad-model problems grow with the time horizon, and are therefore not as acute in short-term studies.

4.3.2 Abnormal Performance Framework

In calculating the necessary measurements of abnormal performance, we adopt the framework listed in Mackinlay (1997):

First, we are interested in the average abnormal return for each time t. We consider both equally-weighted and value-weighted averages.

$$AAR_t = \frac{1}{N}\sum_{i=1}^{N} AR_{i,t} \qquad AAR_t = \sum_{i=1}^{N} AR_{i,t} \times w_{i,t}$$

where $w_{(i,t)}$ refers to the value of stock *i* over the total market value of event firms, and N is the number of event firms.

The sample variance of abnormal returns we estimate from the variance in the residuals from the Fama-French regression:

$$\hat{\sigma}^2(AAR_t) = \frac{1}{N^2}\sum_{i=1}^{N} \hat{\sigma}^2_{\varepsilon_i}$$

Next, the cumulative average abnormal return is obtained by summing AAR across the event window. Thus, for any event interval t_1 to t_2:

$$CAAR(t_1, t_2) = \sum_{t=t_1}^{t_2} AAR_t$$

The sample variance of CAAR across any event interval t_1 to t_2 can be calculated by the following formula:

$$\hat{\sigma}^2(CAAR(t_1, t_2)) = \sum_{t=t_1}^{t_1} \hat{\sigma}^2(AAR_t)$$

4.4 Test statistic

4.4.1 t-test

To obtain robust results, multiple tests have been applied. The different test will illustrate the impact of the potential biases associated with event clustering and event variance. First, a t-test, as formulated by Mackinlay (1997) is applied:

$$\textit{t-test} = \frac{CAAR(t_1,t_2)}{\sqrt{\hat{\sigma}^2(CAAR(t_1,t_2))}}$$

Where:
H_0: $CAAR(t_1,t_2) = 0$
H_{A1}: $CAAR(t_1,t_2) > 0$
H_{A2}: $CAAR(t_1,t_2) < 0$

This test is a common test in short-term event studies, but it does not account for biases expected to be prevalent in our sample. As discussed in Mackinlay (1997), the common t-test assumes that the covariance across securities are zero. This assumption may hold when event windows do not overlap. In our case, however, event windows are clustered to one event date. As even small cross-correlations in securities can cause over-rejection of null hypotheses (Dyckman et al., 1984), a common t-test applied to our sample is likely to produce a biased result. In addition, the common t-test fails in addressing increases in variances, associated with uncertainty following the event. This could also lead to an over-rejection of the null hypothesis.

When applying the Fama-French model for calculating AR, the discussion of skewness in distribution is relevant. The standard t-test assumes a normal distribution, i.e:

$$AR_{i,t} \sim N(0, \sigma^2(AR_{i,t}))$$

4.4.2 Adjusted BMP-test

The BMP test by Boehmer et al. (1991) is designed to be robust to event-induced increases in variances of stock returns. The test utilizes standardized abnormal returns in combination with a variance estimate across the event window.

The standardized return is calculated as AR over the estimate of standard deviation of AR, i.e. the residuals across the estimation window.

$$SAR_{i,t} = \frac{AR_{i,t}}{\sigma(AR)_{i,t}}$$

Calculation of the standardized AAR (SAAR) and CAAR (SCAAR) apply the basics of the Mackinlay (1997) approach to AAR and CAAR:

$$SAAR_t = \sum_{i=1}^{N} SAR_{i,t}$$

$$SCAAR(t_1, t_2) = \sum_{t=t_1}^{t_2} SAAR_t$$

In addition, the estimate of event variance is defined as:

$$\sigma^2{}_{SCAAR} = \frac{1}{N-d} \sum_{i=1}^{N} (SCAR_i - SCAAR)^2$$

The test statistic of the BMP-test then becomes:

$$Z_{BMP} = \sqrt{N} \frac{SCAAR}{\sigma_{SCAAR}}$$

As it is, the BMP test is robust to event-induced variance increases, but do not take into account the cross-correlation of stock returns.

Kolari and Pynnönen (2010) suggest an adjustment to the BMP test that is to address the problem of cross-correlation.

$$Z_{adjusted\ BMP} = Z_{BMP}\sqrt{\frac{1-\bar{r}}{1+(N-1)\bar{r}}}$$

Where $\bar{r}$ is the average of the sample cross-correlation of residuals in the estimation window.

Potential weaknesses of the adjusted BMP test can be linked to the assumption that the average sample cross-correlation of the estimation window adequately mitigates the cross-correlation in the event window. Furthermore, a single average correlation number may not be the best, true representation of the complexity of the cross-correlation, e.g. if some correlations are outliers. However, Kolari and Pynnönen (2010) test the validity of the adjusted BMP in simulations and finds it to be robust to both event-variance increases and cross-correlation, i.e. the test rejects the null hypothesis at the correct nominal rate when the null hypothesis is true.

4.5 Skewness

Barber and Lyon (1997) point out that the control-firm approach yields well-specified test statistics and that this alleviates, amongst others, the skewness bias. Also, Barber and Lyon (1997) claim skewness is less severe for cumulative abnormal returns than buy-and-hold abnormal returns. Since both the sample and control firms are equally likely to experience large positive returns, Barber and Lyon (1997) further state that skewness is eliminated using a control-firm approach.

So far, the parametric test associated with the Fama-French estimation has assumed a close to a normal distribution of AR. To investigate the validity of this assumption, we run a non-parametric that is free of assumptions about the underlying distribution.

Standard skewness tests commonly check the distribution of a treated vs. an untreated variable. We define the event firms in the event window as treated and compare their AR with the untreated control firm´s AR, by applying a Wilcoxon (1945) matched pairs sign-rank test in Stata.

5.0 Data collection

5.1 Control-firm approach

We collected stock prices, economic sector name, market value, and book to market ratio for the Fund's portfolio companies in the time period 2003-2005 from Eikon. In order to match a control firm to each event firm, we first downloaded equivalent data on companies listed in the same countries as the Fund's portfolio companies which summed up to approximately 40,000 companies. Finally, we cleaned the data and ended up with 664 companies, organized as panel data.

5.1.1 Identifying control firm

With support in Barber and Lyon (1997), we paired the event firms with control firms on three different factors to get the best possible match. We first matched on "TR1N Economic Sector Name", provided by Eikon, which split the companies into 10 different economic sectors. As previously discussed, since Dyckman et al. (1984) pointed out that, since returns cluster by industry, matching on economic sector should remove some of the cross-correlation in returns. We then matched the event firms to the control firms with respect to the 50-days average market value, prior to the largest event window. Here, we allowed a filtering range in market value of 70% up to 130%. Last, we matched on the closest 50-days average book-to-market ratio. When the control group was finished we ended up with 664 matching pairs.

5.2 Fama-French three-factor model

We downloaded the Fama-French three-factor model from Kenneth French's website. Even though we had a large sample of potential control firms, there are limitations in matching firms when it comes to book-to-market ratios related to this being the final criteria for matching. One of the advantages of the three-factor model is that the book-to-market ratio of the firm is not required (Barber & Lyon, 1997).

5.3 Additional data

To regress on additional explanatory variables, we collected %outstanding. The %outstanding is the percentage of the total shares outstanding in a given firm that the Fund is holding. It tells how big of an investor the Fund is in a particular firm.

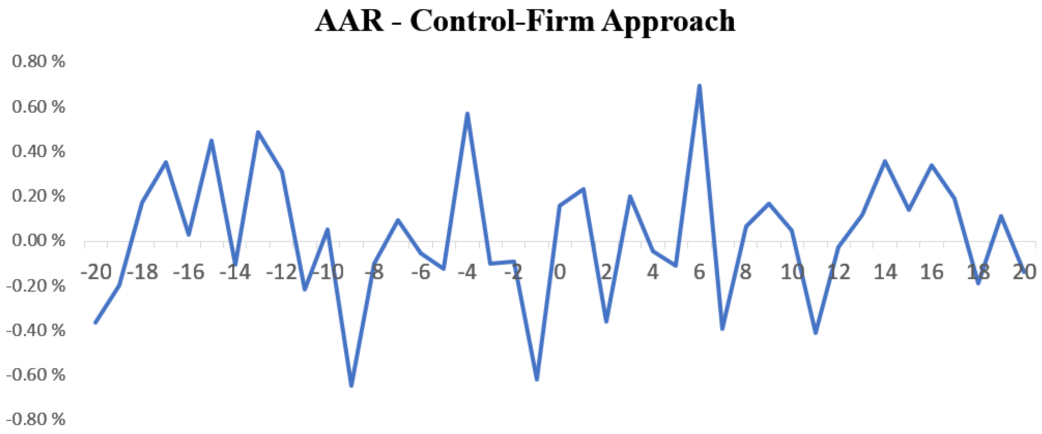
6.0 Empirical Results

In this section, we will present and interpret the results of the analyses on abnormal performance in three different event windows: (±6, ±3 and ±1 trading day(s)). The analyses are conducted utilizing the approaches described in the Methodology section. First, we analyzed daily CARs using the control-firm approach. Next, we break down the components of the control-firm approach (i.e., Event Firms and Control Firms) and analyze them separately using the Fama-French three-factor model. This will help illustrate the biases associated with event clustering aka. cross-correlation in stock returns. These biases were mitigated by applying the adjusted BMP test. Lastly, we checked the distribution of event firm ARs vis-à-vis the control firm ARs.

6.1 Control-firm approach

Figure 1 illustrates the AAR for a ±20 trading days window, where 0 indicate the event date. Throughout the largest event window (±6 days), AAR moves both up and down, and with no distinct deviations from the average volatility of other periods. Individually, event window ±3 and ±1 day(s) hold potential in that the decreases in AAR on day -1 seem abrupt, but not overwhelmingly so compared to other windows. However, it is hard to deduce anything about cumulative abnormal performance from such a plot. As previously mentioned, testing using CAR and different event window will help clarify the sustained performance, if there is any, and address concerns of leakage.

Figure 1: *The average abnormal return, estimated by control-firm approach, in a 20 trading day window around announcement*



To test the abnormal performance, we calculate the CAR for each event window for each stock *i* and regress in Stata. Thus, the significance of CAR is addressed by the t-stat of the constant term from the regression. The output of this regression is presented in Table 1 below.

Table 1: *The regression of control-firm approach CAR, i.e.: reg CAR(t_1,t_2).*

Event Window	**[-6, +6]**	**[-3, +3]**	**[-1, +1]**
CAR	0.3433%	-0.5840%*	-0.23044%
	(0.3345%)	(0.2737%)	(0.1591%)

* p<0.05; ** p<0.01; *** p<0.001

The regression suggests a significant effect at the 5% level in the ± 3 days window, where the CAR is -0.584 %, assuming we have mitigated biases associated with cross-correlation (which we will see is not the case) by assigning good matches In addition, the CAR is negative on average for the ±3 and ±1 windows, which is contradictory to most research on shareholder activism effects. Negative effects could be linked to Volkova (2017) if other shareholders believe that the corporate governance policy of the Fund challenges their interests.

If indeed there are any announcement effects, then it is reasonable to expect that the effects are positively correlated with the percentage of outstanding shares held by the Fund in the company. We test this relationship in a regression, presented in table 2 below:

Table 2: $CAR_i = \alpha + \beta \times \%Out_i + \varepsilon_i$

Event Window	**[-6, +6]**	**[-3, +3]**	**[-1, +1]**
%Out	0.5411316	0.5588198	0.2221365
	(0.5025201)	(0.4131647)	(0.23745)

* p<0.05; ** p<0.01; *** p<0.001

The coefficient of %outstanding shares is positive, but not significantly so, for all event windows. This suggests that the market does not price the potential announcement effect according to the potential impact of activism, which is a questionable conclusion. Perhaps a much more plausible suggestion is that other factors influence the result, or simply that the significance of the ±3 days CAR from Table 1 is exaggerated.

To check the robustness of the initial Table 1 results, we run a placebo test at various, fake event windows, and find sporadic significances. As previously mentioned, matching 10 different economic sectors might not adequately remove all cross-correlations. Calculated in a separate correlation matrix, we discover an average correlation between ARs in the estimation period of 1.69 %. Although much of the correlation has been removed compared to initial calculations in the upcoming Fama-French model (11.99% correlation), Mitchell and Stafford (2000) show that correlation of this magnitude (e.g. 1% or 2 %) can lead to biased test-statistics. We investigate and mitigate the cross-correlation effect in the following section.

6.2 Fama-French three-factor model

In order to better understand and illustrate the effect of cross-correlations by event clustering, and to approach an unbiased conclusion on the announcement effect, we break down the elements of AR (i.e. event and control returns), and apply the Fama-French approach to AR on each element individually. In the following, we present the results from this analysis.

6.2.1 Preliminary Analyses

Following the Mackinlay (1997) framework and the Fama-French three-factor model, we plot graphs of the AAR and CAAR of the event and control firms. In itself, the event firms' equally-weighted AAR (Figure 2) show a sharp decrease on date -1, which could indicate some form of announcement effect with leakage. However, when plotting the control graph, we observe that a weaker, yet similar decrease in day -1. This could suggest that the apparent effect observed in event firms are generated by market-specific determinants, and amplified by the cross-correlation. Thus, the graph illustrates how event clustering can bias the result in form of over-rejecting the null hypothesis, if not such cross-correlations are taken into account. The lack of difference in AARs in the event window(s) become even more apparent when plotting a value-weighted average (figure 3). This average assigns less weight to the smaller stock, for which returns are notoriously hard to predict. The fact that the difference between day -1 event and control AARs are less in figure 3 than figure 2, could mean that not only was the theorized effect in figure 2 influenced by cross-correlation, but also the bad-model problem associated with the prediction of small-stocks returns.

Figure 2: *The AAR, estimated using FF model, of both event and control firms, in a 8 trading days window around announcement. Average calculated by assigning equal weights to all firms.*

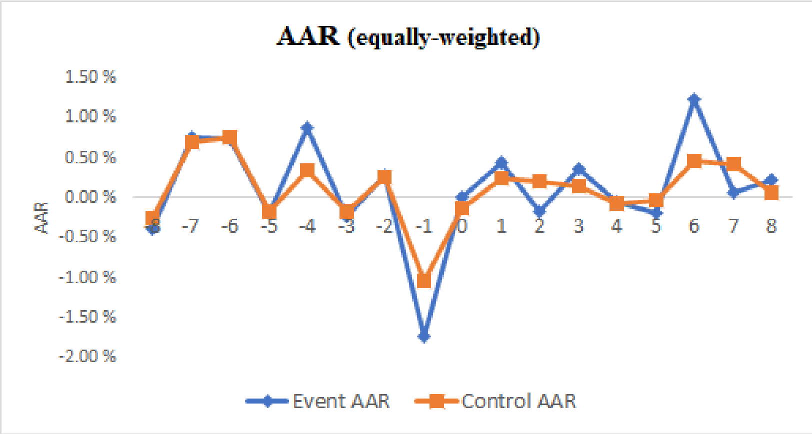


Figure 3*:The AAR, estimated using FF model, of both event and control firms, in a 8 trading days window around announcement. Average calculated by weighting according to market value (size).*

However, we are interested in the cumulative abnormal performance over the specified event windows. To gain a preliminary overview, we plot the CAARs across the event windows in a graph, both for the event and control firms (Figures 4 and 5, respectively). The CAAR-graphs below are equally-weighted averages, while value-weighted CAAR-graphs, found in the appendix largely display the same patterns (figures 7-9).

Figure 4: *The CAAR of event firms in various event windows. Average calculated by assigning equal weights to all firms.*

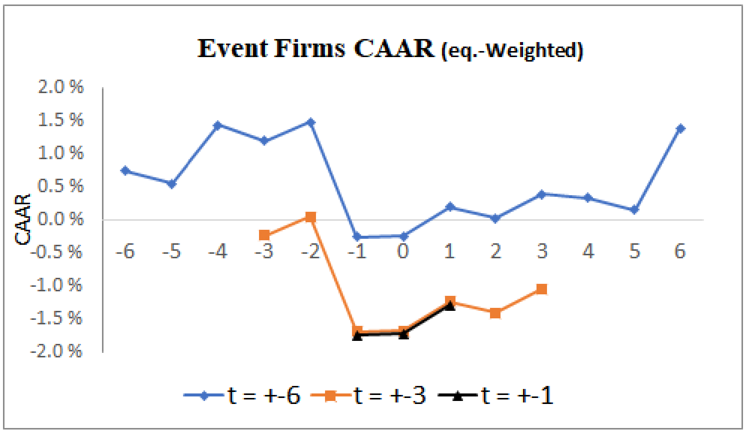
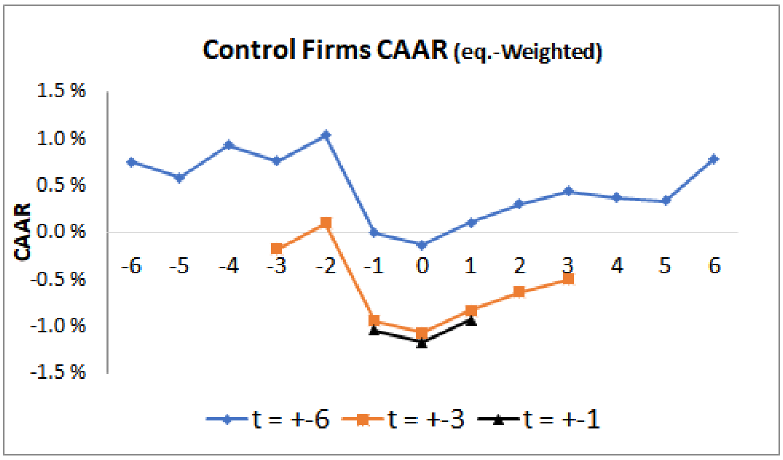


Figure 5: *The CAAR of event firms in various event windows. Average calculated by weighting according to market value (size).*

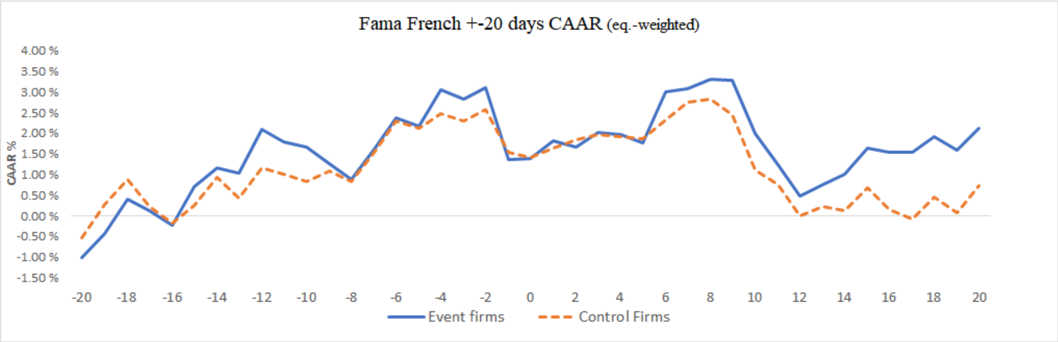


The CAAR plots shows the previously mentioned decrease on day -1. For the ±6 day window, the CAAR, for the most part, reverts to its starting point, following the decrease on day -1. For windows ±3 the drop is not reverted to the same extent. The ±1 start off at a low point, capturing the decrease of day -1, i.e. capturing the returns that appear most abnormal. Since this event window both capture the drop of day -1 and represent the shortest window, and therefore the lowest (cumulative) standard error (ref. methodology section), the ±1 window is the one most likely to approach significance in testing.

It is worth noting that the CAAR-patterns of control firms are very similar to the CAAR of the event firms. This is in line with our developed argument on the effects of event clustering. Had events not overlapped, the control firms CAR should on average be equal to zero, as we know it is free of the potential event effects.

By figure 6, we compare the CAAR of event firms and control firms in a ±20 trading day window. There is no clear event-deviation from the event-free control group around the time of the event.

Figure 6: *The CAAR of event firms and control firms in a 20-days event window. Average calculated by assigning equal weights to all firms.*



6.2.2. Standard t-test

We performed a t-test, presented in table 3, on the event firms and control firms CAAR, for each event window using both equally-weighted average and value-weighted averages. The result of such a test is prone to biases on both issues of event induced-variances and cross-correlations in stock returns. Thus, we expected a biased result, and the only reason for reporting the numbers is to illustrate the magnitude of these biases and to have a base of comparison towards tests that better mitigate the biases.

Table 3: *T-test on CAAR using the standard error estimate of FF regression, ref. Mackinlay (1997) framework. NB! cross-correlation bias not adequately mitigated*

t-test	Equally Weighted Average			Value-Weighted Average		
	[-6, +6]	**[-3, +3]**	**[-1, +1]**	**[-6, +6]**	**[-3, +3]**	**[-1, +1]**
Event firms						
CAAR	1.3872 %	-1.0349 %	-1.2870%***	0.5877 %	-0.4055 %	-0.8069%**
t-stat	1.27	-1.76	-5.10	0.54	-0.69	-3.19
Control Firms						
CAAR	0.7908 %	-0.4930 %	-0.9307%***	1.0473 %	-0.3519 %	-0.8824%***
t-stat	0.70	-0.81	-3.59	0.93	-0.58	-3.40

* p<0.05; ** p<0.01; *** p<0.001

In this biased test, the CAAR of event window ±1 is significant at high levels, both for control firms and event firms, in both equally-weighted and value-weighted terms. The CAAR is negative, which would indicate that investors were negative towards the shareholder activism policy change of the fund. The fact that the effect is significant in control firms is a good indicator of issues in the model. Clearly, the abnormal performance of control firms should not be significant in this period. The result illustrates how cross-correlation from event clustering can lead to over-rejection of the null hypothesis. Other biases may be present as well, e.g. event-induced variance increases and skewness. In order to obtain a more robust result, another model is needed.

6.2.3 The adjusted BMP test

As discussed in the methodology section, the adjusted BMP test address the biases of event clustering and event-variance increases. We first report the estimation window sample average cross-correlation of residuals from the Fama-French prediction in table 4.

Table 4: *Sample average estimation window cross-correlations of residuals*.

	Equally-weighted	Value-weighted
Event firms	11.99%	8.86%
Control firms	10.46%	11.27%
Control Approach	1.69%	

The appropriate cross-correlation average is applied as $\bar{r}$ in the adjusted BMP test, across both event and control firms, and on an equal and value-weighted average of SCAAR. As previously discussed, the adjusted BMP mitigate the event variance and cross-correlation. Thus, a lower significance level is expected compared to the t-test. The result of the adjusted BMP test is presented in table 5.

Table 5: *The adjusted BMP test across the specified event windows, firms and averages.*

Adjusted BMP	Equally-Weighted Average			Value-Weighted Average		
	[-6, +6]	**[-3, +3]**	**[-1, +1]**	**[-6, +6]**	**[-3, +3]**	**[-1, +1]**
Event Firms						
SCAAR	0.8121	-0.3343	-0.5717	0.1906	-0.1344	-0.4203
Z-BMP adj.	0.72	-0.38	-1.12	0.19	-0.18	-0.97
Control Firms						
SCAAR	0.6929	-0.0304	-0.3698	0.7796	-0.1229	-0.5203
Z-BMP adj.	0.63	-0.04	-0.68	0.68	-0.14	-0.92

* p<0.05; ** p<0.01; *** p<0.001

When applying the adjusted BMP test statistic, none of the event firm windows' SCAAR are significant at 5%, or even a 10% level. This is also true for the control firms, which is good considering that we know these firms to be free of any event-induced abnormal return. It would appear, that when taking cross-correlation and event-induced variance increase into account, there is no significant announcement effect associated with the announcement of shareholder activism in the Government Pension Fund Global at the 23rd of November 2004.

Previous studies, like Kim et al. (2009), report a positive significant effect of activism announcement. There could be a few reasons as to why our result deviates from earlier studies. In light of Volkova (2017) reporting that heterogeneity among active shareholders can cause frictions and destroy value, one theory is that the nature and characteristics of the fund's new corporate governance policy challenges the interests of existing owners in some companies. Furthermore, the announcement could have been anticipated and the change to activism more gradual than it first appeared, or the information might not have reached investors. Moreover, it could be the case that since the fund typically holds a small percentage of shares outstanding in each company, shareholders question the actual impact of the fund's activism efforts, as theory dictate that small owners mostly free ride on the decisions of larger owners.

6.2.4 Non-Parametric Test

As stated in the methodology section, we perform a Wilcoxon matched pairs sign-rank test, for which results are presented in table 6. This we do comparing the distribution and mean of ARs for event firms with the distribution and mean of control firms in event window ±1.

Table 6: *The Wilcoxon matched pairs sign-rank test*

sign |	obs	sum ranks	expected
positive |	1010	969312	992514
negative |	982	1015716	992514
zero |	0	0	0
all |	1992	1985028	1985028

Wilcoxon	**[-1, +1]**
Z	-0.904
p-value	0.3662

There are no significant differences in the mean and distribution of the event firms and the control firms, once again suggesting that there are no particular effects related to the announcement of shareholder activism.

7.0 Conclusion

This study examines the impact on stock returns following an announcement of shareholder activism in the Norwegian Government Pension Fund Global. On the 23rd of November 2004, the Norwegian Finance Ministry announced changes in the laws regulating the fund’s approach to corporate governance. These changes included an active approach of exercising ownership rights, such as voting at all general assemblies.

First, adopting the control-firm approach to calculating abnormal performance, preliminary results indicate a negative effect associated with the announcement. We find no significant link between the magnitude of the abnormal performance and the % of outstanding shares held in the respective company. Furthermore, the control-firm approach model fails in placebo testing, indicating that cross-correlations need to be further mitigated.

Estimating abnormal returns through the Fama-French three-factor model and running tests on both event firms and control firms, for both equally and value-weighted averages, we test the cumulative average abnormal return (CAAR), first using a standard t-test. Here we observe significant negative CAARs for an event window of ±1 trading days. The standard t-test, however, does not adequately address the event-variance and cross-correlation biases. This is evident from significant abnormal performance in control firms.

Next, we calculate the standardized CAAR (SCAAR) and apply the adjusted BMP test (Kolari & Pynnönen, 2010). This test is designed to mitigate the biases in our preliminary work, i.e. variance and correlation. When applying this statistic, all significance disappear. This suggests that there are no effects associated with the announcement of activism in the Government Pension Fund Global. This result is supported by a non-parametric test comparing the event firms and the control firms in the event window.

The absence of abnormal performance associated with activism contradicts some of the evidence from previous studies. Frictions between the corporate governance policy and interest of the fund might contradict the interests of other shareholders, which Volkova (2017) claims can have a negative effect on performance. Such effects could counteract the average announcement impact on firms free of frictions. Moreover, the shift towards activism was gradual, and the market may have expected and already priced the activism effects prior to the announcement, or the announcement was simply not caught up by the international market. Furthermore, the fund owns relatively small portions of each event firm, thus the market could question the actual impact of their activism to the point that any announcement effects are completely diluted away. In future studies, researchers could consider these questions and more to further validate (or disprove) the findings of this thesis, namely that there was no significant effect from announcing shareholder activism in the Government Pension Fund Global.

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Appendix

Figure 7:

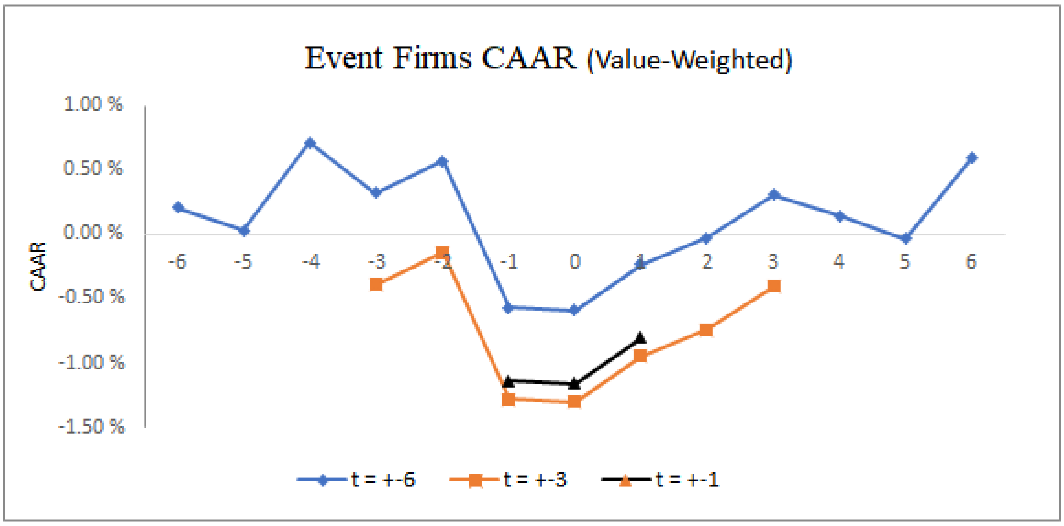

Figure 8:

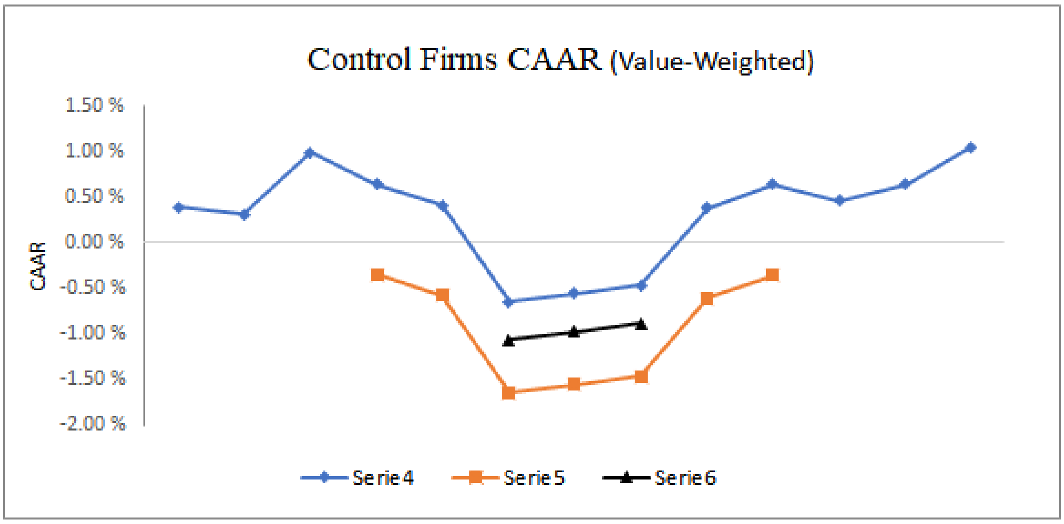

Figure 9: