Corporate Ethical Behaviours and Equity Value: evidence from the Norwegian Sovereign Wealth Fund's ethical exclusions*

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Abstract

This paper investigates the effect of corporate ethical behaviour on firms' equity value by using the Norwegian Sovereign Wealth Fund's ethical exclusions as a quasi-natural experiment. I document that there is a negative price reaction to exclusion announcements. On average, a firm loses $65 million in equity value around the announcement day of ethical exclusions. However, the negative value effect is reversed within the two weeks after the exclusion announcement. In addition, for institutional investors, I document that there is a shift in ownership away from endowment and pension fund investors. Among mutual funds, Growth and GARP funds reduce holdings in relative terms, while Index and Yield funds increase holdings. Taken together, the results suggest that while ethical investing has an impact on equity value, this impact is transitory because of clientèle effects. Namely, the effects of ethical investing on equity value are weakened by the existence of ethics insensitive investors.

JEL classification: G11, G14, G23, G31, M14

Keywords: ethical investing, equity value, sovereign wealth funds, clientèle change, ethical behaviour

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1 Introduction

Ethical investing practices have gained attention in recent years, with an increasing number of investors employing ESG and/or SRI factors in the construction and monitoring of their portfolios. For the US, the US Social Investment Forum (2016) calculates that total US-domiciled assets under management employing SRI strategies make up one out of five dollars of professionally managed assets. In consequence, while firms were previously judged primarily on traditional performance metrics of profitability and growth, nowadays they are increasingly facing pressure to disclose and improve their ethical behaviours. Furthermore, if they fail to live up to investor standards they may face exclusion from portfolios and/or active investor pressure to change practices deemed unethical.

The paper aims to determine if and how ethical investing affects companies' equity value. The Norwegian Sovereign Wealth Fund's ethical exclusions are used as an experimental tool to conduct the analysis. The exclusions provide a unique and interesting setting as they are not based on the firms' financial performance but introduce detailed information to the market about their (perceived) unethical behaviour. Furthermore, usually the Fund has divested the firm shares at the time of announcement so information about the fund selling shares is separated from the information about the firm's ethical behaviour. Crucially, exclusions are based not just on past perceived unethical behaviour, but also on reasonable beliefs that such behaviour would continue into the future.

There are several plausible mechanisms through which equity value would be affected by a large institutional investor excluding a firm from their portfolio for ethical reasons. First, there could be demand-driven price changes whereby prices decline on the announcement of a reduced investor base. In that case, we should see a price reversal if an exclusion is revoked. However, in the absence of a revoked exclusion, there should be no price reversal in the short term. Second, ethical exclusions could reveal bad firm fundamentals, which would again imply a price decline with no reversal. Third, investors could be overreacting to the exclusion announcement. Then, there would be a short-term price decline and a subsequent price reversal. Such would also be the price impact of a clientèle change where once unethical behaviour is revealed, ethically minded investors sell their firm shares. However, when prices decline, investors who do not use ethical concerns in their investment decisions buy the reduced-price shares and push prices up. The key difference between the mechanisms is whether a price reversal is observed or not. Additionally, a clientèle change effect also implies a change in the ownership structure of a firm. The paper evaluates the price reaction to the exclusion announcement as well as the direction of observed ownership changes in order to determine which mechanism seems to best describe the setting.

The analysis makes use of hand-collected information on exclusion recommendations announcements. Data on returns and firm characteristics is collected from Datastream and returns are benchmarked vs the regional Fama French factors. Ownership metrics come from Worldscope (via Datastream), and Factset LionShares. The paper employs an event study methodology to analyse returns around the exclusion announcement dates. To determine changes in the ownership structure, ownership categories before and after the announcement date are compared to one another.

The main results are the following. For ethical exclusion announcements, I document a negative initial return impact. On average firms lose \$65 million around announcement day (-1.10%, CARs -2 to 0 days, including potential information leakage) and \$185 million of Market Capitalization by day 5 (-1.75%, CARs -2 to 5 days). The negative return impact is not long-lasting, and is reversed within two working weeks. When a revocation of an exclusion is announced, there is no statistically significant price reaction.

Looking at the determinants of Cumulative Abnormal Returns (CARs), higher turnover is associated with lower (more negative) CARs, suggesting firm liquidity makes it easier for ethics sensitive investors to sell shares. When analysing North-American firm exclusions on their own, the returns impact of exclusion lasts longer than for the main sample, suggesting US investors have higher ethics sensitivity than investors in other regions. In the CARs regressions, firms based in North America have statistically significant lower CARs, even after accounting for stock turnover, implying that liquidity is not driving the results.

The returns analysis uses the announcement date of the exclusions to measure when information about unethical behaviour is made public. The Fund usually divests shares prior to announcement. In fact, a negative price reaction is observed around 20 working days prior to the exclusion announcement, and reverses within 10 working days. This is likely to coincide with the physical disposal of shares, at which point investors may observe increased number of shares being offered for sale but would not have information about the reasoning behind their disposal. On the other hand, on the exclusion announcement date, investors receive detailed information about unethical behaviour and usually have no expectation that the Fund will need to sell the shares in the future. In the few cases where the Fund has not divested on the exclusion announcement day, there are slightly lower CARs in the first 2 days of announcement, but this becomes an insignificant factor by day 2, at which point CARs have not yet reached their lowest value yet. Importantly, when I compute CARs for a sample excluding the firms where the fund has not sold its shares by announcement day, the results show the same pattern as those for the main sample.

To check if firms which are later reincluded in the investment universe of the Fund differed from firms which have not yet had their exclusion revoked, a dummy indicating the presence of future reinclusion is included in the CARs regression specification, which is insignificant across the different horizons, arguing against the hypothesis that there is no effect for reinclusions because they are inherently different firms from the main exclusion sample.

Another concern for the results can be that they are driven by an announcement that the fund will not invest in a given firm, not that the firm is acting unethically. However, the magnitude of CARs does not depend on whether the Fund owned shares in the excluded firms. Additionally, firms for which an exclusion recommendation was published but where the recommendation was not followed have similar negative CARs to the excluded firms. Furthermore, they do not have statistically significantly different CARs from those of the excluded firms, when analysed in a regression framework. Moreover, if the returns impact reflects ethical concerns, its size should depend on the magnitude of the concerns. Arguably, it should be larger for product vs conduct-based exclusions as conduct can be improved but products usually form a large proportion of firm revenues and therefore make it harder for a firm to change its ethics behaviour and later be reincluded into the portfolio. While conduct exclusions do not appear to have statistically different CARs from product exclusions, when looking at the CARs regressions (which include other firm factors), they do have an average lower magnitude than product exclusions in a graphical comparison.

The pension funds and endowments category is likely to contain more ethics sensitive investors than other institutional investor classes as they often have multiple stakeholders to answer to, some of which may care about ethical metrics as well as returns. Additionally, endowments in specific may have a charitable function and this may also affect their investment decisions. Indeed, analysis using the LionShare Ownership data shows declining ownership by the category in the quarters following exclusion. Additionally, using Worldscope data, I document that free float ownership by the category is statistically significantly lower on average in the two years before the events vs the two years after the events.

Similarly, one would also expect funds to react differently to the exclusion announcement depending on their type. On one hand, Index and Yield funds may be deemed less ethics sensitive as Index funds emulate the holdings of a pre-defined benchmark and Yield funds focus mainly on the ability of firms to provide yield-type return. On the other hand, Growth and GARP (growth at a reasonable price) funds can be more flexible in their stock selection. Consistent with these priors, I show that Index and Yield funds increase their stock holdings in excluded firms more than the overall fund industry, while the opposite is true for Growth and GARP funds.

Since there is a price reversal in returns, my results are inconsistent with the demand-driven and bad firm fundamentals mechanisms. Furthermore, there is also no positive price impact when exclusions are revoked, to the further disadvantage of the demand-driven price changes mechanism. The price reversal lends support to the overreaction and the clientèle change mechanisms. I also document changes in the ownership structure of the firms which further strengthens the clientèle change hypothesis.

The main contribution of the paper is to analyse the effect of corporate unethical behaviour on equity value. It shows that there is an effect, but this is not long-lasting due to clientèle changes. The analysis is notable for identifying the mechanism through which unethical behaviour affects equity value. As well as determining the current impact of unethical behaviour it also allows conjectures to be made for how the impact may be affected by changes to the proliferation of ethical investing. Indeed, if more investors become concerned with corporate ethical behaviour, one would expect the return effects to be more pronounced and have a longer duration, which is consistent with the observed protracted impact of North American exclusion announcements. Therefore, ethical investing practices can benefit from being assessed by not only looking at their current magnitude and impact but also by placing them in the context of their potential effect in a world where an increasing share of investors may become ethics sensitive.

Other papers have analysed the returns around the Fund's exclusions (e.g. Dewenter et al. (2010) and Beck & Fidora (2008)) without linking them to corporate ethical behaviour, or analysed the consequences of CSR activities (e.g. Ferrell et al. (2016), El Ghoul et al. (2011)), which comprise a broader metric of firm behaviours. Furthermore, CSR metrics can be mechanical and backward-looking, whereas the Fund in most cases provides a detailed report on its reasoning and excludes companies not just based on past transgressions but where the risk of unethical behaviour continuing in the future is considerable.

The reminder of the paper is organized as follows. Section 2 briefly reviews the relevant literature. Section 3 describes the data, the sample, and the empirical methodology. The main empirical results, which describe the returns analysis, are presented in Section 4. Changes to firm ownership are reported in Section 5. Section 6 concludes.

2 Related Literature

Several strands of literature are related to ethical divesting by institutional investors. Both Dewenter et al. (2010) and Beck & Fidora (2008) analyse the impact of the Norwegian Fund's exclusions and find no statistically significant effect.

Theoretically, according to Merton (1987) a larger investor base is expected to reduce the cost of capital (returns) of firms and increase their value. This is consistent with empirical analysis by Foerster & Karolyi (1999), who find reduced long term returns of firms cross-listing their shares in the US. By that logic, a reduced investor base will in contrast lead to lower firm value (short term) and higher cost of capital (long term). Similarly, Wurgler & Zhuravskaya (2002) argue that stocks have non-flat demand curves due to lack of perfect substitutes which creates limits to arbitrage.

Furthermore, since institutional investors are considered well placed to perform firm monitoring, an exclusion by a large institutional investor can give information to the market about firm risks or fundamentals which were previously unknown. For example, the threat of exit by a large shareholder can have a positive disciplinary effect on management (Admati & Pfleiderer (2009)). Models show that even in the presence of the free-rider problem, monitoring by large shareholders will occur (Admati et al. (1994)), although the level of monitoring can be sub-optimal (Shleifer & Vishny (1986)). The effect of share liquidity on monitoring is ambiguous. On one hand, liquidity makes it easier for institutional investors to sell shares vs engage with management when they believe management is pursuing a value-reducing endeavour (Back et al. (2013)). However, on the other hand, better liquidity can improve monitoring by making it less costly to accumulate large ownership shares in the first place (Maug (1998)) as well as make the threat of exit more credible (Edmans (2009)).

Empirically, there is some evidence that firms with higher institutional ownership have higher valuations (foreign and independent institutional ownership in Ferreira & Matos (2008)), as well as that long term investors intervene with firm governance more than short term investors and use voice as well as exit (McCahery et al. (2016)). Additionally, institutional investors can affect changes in governance (e.g. involuntary CEO turnover in Parrino et al. (2003)), and influence the likelihood of mergers and be related to post-merger performance (independent long-term institutions (ILTIs) in Chen et al. (2007)). Some types of institutional investors are also more likely to be more active monitors (mutual funds, foundations and public-employee pensions funds in opposing anti-takeover measures in Brickley et al. (1988))

Similarly, there is a vast literature on ethical, CSR (Corporate Social Responsibility), SRI, (Socially Responsible Investing), and ESG (Environmental Social and Governance) issues in investing and firm management. In general, Bénabou & Tirole (2010) present three perspectives on CSR: as an adoption of a long term viewpoint in firm decision-making, as delegated philanthropy for the benefit of firm stakeholders, and/or as philanthropy initiated by firm insiders, with the third option being undesirable. In the same vein, Jensen (2001) argues that firm managers should strive to maximise firm total market value as opposed to stakeholder value, partially to avoid the difficulty in weighing in trade-offs between the interests of different stakeholders which management can exploit to their benefit. In a simplified environment, a standard economic solution to unethical firm behaviour which causes societal externalities would be for government to impose taxes equal to the net social cost of such behaviour (Pigou (1920)). However, such a solution may not work when the government is unable to quantify the relevant costs or if special interests can lobby to prevent such action. In general, if enough institutional investors divest firms for acting unethically to the point that their increased cost of capital is higher than the cost of reform, then firms would likely improve their practices, making divestment an effective tool to improve behaviour (Heinkel et al. (2001)).

Empirically, Ferrell et al. (2016) find a positive relationship between CSR and firm value. Similarly, Dhaliwal et al. (2011) show that firms which rank favourably on CSR metrics compared to their peers benefit from a reduced cost of capital after starting to disclose CSR. Furthermore, such disclosures attract dedicated institutional investors as well as increased coverage by analysts. Similarly, El Ghoul et al. (2011) find that firms with better CSR scores have lower costs of equity while firms in ”sin” sectors, such as tobacco and nuclear, have higher cost of equity. Looking at the cost of debt, Goss & Roberts (2011) show that firms with CSR concerns are offered higher-spread bank loans (an economically modest but statistically significant effect).

In the short term, investors seem to react negatively to adverse CSR firm events in general (Krüger (2015)) and to adverse indicators such as firms exiting the Domini 400 Social Index (Becchetti et al. (2012)). Similarly, firms experience negative returns when they are found to have behaved irresponsibly with regard to the environment, and positive returns in the opposite case (Flammer (2013)). Firms experiencing chemical disasters also face a negative market reaction, especially those with bad prior records (Capelle-Blancard & Laguna (2010)).

Nevertheless, results of returns at the portfolio level are mixed. Derwall et al. (2005) find that a portfolio high on eco-efficiency (firm economic value added/generated waste) outperforms a portfolio low on eco-efficiency. On the other hand, Bauer et al. (2005) find no performance difference between ethical and conventional mutual fund performance. However, looking at the longer term performance of firms likely to be excluded by ethical investors, both Hong & Kacperczyk (2009) (alcohol, tobacco and gaming) and Kim & Venkatachalam (2011) (also include adult services, biotech, defence) find that "sin" stocks outperform the market.

Finally, some papers analyse the effects of activism by a single institutional investor. For example, Smith (1996) analyses shareholder activism by CalPERs and shows shareholder value increases for compliant firms, Carleton et al. (1998) document the relatively successful engagements (more than 95%) with management by TIAA-CREF on corporate governance issues, and Dimson et al. (2015) find positive abnormal returns following successful SRI-related activism by an unnamed large institutional investor.

3 Data, Empirical Methodology, and Summary Statistics

3.1 Data

The events data consists of exclusions made by the Norwegian Sovereign Wealth Fund for ethical reasons. The Fund is a large institutional investor and is ranked as the third largest sovereign wealth fund by the Sovereign Wealth Fund Institute. It has assets of over 900bn USD, 62.5% of which is currently allocated to equities. It invests in around 9,000 companies worldwide, owns c1.3% of all listed companies worldwide, and c2.5% of listed companies in Europe. The Fund provides considerable information to the public with regards to its decisions to exclude, monitor or reinclude companies due to ethical reasons. Following exclusion (and any reinclusions) decisions it makes a public announcement of the decision and in most cases also publishes a detailed report on the reasons behind the exclusion.

Additionally, exclusions can be for product-based reasons (involvement with nuclear power, tobacco, coal, etc.) or conduct-based (environmental damage, corruption, human rights violations, and so on) which adds further depth to the dataset.

The data on exclusion recommendations is collected from the website of the Norwegian Council on Ethics. This contains annual reports as well as individual recommendations for companies and specific sectors (e.g related to nuclear weapons). Notably, recommendations are based on thorough research into the companies and as well as looking at past behaviour also rely on a reasonable expectation that such behaviour will persist in the future. This is in contrast to standard CSR metrics such as the KLD (Kinder, Lydenberg, Domini Research & Analytics), which measure past exposures and have been criticised for not taking full advantage of publicly available data (Chatterji et al. (2009)).

Until 2015, the Council on Ethics would submit recommendations to the Ministry of Finance, which made the final decisions to accept or reject recommendations to divest a company and to revoke exclusions in a company. Norges Bank was then responsible for acting on the decision taken. From 2015 onwards, the Council on Ethics reports directly to Norges Bank, which then decides on accepting or rejecting the recommendation. The changes were implemented in the hope of increased coordination of divestment and engagement initiatives. (Council on Ethics for the Government Pension Fund Global (2014)).

Once a recommendation is published, the data on when the recommendation was submitted by the Council on Ethics becomes public. The exact divestment time is, however, often unclear. It is in Norges Bank interest to publish the recommendation to divest after executing on it so as not to have the market move against them. Ownership data is available for the companies at a quarterly level and for the majority of cases the time exclusions indeed happen after the recommendation is made but before announcement. On some occasions, however, divestment seems to follow the announcement (see Appendix Table B.1).

Firms returns data was collected from Datastream. Regional Global Fama French factors are used to benchmark firm returns. These are updated factors of those initially described in Fama & French (2012), and are calculated using data from 23 countries, listed in Table 1. Stocks are sorted into four regions (North America, Europe, Japan, and Asia Pacific exc. Japan). Currently, the Daily Global Fama French Factors are updated until 30th June 2016, which limits the abnormal returns analysis to that date.

[**Insert Table 1 here**]

Two datasets are used to analyse changes to the ownership structure of firms.

First, Datastream, via Worldscope, provides data on pension funds and endowment ownership of firm free float shares. As average ownership level is analysed over a 2 year period, 58 firms are matched (due to data availability and the need for firms to have been excluded for a longer period). The (-2,2) days horizon is excluded from the analysis as due to possible information leakage.

Second, FactSet Ownership (or FactSet LionShares, formerly LionShares, Ferreira & Matos (2008)) provides data on global firm ownership. It includes data for c13,000 institutions, c33,000 mutual fund portfolios and c280,000 non-institutional insider/stakeholders. For US-traded equities, data is collected by combining mandatory 13F filings with the SEC and individual mutual fund SEC filings (N-30D). For equities listed outside the US a combination of regulatory agencies data, stock exchange announcements, mutual fund disclosures and company-provided data (e.g. in annual reports) is used. Ownership data is collected for all types of shares (ordinary, preferred, American Depository Receipts (ADR), Global Depository Receipts (GDRs), as well as dual listings). The LionShares Ownership data is only available until Q1 2013 so 53 firms are matched across the analysed horizon.

FactSet also provides funds holdings data (until Nov 2016). This was matched with the Norway exclusion data to analyse changes in the characteristics of funds which owned excluded firm shares. Measures of fund style (Growth, Index, GARP (growth at a reasonable price), and Yield)) are analysed for changes in the total number of shares held by funds of the relevant category before the event (Quarter -1), and after the event. The growth in shares owned by all funds is used as a moderator.

3.2 Returns Analysis Methodology

Cumulative Abnormal Returns (CARs) and Calendar Returns were used to detect if abnormal performance was present. CARs regressions are also used to supplement the analysis, where CARs are regressed on firm characteristics and relevant dummies.

Expected returns are calculated for an estimation window before the event which includes day -480 to -31 days vs the event. A slightly smaller estimation window was employed for two companies where the full window data was not available. Following that, the model is forecast over the event window and calculates abnormal returns as the difference between the expected and actual returns.

The market model factors used to estimate expected returns are the Daily North America, Asia-Pacific ex Japan, Europe, Global ex US, and Japan Fama French 3 and 5 factors (referred to as FF3 and FF5 factors). Standard abnormal returns statistics are used. Formulas for abnormal returns are taken from Chapter 4 of Campbell et al. (1997), Kolari & Pynnönen (2010) and Dewenter et al. (2010). The statistics formulas are provided in the Appendix. Notably, while the majority of statistics assume cross-sectionally independent events, while the J_2^* accounts for cross-sectional correlation in order to correct for event clustering, which is present in the data.

In the calendar returns analysis, portfolios are created where divested stocks are held for -2 to 1,2,.. 10 days relative to the event date and when there is more than one stock held on a certain date the returns are equally weighted together. These portfolios are then regressed on the Total Fama French Daily Global factors and the significance of the intercept (alpha) is assessed in order to determine any over or under-performance vs the benchmark. This method is used in various research papers such as Barber & Odean (2000) and Brav & Gompers (1997).

3.3 Summary Statistics

Appendix Table B.1 shows the sample construction for the daily returns exclusion analysis. Although there were 125 firms which have been excluded in the analysis period, a number of cases were removed from the analysis, such as cases where there was no returns data available on Datastream. After cleaning the data, we are left with 116 events.

Table 2 shows summary statistics for the sample. The event distribution over time is shown in Panel A. The coal exclusions in April 2016 significantly increase the 2016 numbers, making up 44 of the 46 cases. The exclusion sample is global and comprises of a variety of countries, as displayed in Panel B. Although the United States is the single largest country by events, the most frequent region is the Asia-Pacific, with 50 events. The sample also represents numerous industries, shown in Panel C. Unsurprisingly, the most frequently represented industries tend to be those more likely to be excluded for unethical products, such as tobacco, coal, and defence. Panel D summarises the main firm characteristics for the firms in the sample, where the data is available. It demonstrates that the firms display variety across the metrics displayed.

[**Insert Table 2 here**]

4 Main Results

This section employs the abnormal returns to investigate whether there is an effect on stock performance after the exclusion announcements, and if so, how the shape of the impact compares to the one anticipated by the different mechanisms described previously. As mentioned above, the announcement return impact not being reversed would be consistent with the demand-driven and bad fundamentals mechanisms, while a reversal would be supportive of the overreaction and clientèle change mechanisms.

4.1 Returns Analysis

The various exclusions abnormal returns metrics are showed in Table 3. Average CARs and J_1 statistics are displayed in Panel A. While Average CARs are not significant when dividing them by their standard errors and checking for significance, as in Dewenter et al. (2010), the J_1 statistic is significant for horizons up to 6 days after the event, being lowest 4 days after the event. Similarly, Panel B shows z-score (again from Dewenter et al. (2010)), J_2, and J_2^* statistics which are also significant over shorter horizons - from -2 days to 0-5 or 6 days. Crucially, the J_2^* statistic being significant gives higher credence to the results, since the statistic adjusts for potential cross sectional correlation which could result event clustering.

Using the calendar return method, displayed in Panel C, which also attempts to correct for event clustering, abnormal returns are only significant at -2 to 0 days. When applying that method, returns of firms where clustering occurs get weighted together, thus reducing their influence on he overall analysis. Notably, the calendar return method reduces the weight of firms excluded at the same time significantly. For example, the 44 coal exclusions each have 1/44th of the weight of an event which happens on a days around which no other exclusion event occurs.

Overall, there seems to be support for the clientèle change and overreaction mechanisms, as the initial negative returns around the event are reversed after around a working week. This is in contrast to both the demand-driven and bad fundamentals mechanisms which do not predict a short term reversal of the negative price effect.

[**Insert Table 3 here**]

[**Insert Figure 1 here**]

[**Insert Figure 2 here**]

[**Insert Figure 3 here**]

4.2 Reinclusion of companies

In order to further test the demand driven mechanism, abnormal returns were analysed for the sub-sample of firms which were re-included in the Fund's investment universe, following an improvement in their conduct or a termination of production of an excluded category (see Table 4). The announcement date of the revocation of the exclusion is used as the event date. The abnormal returns metrics were insignificant across all horizons except -2 to 0 days for J_2^* statistic vs the FF3 factors. However, this was not robust to analysis vs the FF5 factors or small changes in the start of the event window. While the sample size was small (9 events), the overall lack of significance is inconsistent with the demand driven mechanism, according to which an increase in the investment universe for a stock would result in a positive stock demand shock and therefore increase prices.

[**Insert Table 4 here**]

[**Insert Figure 4 here**]

[**Insert Figure 5 here**]

[**Insert Figure 6 here**]

4.3 Robustness Checks

4.3.1 Determinants of CARs

This section investigates which factors affect the level of CARs. A dummy for late divestment is included in a set of CARs regressions, to check for an increased demand-driven impact due to impending divestment by the Norwegian Fund. The dummy identifies cases where the Fund had not yet divested its shares of the company when the exclusion announcement was made (20 cases). Furthermore, to determine if the exclusion message has a reduced impact when the Fund did not own shares in a firm to begin with, another dummy is included for whether the firm was excluded when no ownership of the Fund was present close to the time of exclusion (23 cases).

Factors similar to those in Hong & Kacperczyk (2009), who analyse the performance of "sin" stocks, are also included to increase the robustness of the results. Firm-level CARs are regressed on the log size of the firm (market capitalisation, \$M), the log Market-to-Book (MtB) ratio, average past return, stock turnover (in thousands), and firm age.

Additionally, dummies are included for the region of the firm and for the exclusion being conduct-based (32 cases). Industry fixed effects were not included as the distribution has a long tail (see Table 2, Panel C) so including dummies would largely exclude firms in the smallest categories from the calculations by attributing their CARs in the dummy variable. The larger categories, on the other hand, largely overlap with product-based exclusions and would cloud that analysis. Table 5 shows the variable summary statistics.

Firm characteristic data is available for 105 of the 116 companies in the main sample. Firm size and MtB are taken from the -3 day vs the event. Turnover is the average share turnover over days -14 to -3 vs the event, divided by 1000. Average past return is the average return in the 5 previous working days. Firm age is taken as the year when company accounts are first available (from Datastream) vs the event date. Results are shown for CARs vs the FF5 factors as these are expected to be more stringent in showing risk adjusted out-performance.

Table 6 displays the results of the regressions, which include as dependent variables CARs from day -2 to days 0 to 5 vs the announcement date. Higher stock turnover is consistently associated with lower CARs across the different horizons. Therefore, firm liquidity appears to increase the detrimental impact of an institutional investor's exclusion decision. North-American stocks also tend to have lower CARs, which could be related to the North American market having more ethically concerned investors. These firms are analysed separately in the next subsection. In contrast, other regions, with perhaps lower investor ethics sensitivity, such as Asia Pacific have higher CARs than the average, although this is not a statistically significant result.

Importantly, lack of shares ownership does not seem to affect CARs, which goes against the conjecture that the exclusions reactions result from the fact that the Fund will no longer invest in the firms, rather than the revelation of their unethical behaviour. Additionally, while late divestment does provide information about future reduction in demand for firm shares, its impact on shares is not significant past the -2 to 1 day event horizon, suggesting the negative return reaction is more likely a result of such exclusions being more unexpected by the market than the expectation of the Fund selling in the near future.

All ethical exclusions by the Fund are split into conduct-based and product-based. Conduct-based exclusions are based on unethical actions committed by the companies, such as contribution to serious violations to human rights, severe environmental damage, serious violations of individuals' rights in situations of war and conflict, other particularly serious violation for fundamental ethical norms, and corruption. Product-based exclusions have been implemented for production of cluster munitions, nuclear weapons, tobacco, and coal or coal-based energy. The last two criteria (tobacco and coal) were added after the Ministry of Finance changed the ethical guidelines of the fund and did not result from a detailed investigation by the Ethics Council.

After accounting for firm characteristics, firms excluded for unethical conduct tend to have higher CARs than firms excluded for product violations, although this result is not statistically significant. One may expect the results to differ for conduct vs product-based exclusions as they reveal different information about the firms. Product-based exclusions are likely to be more permanent than conduct based exclusions as firms would need to give up a revenue stream which could be integral to the firm's operations (e.g. for tobacco and coal companies) in order to satisfy the Fund's ethical criteria. The lower (although insignificant) CARs for product-based exclusions are consistent with investors expecting a longer-lasting unethical behaviour from product exclusions.

Finally, a dummy was included in specifications to test if the change in the final decision-maker for exclusions from the Ministry of Finance to Norges Bank affected reaction to the exclusion announcement (not reported). The dummy was not significant, suggesting the market does not distinguish between the two.

Overall, the CARs regression results also seem inconsistent with demand-driven hypotheses as lack of ownership does not affect the results and expected late divestment has a very short term impact.

[**Insert Table 5 here**]

[**Insert Table 6 here**]

4.3.2 North American Firms Exclusions Analysis

Since the previous subsection showed a statistically significant effect on CARs of firms being head-quartered in North America, even after accounting for firm turnover (A proxy for liquidity), this subsection analyses these exclusions separately to see if reversal is delayed for those stocks. Results are displayed in Table 7. Indeed, consistent with that prior, the impact of North American firm exclusions does last longer than the average exclusion, suggesting investors in the region are more sensitive to news of unethical behaviour than investors in other regions.

[Insert Table 7 here]

[Insert Figure 7 here]

[Insert Figure 8 here]

[Insert Figure 9 here]

4.3.3 Investigation of information leakage

To investigate if news of the exclusion leaks to the market prior to announcement, raw and FF5-adjusted returns are plotted from the last 30 trading days before the event to 30 days after the event. Figure 10 shows raw returns, where there does not seem to be a strong pattern before or after the event. However, after adjusting raw returns for FF5 (the regional Fama French Factors), Figure 11 show some evidence that news may have leaked from day -2.

Additionally, there is a sharp drop in adjusted returns about 20 working days before the event, which could be the average time when Norges Bank physically divested the excluded stocks which it had ownership in. While the drop at that point seems more prominent than the one at event announcement date, the downward pressure on cumulative returns is also short-term and is reversed within c10 days, shown in Figure 12. This provides higher confidence that the main results reflect an announcement of firm unethical behaviour as opposed to information about reduced shares demand linked directly to the Fund's sale of shares.

Finally, before the decision to exclude a firm is taken the Fund's Council of Ethics submits a letter recommending the exclusion. This letter is not made public until the Fund makes a decision on the recommendations and usually also divests any owned shares. Looking at returns around that event in Figure 13, there seems to be a steady decrease in CARs until the letter is submitted, at which point CARs stabilise. Therefore, it could be the case that some information of the Council of Ethics' investigation also leaks to the market.

[**Insert Figure 10 here**]

[**Insert Figure 11 here**]

[**Insert Figure 12 here**]

[**Insert Figure 13 here**]

4.3.4 Reinclusions at exclusion time

To investigate the possibility that firms for which the exclusion was later revoked were different from other excluded firms to begin with, a dummy is included in the base CAR regressions to indicate if a firm was later reincluded into the universe of the Fund's portfolio. The dummy is insignificant across the different horizons, in favour of the hypothesis that the firms were not different from the rest of the excluded firms. The regressions are displayed in Table 8, Panel A.

[**Insert Table 8 here**]

4.3.5 Impact of announcement of exclusion vs announcement of ethical concerns

As briefly mentioned previously, another argument against the validity of the results could be that the market reaction reflects the information that the stocks are being excluded from the investment universe of the Fund and not that the exclusion is for ethical reasons. One evidence against that reasoning is that the CARs magnitude does not seem to depend on whether the Fund was invested in the firm being excluded to begin with (as mentioned previously and demonstrated by the insignificant "no ownership" dummy in Table 6).

I show further evidence against this hypothesis in Table 8, Panel B. The Panel shows CARs regressions which include firms where the Fund published an exclusion recommendation but the recommendation was not followed and the firms were not excluded from the Fund's investment universe (10 cases). The event date is the announcement data of the decision not to exclude, which is usually accompanied with a detailed report of a recommendation to exclude the firms, similarly to exclusion recommendations which are approved. Dummies were included for general lack of exclusion as well as for cases where there was no exclusion and the Fund also did not pre-emptively sell its shares in the firms, and the case where the fund did not reduce is holdings in the non-excluded firms. All dummies are insignificant, suggesting that it is not the exclusion from the portfolio that matters but the revelation of ethical concerns about the firms. Moreover, graphically in Figure 14 , CARs for Exclusions and Non-exclusions (where exclusion was recommended) appear similar.

Finally, when considering conduct vs product exclusions, one may argue that conduct exclusions should experience a lower return impact than product exclusions. The argument being that the product for which firms are excluded can be a major revenue source for firms and in consequence, product-based unethical behaviour would seem harder to change than conduct-based one. While in regressions a conduct dummy is not significant (for example, in Table 6), graphically conduct exclusions do have less pronounced negative CARs (Figure 15).

Overall, the evidence seems to suggest that the announcement returns impact does not simply reflect reactions to the news that a large institutional investor will no longer invest in the firms, but is a reaction to the revelation of information that the exclusions provide about unethical corporate behaviour.

[**Insert Figure 14 here**]

[**Insert Figure 15 here**]

5 Ownership Analysis

This section aims to analyse changes to the ownership composition of the excluded firms following the exclusion announcement. FactSet LionShares and Worldscope data on firm ownership by pensions and endowments, is used to analyse changes in holdings by the category. Mutual fund ownership by type of the fund is also analysed, again using FactSet LionShares data.

5.1 Changes to endowment and pension fund holdings

According to the clientèle change mechanism, ethics sensitive investors are replaced by ethics insensitive ones. One would expect pensions and endowment funds to be more ethically concerned as they are often governed for the benefit of multiple stakeholders and sometimes also possess a charitable function within the community. Therefore, the category is likely to have reduced holdings in excluded firms following the exclusion announcement.

This conjecture is consistent with my findings. Using the LionShares Ownership dataset, institutional ownership by pension funds and endowments decreases in the four quarters following the announcement. This is displayed in Table 9, Panel A and Panel B which show the level and percentage change in ownership by the category, respectively. The category experiences a steady decline post announcement, reaching c21% decrease in average ownership by the category four quarters past announcement. The decrease is also much higher than that in total institutional ownership (1.23%).

Similarly, using Worldscope data, there is a statistically significantly lower ownership by pension funds and endowments in the two years before the exclusion announcement vs the two years after, shown in Table 9, Panel C.

Therefore, there is some evidence of investors which are likely to be ethics sensitive reducing their holdings of firm shares after revelations of their unethical behaviour.

[**Insert Table 9 here**]

5.2 Changes to ownership by mutual funds

Similarly, one might expect mutual funds to have different responses to the announcement of unethical behaviour, depending on their type. On one hand, Index and Yield-type mutual funds are likely to be less ethics sensitive as the former do not employ active management but simply aim to emulate their benchmark, and the later focus mainly on a firm's ability to provide satisfactory yield-type return. On the other hand, Growth and GARP (Growth at a reasonable price) funds have less stringent mandates where investment opportunities can be more subjectively analysed, and in consequence could be relatively more ethics sensitive. Therefore, following an announcement of unethical behaviour, I would expect Growth and GARP funds to have a slower growth of ownership of excluded firm shares than Index and Yield Funds. This is confirmed in Table 10 where the total share ownership by funds in the FactSet LionShares database increases by c17% in Quarter 4 after the event vs Quarter -1 (before the event), with Growth and GARP funds increasing ownership less than the ownership increase for all funds, while the opposite is true for Index and Yield funds.

This is further support for the clientèle change mechanism, as it demonstrates contrasting ownership reactions by investors more likely to be ethically concerned vs those less likely to be ethically concerned.

[**Insert Table 10 here**]

6 Summary and Conclusions

The aim of this paper is to analyse the consequences of corporate unethical behaviour for equity value. It makes use of the example of the Norwegian Sovereign fund exclusion announcements for unethical behaviour to shed light on the issue.

The paper investigated a number of plausible market reactions to the announcements of unethical behaviour. As there is an observed reversal in the price reaction, the returns analysis is not consistent with the demand-driven and bad fundamentals mechanisms. The lack of positive price reaction to revocations of exclusions also goes against the demand-driven hypothesis. On the other hand, the returns reversal is consistent with the overreaction and clientèle change mechanisms. The observed change in investor base further strengthens the case for the clientèle change mechanism. Taken together, the results support the clientèle change mechanism.

Overall, it seems that ethical divesting has a short-lived impact on equity value as when ethically concerned investors divest from a firm for its unethical behaviour, once the price decreases ethically insensitive investors increase their holdings pushing prices back up. However, if more investors become ethics sensitive one would expect to see a more long-lasting impact of unethical behaviour, which is consistent with the observed extended price reaction to exclusions in the North American region.

The paper suffers from some drawbacks. While the sample of excluded firms is global, the returns analysis is based on US Dollar prices, so the results are from the prospective of a US investor. Additionally, the sample could benefit from being increased by adding other ethical exclusions to it. The analysis can also be extended in a number of ways such as investigating whether firms improve on CSR metrics after the exclusion announcement, as well as attempting to establish whether the Norwegian Fund replaces excluded firms with similar companies which are more ethical.

Appendices

A Returns Analysis Methodology

A.1 Fama French Factors

The factors used are as follows:

R_m is the market return

SMB is a factor measuring the return of a portfolio long small size stocks and short large size stocks

HML is a factor measuring the return of a portfolio long high BtM stocks and short low BtM stocks

RMW is a factor measuring the return of a portfolio long robust profitability stocks and short weak profitability stocks.

CMA is a factor measuring the return of a portfolio long low investment stocks and short high investment stocks (conservative vs aggressive)

A.2 CARs Method

Formulas for abnormal returns are taken from Chapter 4 of Campbell et al. (1997), Kolari & Pynnönen (2010) and Dewenter et al. (2010).

The first metric used was Average CARs divided by standard deviation of average CARs (as in Dewenter et al. (2010)):

$$\frac{\overline{CAR}}{\overline{\sigma}_{CAR}} \tag{1}$$

The J_1 Statistic is also used (also described in Campbell et al. (1997)):

$$J_1 = \frac{\overline{CAR}(\tau_1, \tau_2)}{\widehat{\overline{\sigma}}^2(\tau_1, \tau_2)} \sim AN(0,1) \tag{2}$$

where:

$$\widehat{\overline{\sigma}}^2(\tau_1, \tau_2) = \frac{1}{N^2}\widehat{\sigma}^2(\tau_1, \tau_2) = \frac{\widehat{\sigma}_A^2(\tau_1, \tau_2)}{N} \tag{3}$$

where:

$$\widehat{\sigma}_A^2(\tau_1, \tau_2) = \frac{1}{N}\sum_{i=1}^{N} \sigma_i^2(\tau_1, \tau_2) \tag{4}$$

Standardised CARs are also calculated (from Campbell et al. (1997)):

$$S\widehat{CA}R_i(\tau_1, \tau_2) = \frac{\overline{CAR_i}(\tau_1, \tau_2)}{\sigma_i} \tag{5}$$

These are then averaged:

$$\overline{SCAR}(\tau_1, \tau_2) = \frac{1}{N}\sum_{i=1}^{N} S\widehat{CA}R(\tau_1, \tau_2) \tag{6}$$

which can be used in the J_2 (Campbell et al. (1997)) and J_2^* , from Kolari & Pynnönen (2010)) statistics . The J_2^* is also called the modified Patell statistic.

$$J_2 = \left(\frac{N(L_1 - 4)}{L_1 - 2)}\right)^{1/2} \overline{SCAR}(\tau_1, \tau_2) \sim AN(0,1) \tag{7}$$

$$J_2^* = \overline{SCAR}(\tau_1, \tau_2) \Big/ \sqrt{\frac{L_1 - 2}{N(L_1 - 4)}(1 + (N-1)\bar{r})} \tag{8}$$

The $\bar{r}$ being the average cross-sectional correlation coefficient of abnormal returns in the estimation period. N is the number of events, L_1 is the event estimation window.

As the J_2 and J_2^* statistics formulas assume a single factor model, the calculations have been adjusted to use the correct subtractions for the three and five factor Global Fama French models.

Z-score, used in Dewenter et al. (2010) is also calculated:

$$Zscore = \frac{\sum_{i=1}^{N} \widehat{SCAR}(\tau_1, \tau_2)}{\sqrt{N}} \tag{9}$$

A.3 Calendar Returns Method

The equation for calculating portfolio alpha vs the Fama French 3 Factors is:

$$E(R_i) - R_f = \alpha + \beta_m^i E(R_m - R_f) + \beta_{SMB}^i E(SMB) + \beta_{HML}^i E(HML) \tag{10}$$

The equation for calculating portfolio alpha vs the Fama French 5 Factors is:

$$\begin{split} E(R_i) - R_f = \alpha + \beta_m^i E(R_m - R_f) + \beta_{SMB}^i E(SMB) + \beta_{HML}^i E(HML) + \\ \beta_{RMW}^i E(RMW) + \beta_{CMA}^i E(CMA) \end{split} \tag{11}$$

B Returns Analysis Sample

B.1 Sample Construction

Construction of the sample is shown in Table B.1

Table B.1: Norges Bank excluded companies sample as of October 2016 - Daily Returns Analysis

Status	Events
excluded	125
exclusion revoked	11
excluded again	2
limited or no returns and or factor data	5
misc - exclusion due to restructuring of excluded companies, or 2002 exclusion not by CoE, not clear if divested	4
TOTAL DAILY SAMPLE	116
o/w divested after exclusion announcement	18
o/w not divested at end of data availability period	2
o/w no ownership close to exclusion announcement	23
o/w conduct-based exclusions	32
o/w conduct - severe environmental damage	19
o/w conduct - other particularly serious violations of fundamental ethical norms	5
o/w conduct - serious violations of human rights	3
o/w conduct - serious violations of individuals rights in war or conflict	3
o/w conduct - gross corruption	1
o/w conduct - companies supplying arms or military equipment to Burma	1
o/w product-based exclusions	84
o/w production of coal or coal-based energy	44
o/w production of tobacco	20
o/w production of nuclear weapons	14
o/w production of cluster munitions	6
final daily returns analysis sample currently excluded	105

C Returns Analysis Extra Charts

Charts for returns around exclusion announcement (when the exclusion decision becomes public) and exclusion recommendation letter publication/ The recommendation letter for exclusions is not available for the whole sample (e.g. for coal divestment) and is not revealed to the market until Norges bank decides to approve (or deny) the exclusion recommendation.

Figure C.1

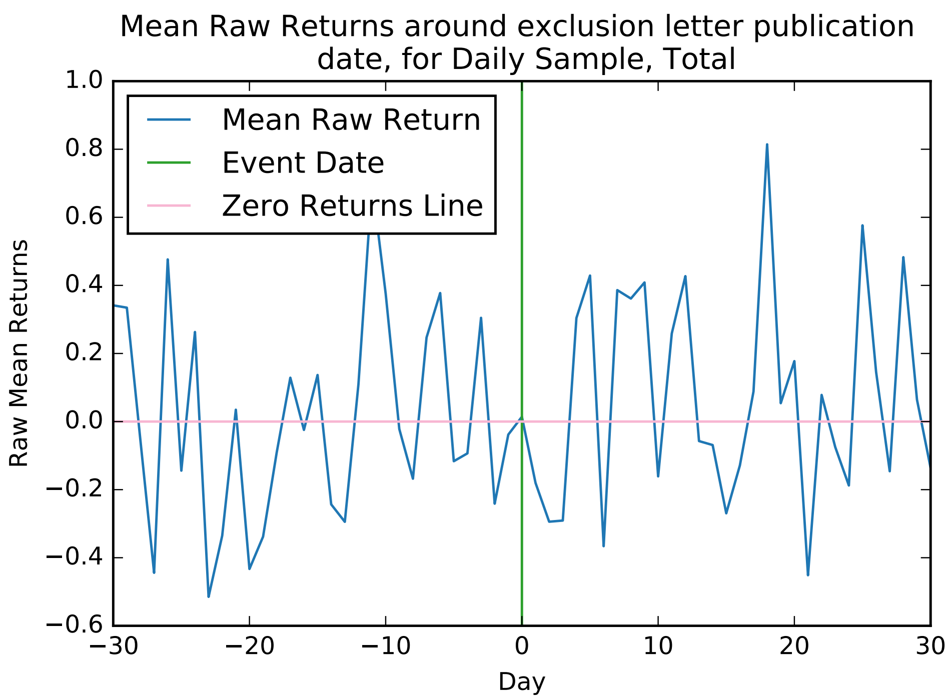


Figure C.2

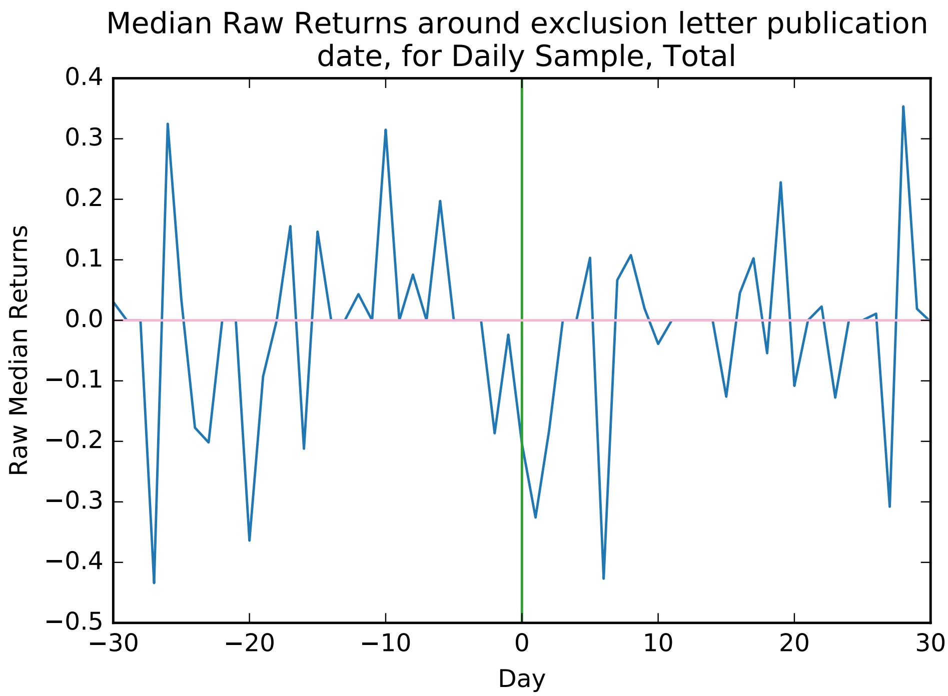


Figure C.3

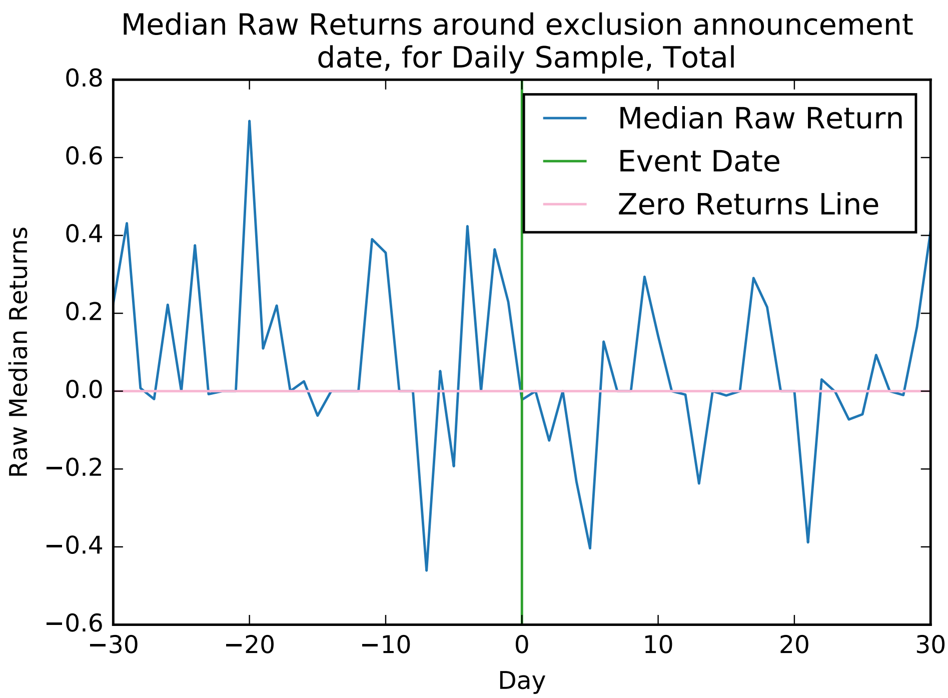
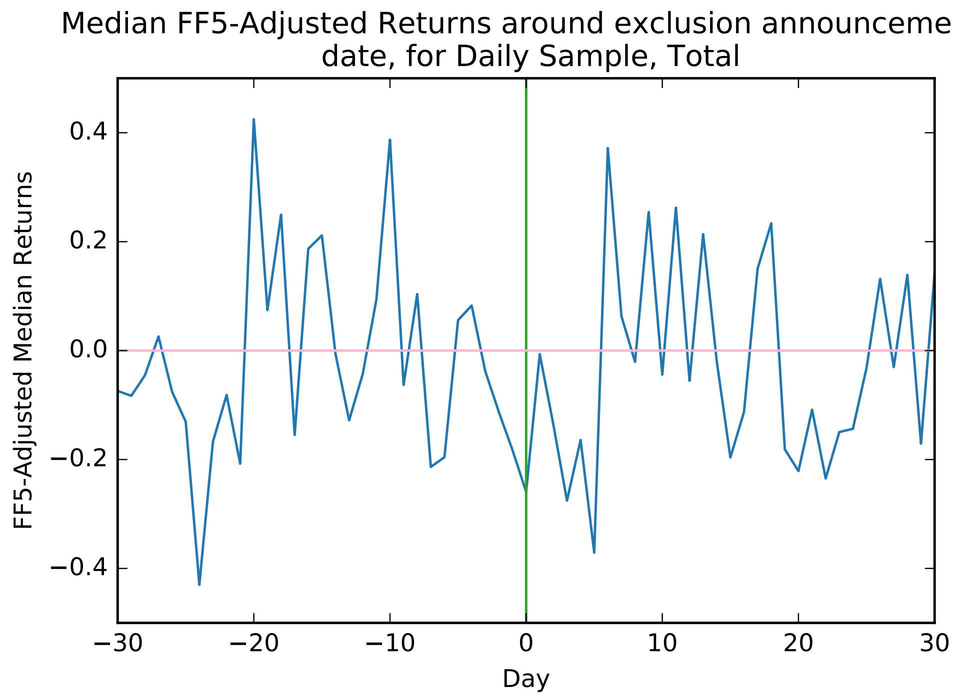


Figure C.4



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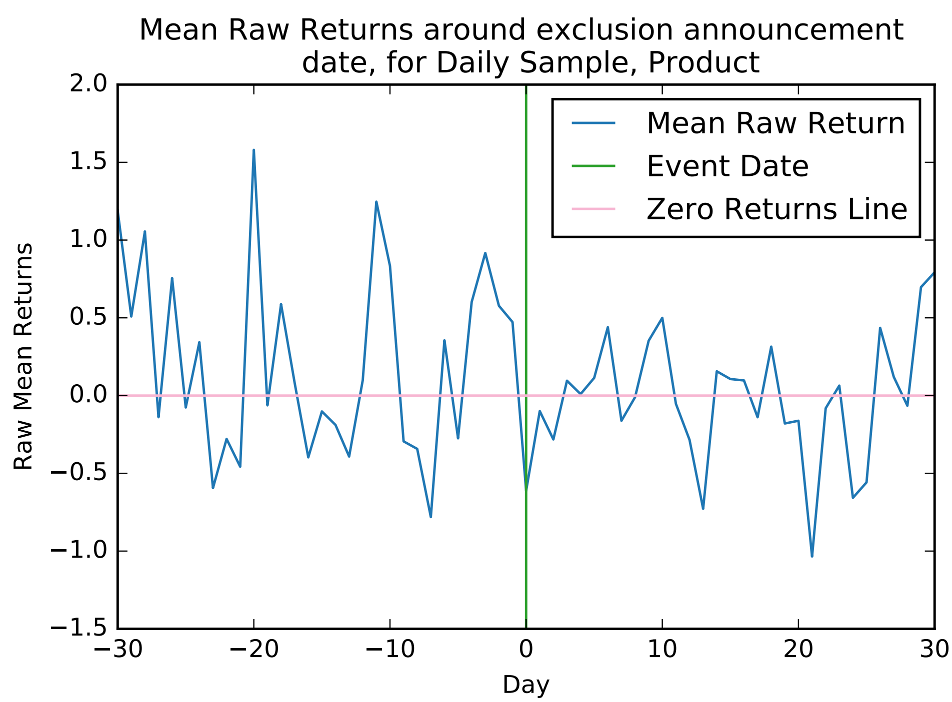


Figure C.6

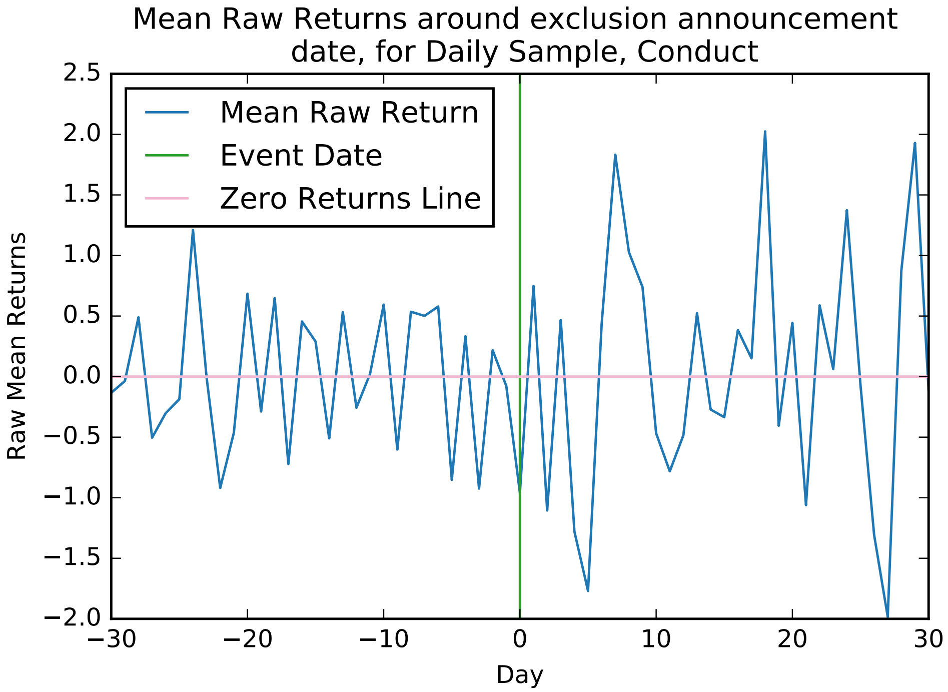


Figure C.7

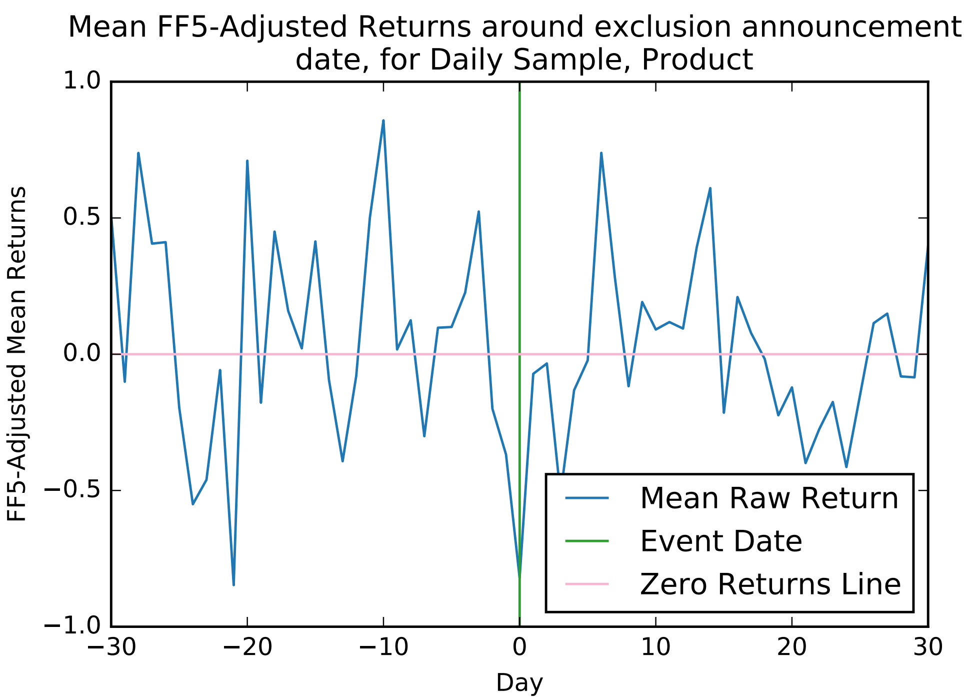
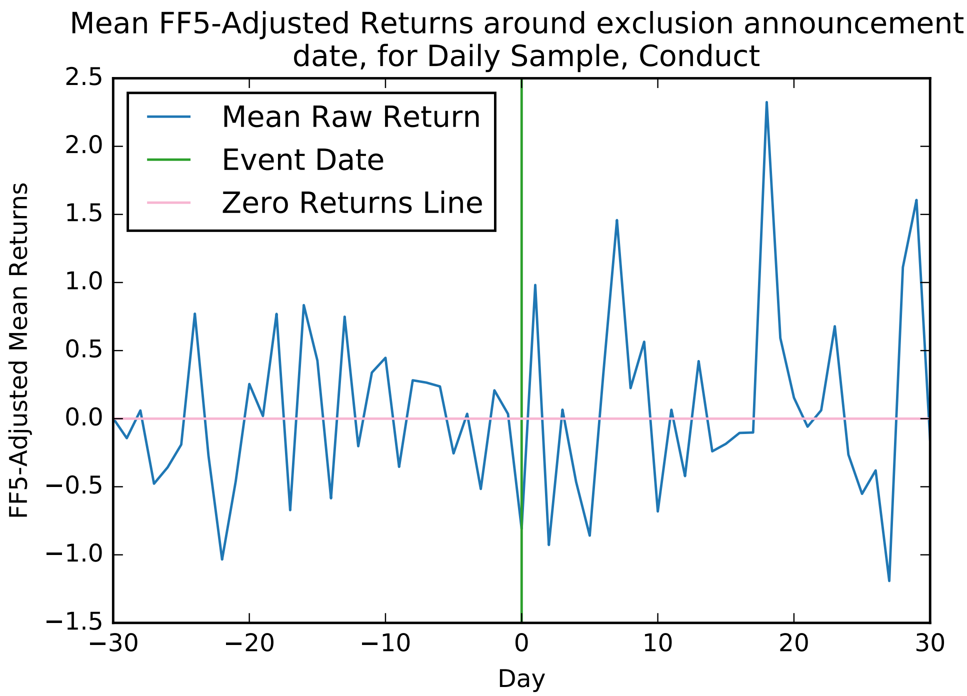


Figure C.8


Mean FF5-Adjusted Returns around exclusion announcement date, for Daily Sample, Conduct
Mean Raw Return
Event Date
Zero Returns Line
FF5-Adjusted Mean Returns
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−30
−20
−10
0
10
20
30
Day

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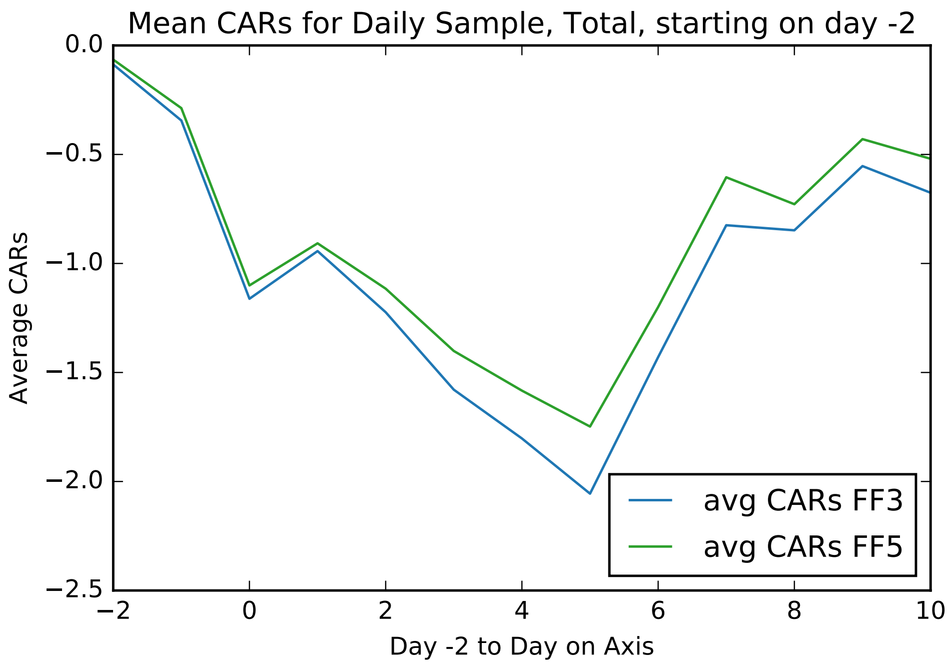
7 Figures

Figure 1



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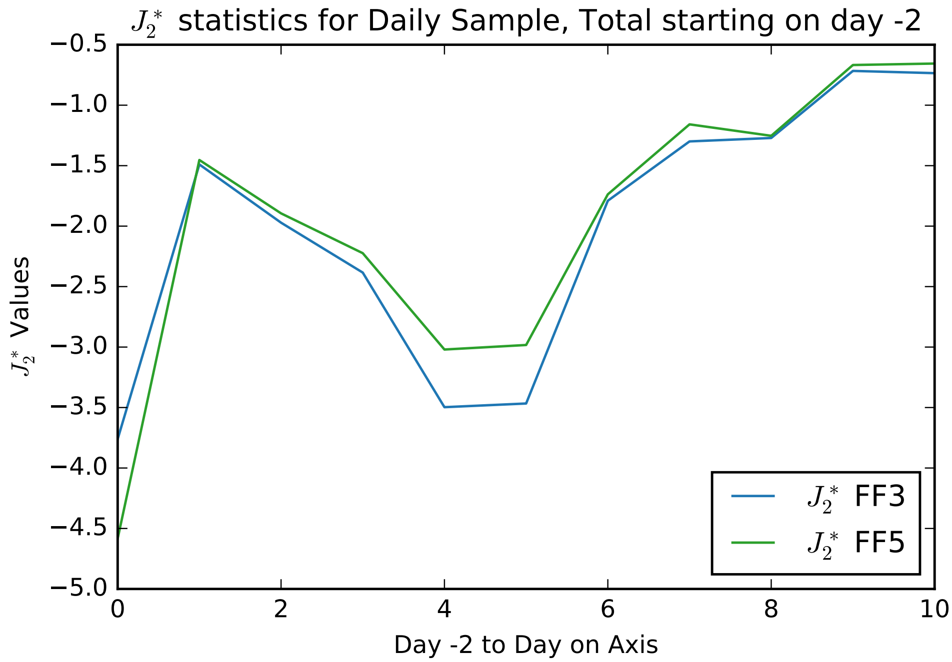


Figure 3

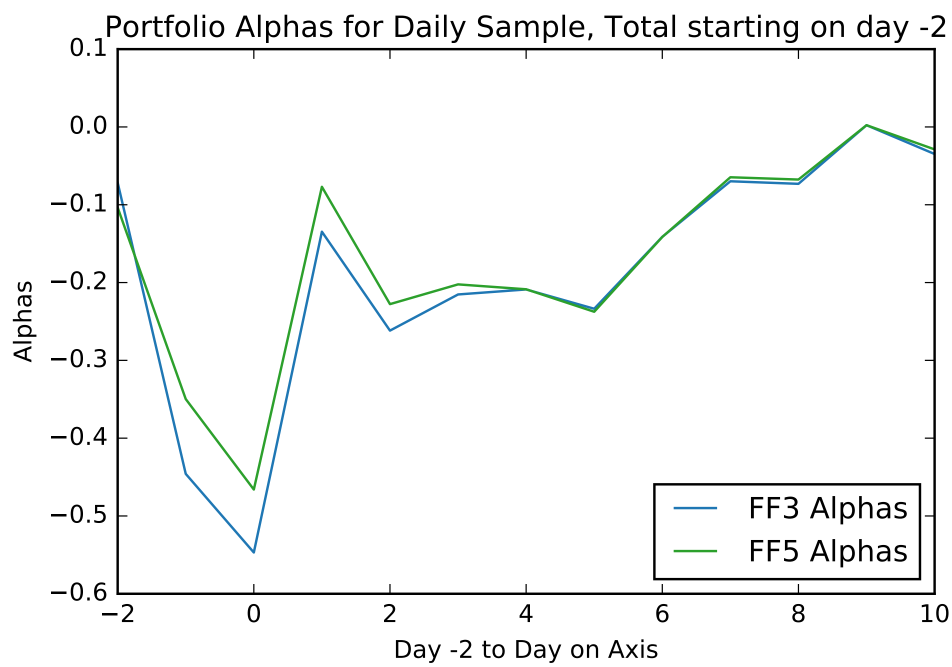


Figure 4

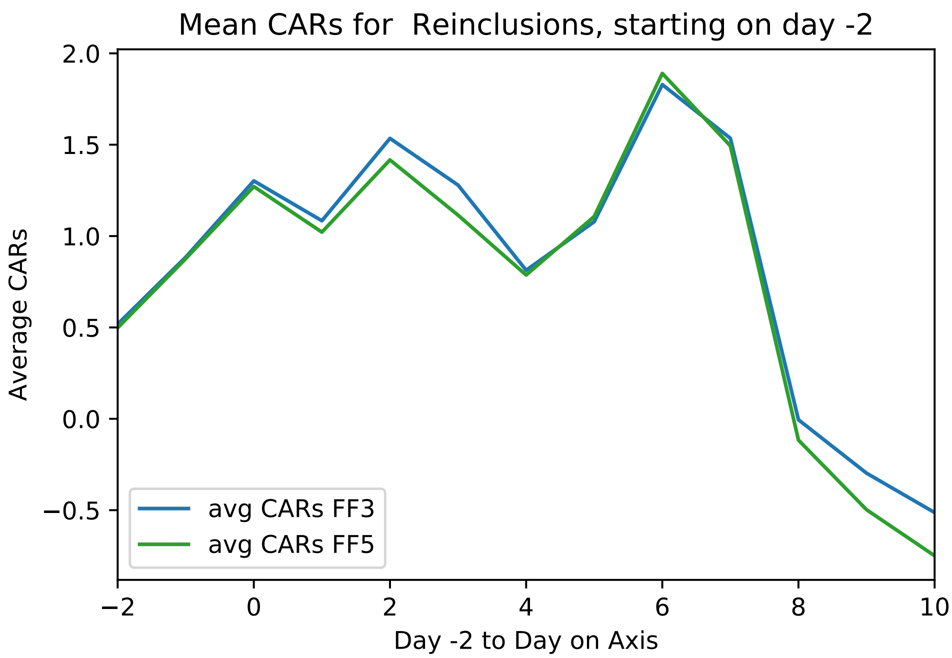


Figure 5

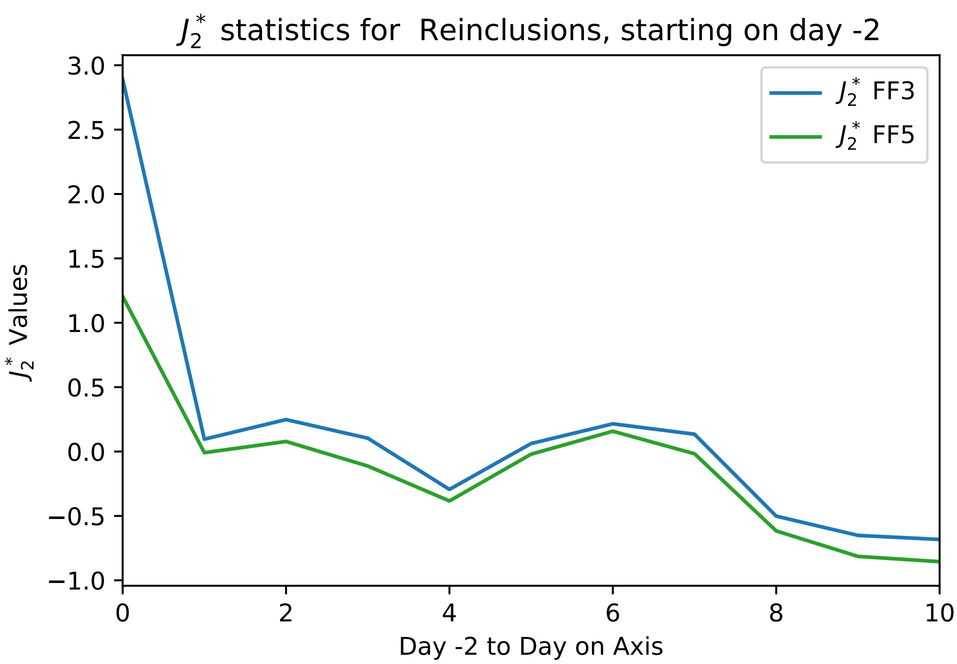
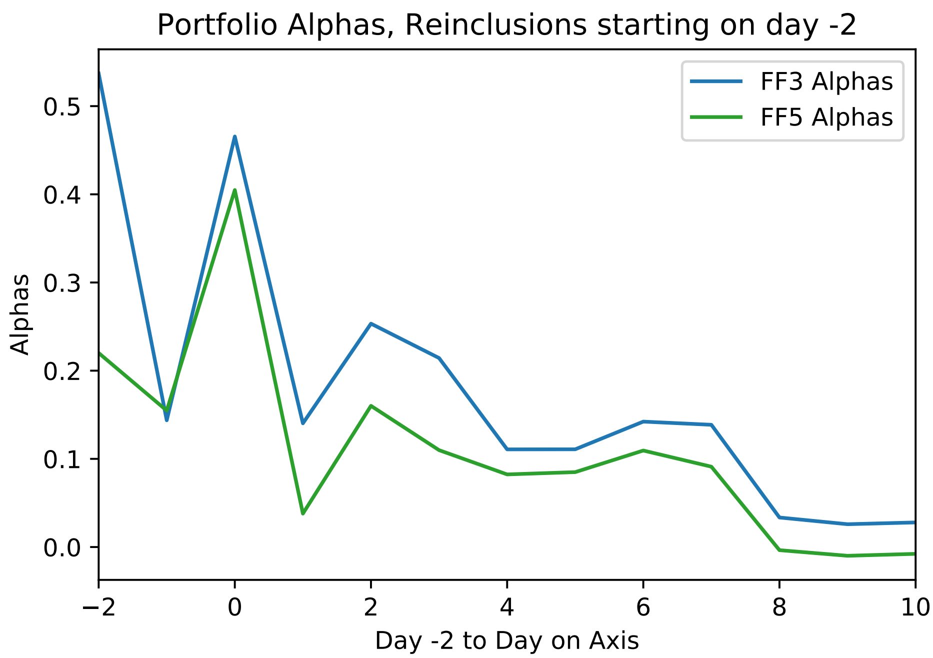


Figure 6



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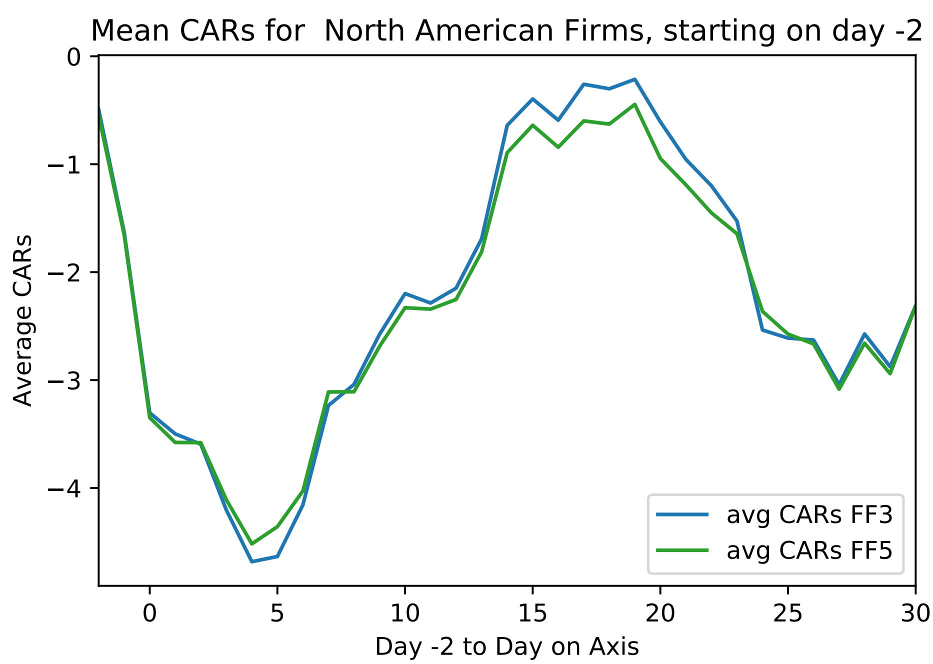


Figure 8

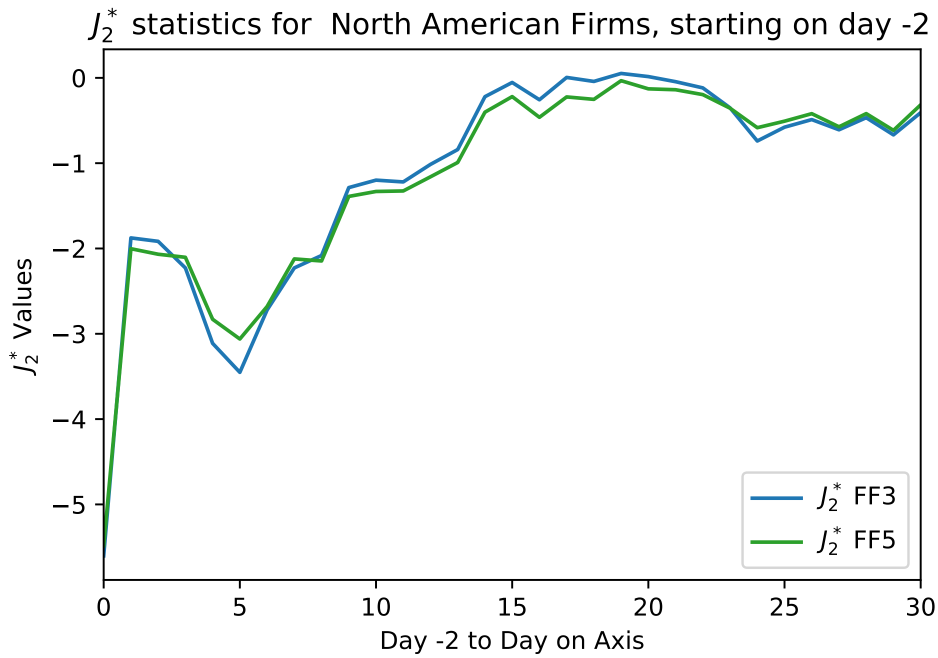


Figure 9

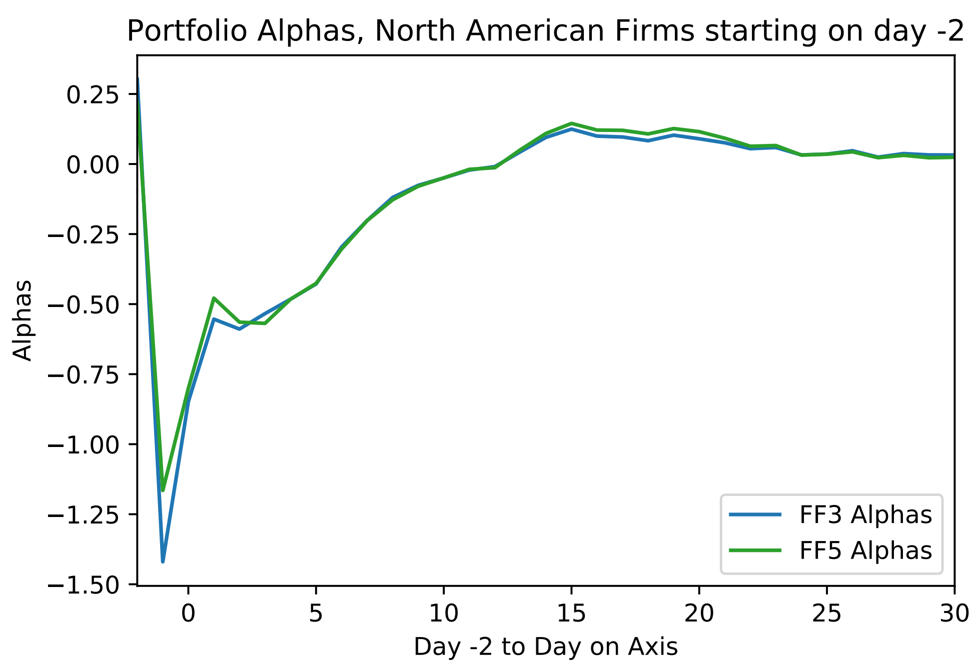


Figure 10

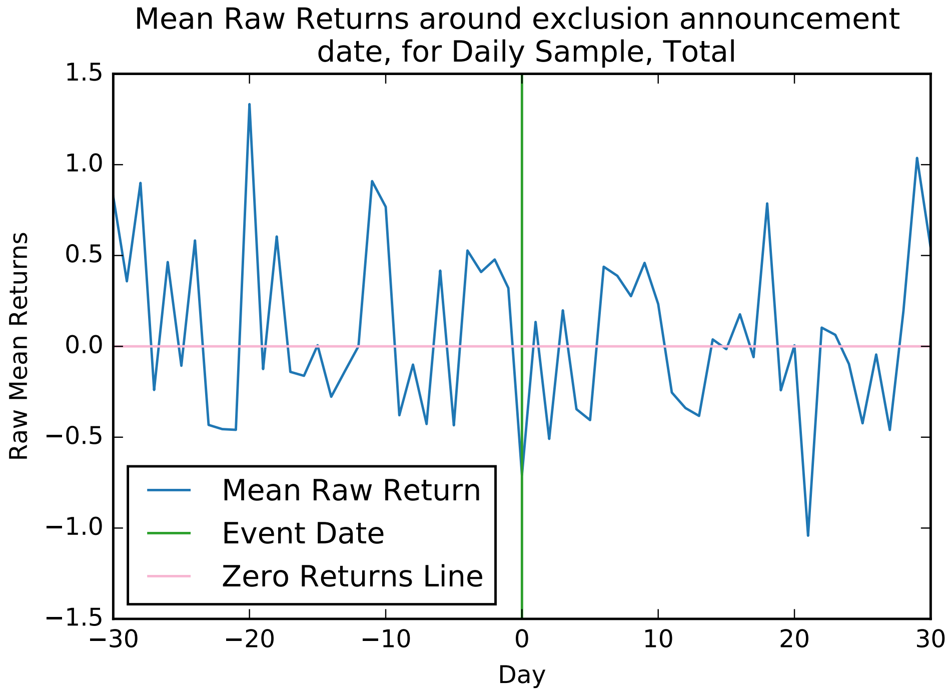
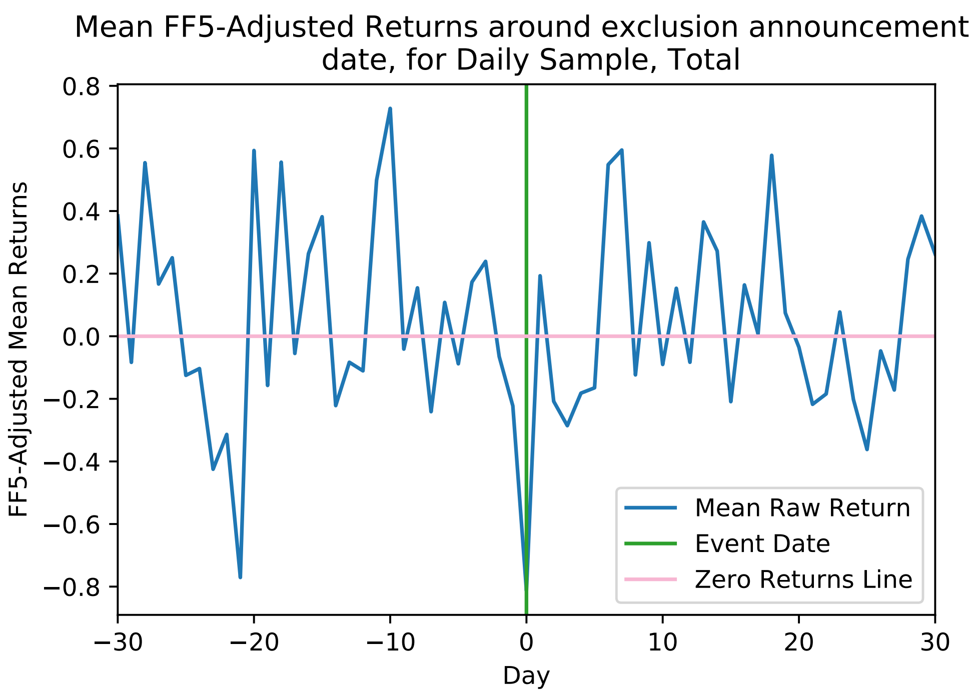


Figure 11



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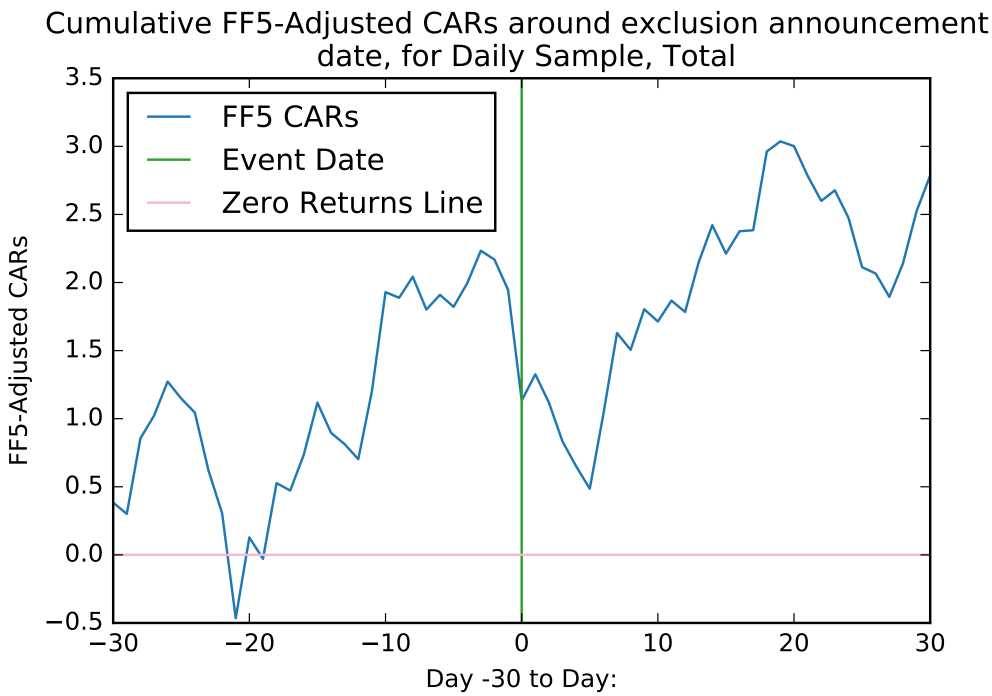

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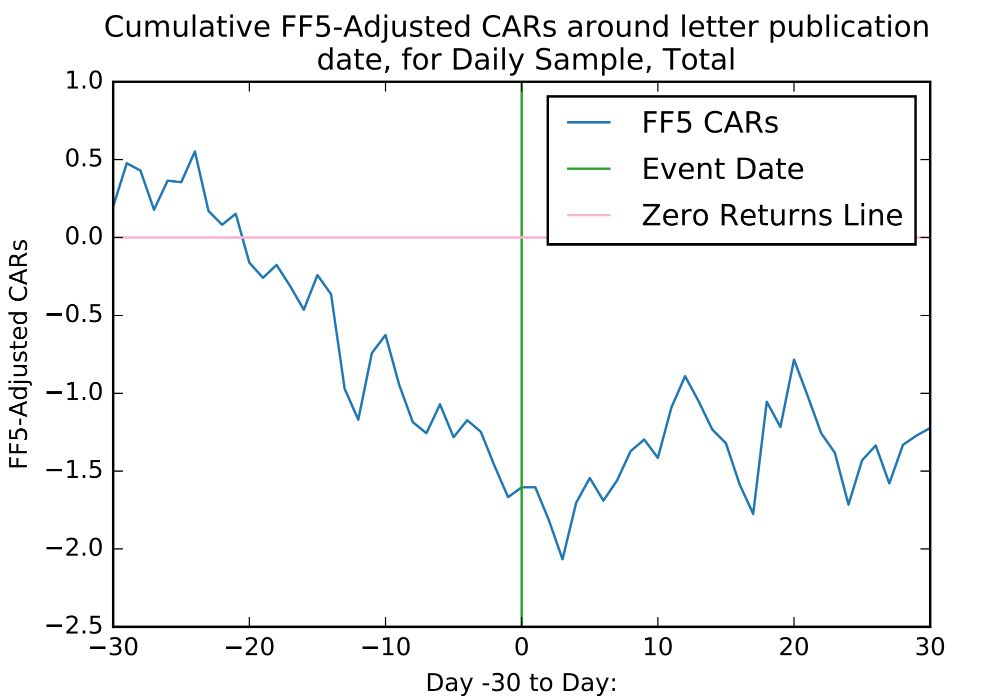


Figure 14

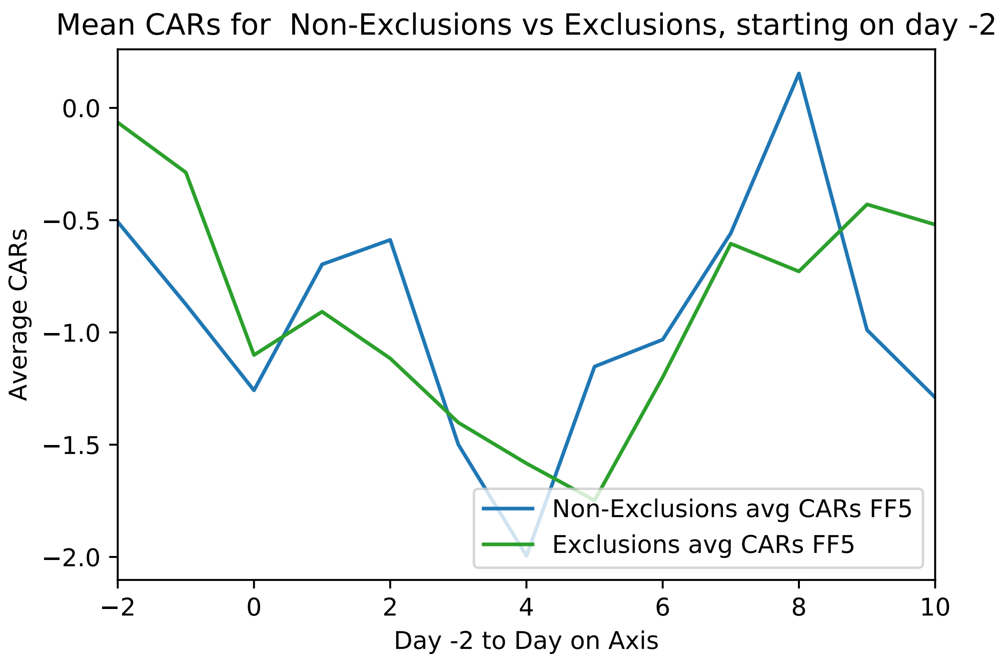
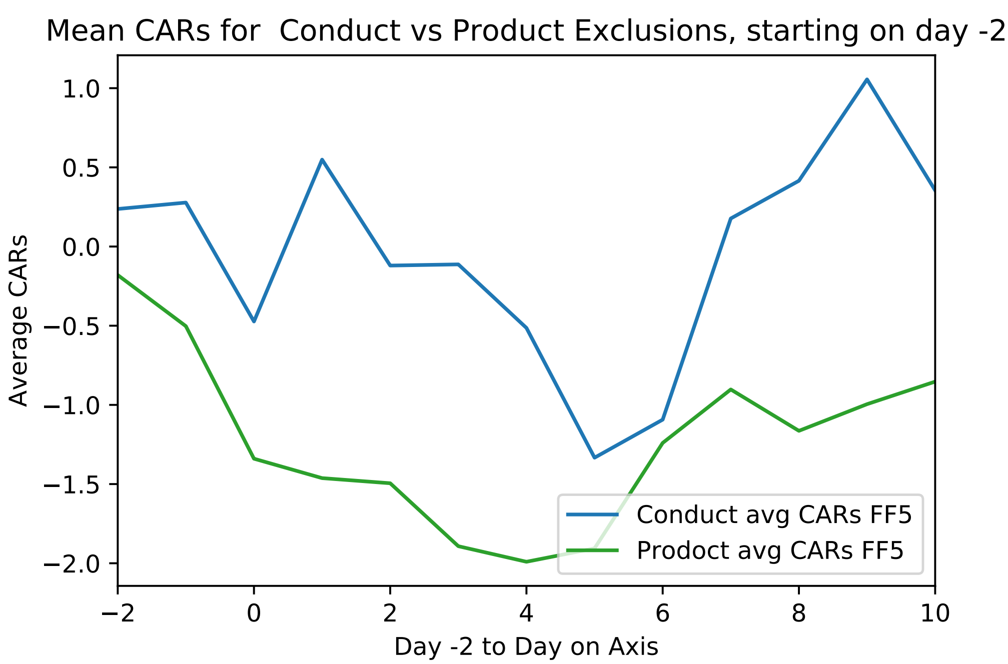


Figure 15



8 Tables

Table 1: Countries whose stocks are included in creating the Fama French Global Factors

Countries included in Global Factors
Australia
Austria
Belgium
Canada
Switzerland
Germany
Denmark
Spain
Finland
France
Great Britain
Greece
Hong Kong
Ireland
Italy
Japan
Netherlands
Norway
New Zealand
Portugal
Sweden
Singapore
United States

Table 2: Summary Statistics

Panel A: Exclusion Sample, events over time, until June 2016

Year	Events
2005	8
2006	10
2007	4
2008	5
2009	5
2010	19
2011	5
2012	1
2013	9
2014	0
2015	4
2016	46

Panel B: Exclusion Sample, events by country

Country	Events	Region	Fama French Factors
United States	38	North America	North America
India	11	Asia-Pacific	Asia-Pacific ex Japan
China	9	Asia-Pacific	Asia-Pacific ex Japan
United Kingdom	7	Europe	Europe
Malaysia	7	Asia-Pacific	Asia-Pacific ex Japan
Hong Kong	5	Asia-Pacific	Asia-Pacific ex Japan
South Korea	4	Asia-Pacific	Asia-Pacific ex Japan
Canada	4	North America	North America
Israel	4	Asia-Pacific	Asia-Pacific ex Japan
Japan	4	Asia-Pacific	Japan
Australia	3	Asia-Pacific	Asia-Pacific ex Japan
France	2	Europe	Europe
Mexico	2	Central America	Global ex US
South Africa	2	Africa	Global ex US
Chile	2	South America	Global ex US
Netherlands	1	Europe	Europe
Italy	1	Europe	Europe
Russia	1	Asia-Pacific	Asia-Pacific ex Japan
Indonesia	1	Asia-Pacific	Asia-Pacific ex Japan
Czech Republic	1	Europe	Europe
Brazil	1	South America	Global ex US
Sweden	1	Europe	Europe
Peru	1	South America	Global ex US
Philippines	1	Asia-Pacific	Asia-Pacific ex Japan
Poland	1	Europe	Europe
Greece	1	Europe	Europe
Ireland	1	Europe	Europe

Panel C: Exclusion Sample, events by industry

Industry	Events
Aerospace and Defence	17
Electric Utilities	17
Tobacco	16
Independent Power Producers and Energy Traders	14
Coal and Consumable Fuels	11
Diversified Metals and Mining	6
Industrial Conglomerates	4
Construction and Engineering	4
Forest Products	4
Gold	3
Fertilizers and Agricultural Chemicals	3
Multi-Utilities	3
Oil and Gas Exploration and Production	2
Hypermarkets and Super Centers	2
Copper	1
Environmental and Facilities Services	1
Automobile Manufacturers	1
Real Estate Operating Companies	1
Specialty Chemicals	1
Paper Products	1
Trading Companies and Distributors	1
Steel	1
Casinos and Gaming	1
Communications Equipment	1

Panel D: Exclusion Sample, firm characteristics

Metric	Mean	Median	Min	Max
Age	19.80	19	1	36
Size ($bn)	13.44	3.94	0.02	196.01
Market to Book	2.78	1.73	0.04	26.95
Average Share Turnover (000s)	4.92	1.68	0.002	57.28

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Table 3: Exclusions Abnormal Returns

Panel A: Daily Returns Analysis: Average CARs and J_1 statistic

	avg CARs FF3	avg CARs FF5	J_1 FF3	J_1 FF5
avg CARs -2 to -2	-0.09	-0.06	-0.38	-0.38
avg CARs -2 to -1	-0.34	-0.29	-1.06	-1.06
avg CARs -2 to 0	-1.16	-1.10	-2.91***	-2.92***
avg CARs -2 to 1	-0.94	-0.91	-2.04**	-2.06**
avg CARs -2 to 2	-1.22	-1.12	-2.37**	-2.38**
avg CARs -2 to 3	-1.58	-1.40	-2.79***	-2.80***
avg CARs -2 to 4	-1.80	-1.58	-2.94***	-2.95***
avg CARs -2 to 5	-2.06	-1.75	-3.13***	-3.14***
avg CARs -2 to 6	-1.43	-1.20	-2.05**	-2.06**
avg CARs -2 to 7	-0.82	-0.60	-1.12	-1.13
avg CARs -2 to 8	-0.85	-0.73	-1.10	-1.10
avg CARs -2 to 9	-0.55	-0.43	-0.68	-0.69
avg CARs -2 to 10	-0.68	-0.52	-0.80	-0.81

Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$

Panel B: Daily Returns Analysis: z-score, J_2 and J_2^* statistics

	z-score FF3	z-score FF5	J_2 FF3	J_2 FF5	J_2^* FF3	J_2^* FF5
SCARs -2 to -2	-0.54	-0.13	-0.53	-0.13	nan	nan
SCARs -2 to -1	-1.90*	-1.47	-1.90*	-1.47	nan	nan
SCARs -2 to 0	-2.98***	-2.53**	-2.97***	-2.52**	-3.76***	-4.58***
SCARs -2 to 1	-1.99**	-1.77*	-1.99**	-1.76*	-1.49	-1.45
SCARs -2 to 2	-2.39**	-2.07**	-2.38**	-2.07**	-1.97**	-1.89*
SCARs -2 to 3	-2.90***	-2.36**	-2.89***	-2.36**	-2.38**	-2.22**
SCARs -2 to 4	-3.88***	-3.29***	-3.87***	-3.28***	-3.50***	-3.02***
SCARs -2 to 5	-4.40***	-3.69***	-4.39***	-3.68***	-3.47***	-2.98***
SCARs -2 to 6	-3.16***	-2.71***	-3.15***	-2.70***	-1.79*	-1.74*
SCARs -2 to 7	-2.26**	-1.84*	-2.26**	-1.83*	-1.30	-1.16
SCARs -2 to 8	-2.15**	-1.98**	-2.14**	-1.97**	-1.27	-1.25
SCARs -2 to 9	-1.29	-1.13	-1.29	-1.13	-0.72	-0.67
SCARs -2 to 10	-1.26	-1.05	-1.25	-1.05	-0.74	-0.66

Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$

Panel C: Calendar Return portfolio Alphas

	FF3 Alphas	FF5 Alphas
Cal Avg Rets -2 to -2	-0.07	-0.10
Cal Avg Rets -2 to -1	-0.45	-0.35
Cal Avg Rets -2 to 0	-0.55**	-0.47*
Cal Avg Rets -2 to 1	-0.13	-0.08
Cal Avg Rets -2 to 2	-0.26	-0.23
Cal Avg Rets -2 to 3	-0.22	-0.20
Cal Avg Rets -2 to 4	-0.21	-0.21
Cal Avg Rets -2 to 5	-0.23	-0.24
Cal Avg Rets -2 to 6	-0.14	-0.14
Cal Avg Rets -2 to 7	-0.07	-0.06
Cal Avg Rets -2 to 8	-0.07	-0.07
Cal Avg Rets -2 to 9	0.00	0.00
Cal Avg Rets -2 to 10	-0.03	-0.03

Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$

Table 4: Reinclusions Abnormal Returns

Panel A: Average CARs and J_1 statistic

	avg CARs FF3	avg CARs FF5	J_1 FF3	J_1 FF5
avg CARs -2 to -2	0.52	0.50	0.71	0.71
avg CARs -2 to -1	0.88	0.88	0.85	0.86
avg CARs -2 to 0	1.30	1.27	1.03	1.03
avg CARs -2 to 1	1.08	1.02	0.74	0.74
avg CARs -2 to 2	1.53	1.42	0.94	0.94
avg CARs -2 to 3	1.28	1.11	0.71	0.72
avg CARs -2 to 4	0.81	0.79	0.42	0.42
avg CARs -2 to 5	1.08	1.11	0.52	0.52
avg CARs -2 to 6	1.83	1.89	0.83	0.83
avg CARs -2 to 7	1.54	1.49	0.66	0.66
avg CARs -2 to 8	-0.01	-0.12	-0.00	-0.00
avg CARs -2 to 9	-0.30	-0.50	-0.12	-0.12
avg CARs -2 to 10	-0.51	-0.75	-0.19	-0.19

Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$

Panel B: z-score, J_2 and J_2^* statistics

	z-score FF3	z-score FF5	J_2 FF3	J_2 FF5	J_2^* FF3	J_2^* FF5
SCARs -2 to -2	0.93	0.97	0.93	0.97	nan	nan
SCARs -2 to -1	0.74	0.73	0.74	0.73	nan	nan
SCARs -2 to 0	0.61	0.55	0.61	0.55	2.89***	1.20
SCARs -2 to 1	0.09	-0.01	0.09	-0.01	0.10	-0.01
SCARs -2 to 2	0.22	0.08	0.22	0.08	0.25	0.08
SCARs -2 to 3	0.08	-0.10	0.08	-0.10	0.10	-0.11
SCARs -2 to 4	-0.24	-0.32	-0.24	-0.32	-0.29	-0.38
SCARs -2 to 5	0.05	-0.02	0.05	-0.02	0.06	-0.02
SCARs -2 to 6	0.17	0.12	0.17	0.12	0.22	0.16
SCARs -2 to 7	0.11	-0.01	0.10	-0.01	0.13	-0.02
SCARs -2 to 8	-0.64	-0.79	-0.64	-0.79	-0.50	-0.62
SCARs -2 to 9	-0.77	-0.98	-0.77	-0.98	-0.65	-0.81
SCARs -2 to 10	-0.80	-1.02	-0.80	-1.02	-0.68	-0.86

Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$

Panel C: Calendar Return portfolio Alphas

	FF3 Alphas	FF5 Alphas
Cal Avg Rets -2 to -2	0.54	0.22
Cal Avg Rets -2 to -1	0.14	0.15
Cal Avg Rets -2 to 0	0.47	0.40
Cal Avg Rets -2 to 1	0.14	0.04
Cal Avg Rets -2 to 2	0.25	0.16
Cal Avg Rets -2 to 3	0.21	0.11
Cal Avg Rets -2 to 4	0.11	0.08
Cal Avg Rets -2 to 5	0.11	0.08
Cal Avg Rets -2 to 6	0.14	0.11
Cal Avg Rets -2 to 7	0.14	0.09
Cal Avg Rets -2 to 8	0.03	-0.00
Cal Avg Rets -2 to 9	0.03	-0.01
Cal Avg Rets -2 to 10	0.03	-0.01

Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$

Table 5: Summary statistics for potential CARs determinants

Statistic	N	Mean	St. Dev.	Min	Max
log_size	111	3.593	0.758	1.399	5.305
log_MtB	107	0.210	0.440	−1.398	1.431
avg_past_ret	116	0.098	1.042	−3.639	3.058
avg_turnover_12	109	4.763	8.336	0.002	57.283
log_age	110	1.240	0.247	0.000	1.556
dummy_no.ownership	116	0.198	0.400	0	1
dummy_late_divest	116	0.172	0.379	0	1
dummy_north_america	116	0.362	0.483	0	1
dummy_europe	116	0.138	0.346	0	1
dummy_south_america	116	0.034	0.183	0	1
dummy_africa	116	0.017	0.131	0	1
dummy_asia_pacific	116	0.431	0.497	0	1
dummy_central_america	116	0.017	0.131	0	1

Table 6: CAR FF5 Model regressions

	Dependent variable:					
	CARs -2 to 0	CARs -2 to 1	CARs -2 to 2	CARs -2 to 3	CARs -2 to 4	CARs -2 to 5
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	−2.81	1.35	4.82	4.88	7.08	8.08
	(6.43)	(8.40)	(7.46)	(7.98)	(6.84)	(6.67)
Log size ($M)	1.71	1.46	1.35	0.91	0.50	0.53
	(1.54)	(1.76)	(1.51)	(1.85)	(1.66)	(1.56)
Log M/B	4.64	4.92	3.35	5.34	5.07	4.22
	(3.84)	(4.46)	(3.68)	(4.31)	(3.50)	(3.05)
Average past return	0.94	1.15	0.65	0.56	0.25	0.44
	(1.14)	(1.35)	(1.14)	(1.33)	(1.11)	(0.98)
Average turnover	−0.12*	−0.12*	−0.12*	−0.15*	−0.19***	−0.15**
	(0.06)	(0.07)	(0.06)	(0.08)	(0.07)	(0.08)
Log firm age	−2.85	−5.58	−7.27*	−6.64	−7.45*	−7.72*
	(2.67)	(4.28)	(3.98)	(4.10)	(3.94)	(3.95)
No ownership	−3.16	−3.58	−2.54	−2.35	−0.99	−0.52
	(2.97)	(3.48)	(2.98)	(3.60)	(3.10)	(2.73)
Late divestment	−3.86**	−3.21*	−2.70	−2.00	−2.38	−2.07
	(1.50)	(1.92)	(1.64)	(1.84)	(1.76)	(1.80)
Asia Pacific	2.35	2.19	0.28	0.17	0.46	−1.01
	(1.95)	(2.08)	(1.84)	(2.11)	(1.83)	(1.96)
North America	−4.73*	−4.88	−5.04*	−5.55	−5.10*	−5.19*
	(2.68)	(3.05)	(2.78)	(3.41)	(3.03)	(2.92)
Europe	0.38	1.02	1.35	2.49	2.98	2.36
	(1.68)	(1.87)	(1.69)	(2.10)	(2.14)	(2.35)
Conduct	0.62	1.30	0.76	0.97	0.76	−0.001
	(1.01)	(1.20)	(1.17)	(1.42)	(1.46)	(1.50)
Observations	105	105	105	105	105	105
R^2	0.23	0.21	0.20	0.17	0.18	0.17
Adjusted R^2	0.14	0.12	0.11	0.08	0.08	0.08
Residual Std. Error (df = 93)	7.49	8.90	8.02	10.18	9.70	8.92

Note: $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$
Heteroskedasticity-adjusted White Standard Errors

Table 7: North American Firms Abnormal Returns

Panel A: Average CARs and J_1 statistic

	avg CARs FF3	avg CARs FF5	J_1 FF3	J_1 FF5
avg CARs -2 to -2	-0.49	-0.55	-1.67*	-1.68*
avg CARs -2 to -1	-1.63	-1.66	-3.89***	-3.93***
avg CARs -2 to 0	-3.30	-3.35	-6.44***	-6.51***
avg CARs -2 to 1	-3.50	-3.58	-5.90***	-5.97***
avg CARs -2 to 2	-3.59	-3.58	-5.41***	-5.48***
avg CARs -2 to 3	-4.20	-4.11	-5.76***	-5.82***
avg CARs -2 to 4	-4.68	-4.52	-5.94***	-5.99***
avg CARs -2 to 5	-4.63	-4.36	-5.50***	-5.54***
avg CARs -2 to 6	-4.16	-4.03	-4.64***	-4.67***
avg CARs -2 to 7	-3.24	-3.11	-3.43***	-3.46***
avg CARs -2 to 8	-3.04	-3.11	-3.06***	-3.09***
avg CARs -2 to 9	-2.58	-2.69	-2.48**	-2.50**
avg CARs -2 to 10	-2.20	-2.33	-2.03**	-2.04**
avg CARs -2 to 11	-2.29	-2.34	-2.03**	-2.04**
avg CARs -2 to 12	-2.15	-2.25	-1.84*	-1.85*
avg CARs -2 to 13	-1.69	-1.81	-1.40	-1.41
avg CARs -2 to 14	-0.64	-0.89	-0.52	-0.52
avg CARs -2 to 15	-0.40	-0.64	-0.31	-0.31
avg CARs -2 to 16	-0.59	-0.84	-0.45	-0.45
avg CARs -2 to 17	-0.26	-0.60	-0.19	-0.19
avg CARs -2 to 18	-0.30	-0.63	-0.22	-0.22
avg CARs -2 to 19	-0.21	-0.45	-0.15	-0.15
avg CARs -2 to 20	-0.61	-0.95	-0.42	-0.42
avg CARs -2 to 21	-0.96	-1.19	-0.64	-0.65
avg CARs -2 to 22	-1.20	-1.45	-0.79	-0.80
avg CARs -2 to 23	-1.53	-1.64	-0.99	-0.99
avg CARs -2 to 24	-2.54	-2.36	-1.61	-1.61
avg CARs -2 to 25	-2.61	-2.57	-1.62	-1.63
avg CARs -2 to 26	-2.63	-2.66	-1.60	-1.61
avg CARs -2 to 27	-3.04	-3.08	-1.82*	-1.83*
avg CARs -2 to 28	-2.57	-2.66	-1.51	-1.53
avg CARs -2 to 29	-2.88	-2.94	-1.67*	-1.68*
avg CARs -2 to 30	-2.31	-2.31	-1.32	-1.33

Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$

Panel B: z-score, J_2 and J_2^* statistics

	z-score FF3	z-score FF5	J_2 FF3	J_2 FF5	J_2^* FF3	J_2^* FF5
SCARs -2 to -2	-2.35**	-2.21**	-2.35**	-2.20**	nan	nan
SCARs -2 to -1	-4.37***	-4.21***	-4.36***	-4.20***	nan	nan
SCARs -2 to 0	-5.13***	-4.93***	-5.12***	-4.92***	-5.60***	-5.48***
SCARs -2 to 1	-4.05***	-4.12***	-4.04***	-4.11***	-1.88*	-2.00**
SCARs -2 to 2	-3.99***	-4.01***	-3.99***	-4.00***	-1.92*	-2.07**
SCARs -2 to 3	-4.19***	-3.95***	-4.18***	-3.94***	-2.23**	-2.10**
SCARs -2 to 4	-5.60***	-5.23***	-5.59***	-5.22***	-3.11***	-2.83***
SCARs -2 to 5	-5.78***	-5.27***	-5.77***	-5.26***	-3.45***	-3.06***
SCARs -2 to 6	-4.85***	-4.66***	-4.84***	-4.65***	-2.72***	-2.68***
SCARs -2 to 7	-4.16***	-3.97***	-4.15***	-3.96***	-2.23**	-2.12**
SCARs -2 to 8	-3.80***	-3.91***	-3.79***	-3.90***	-2.08**	-2.15**
SCARs -2 to 9	-2.68***	-2.87***	-2.67***	-2.87***	-1.29	-1.39
SCARs -2 to 10	-2.41**	-2.62***	-2.41**	-2.61***	-1.20	-1.33
SCARs -2 to 11	-2.38**	-2.47**	-2.38**	-2.47**	-1.22	-1.33
SCARs -2 to 12	-2.00**	-2.18**	-1.99**	-2.18**	-1.01	-1.16
SCARs -2 to 13	-1.59	-1.78*	-1.58	-1.77*	-0.84	-0.99
SCARs -2 to 14	-0.45	-0.78	-0.45	-0.78	-0.22	-0.40
SCARs -2 to 15	-0.11	-0.42	-0.11	-0.42	-0.05	-0.22
SCARs -2 to 16	-0.52	-0.88	-0.52	-0.88	-0.26	-0.46
SCARs -2 to 17	0.01	-0.43	0.01	-0.43	0.01	-0.22
SCARs -2 to 18	-0.08	-0.48	-0.08	-0.48	-0.04	-0.25
SCARs -2 to 19	0.10	-0.06	0.10	-0.06	0.05	-0.03
SCARs -2 to 20	0.03	-0.24	0.03	-0.24	0.02	-0.13
SCARs -2 to 21	-0.09	-0.26	-0.09	-0.26	-0.04	-0.14
SCARs -2 to 22	-0.23	-0.36	-0.23	-0.36	-0.12	-0.20
SCARs -2 to 23	-0.66	-0.64	-0.66	-0.64	-0.35	-0.36
SCARs -2 to 24	-1.40	-1.04	-1.40	-1.04	-0.74	-0.58
SCARs -2 to 25	-1.10	-0.91	-1.10	-0.90	-0.58	-0.51
SCARs -2 to 26	-0.94	-0.75	-0.93	-0.75	-0.49	-0.42
SCARs -2 to 27	-1.17	-1.03	-1.16	-1.03	-0.61	-0.57
SCARs -2 to 28	-0.88	-0.74	-0.88	-0.74	-0.47	-0.42
SCARs -2 to 29	-1.27	-1.10	-1.26	-1.10	-0.67	-0.62
SCARs -2 to 30	-0.79	-0.59	-0.78	-0.59	-0.41	-0.32

Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$

Panel C: Calendar Return portfolio Alphas

	FF3 Alphas	FF5 Alphas
Cal Avg Rets -2 to -2	0.30	0.22
Cal Avg Rets -2 to -1	-1.42**	-1.17**
Cal Avg Rets -2 to 0	-0.85*	-0.80*
Cal Avg Rets -2 to 1	-0.55	-0.48
Cal Avg Rets -2 to 2	-0.59*	-0.56*
Cal Avg Rets -2 to 3	-0.53*	-0.57*
Cal Avg Rets -2 to 4	-0.48*	-0.48*
Cal Avg Rets -2 to 5	-0.43*	-0.43*
Cal Avg Rets -2 to 6	-0.30	-0.30
Cal Avg Rets -2 to 7	-0.20	-0.20
Cal Avg Rets -2 to 8	-0.12	-0.13
Cal Avg Rets -2 to 9	-0.08	-0.08
Cal Avg Rets -2 to 10	-0.05	-0.05
Cal Avg Rets -2 to 11	-0.02	-0.02
Cal Avg Rets -2 to 12	-0.01	-0.01
Cal Avg Rets -2 to 13	0.04	0.05
Cal Avg Rets -2 to 14	0.10	0.11
Cal Avg Rets -2 to 15	0.12	0.14
Cal Avg Rets -2 to 16	0.10	0.12
Cal Avg Rets -2 to 17	0.10	0.12
Cal Avg Rets -2 to 18	0.08	0.11
Cal Avg Rets -2 to 19	0.10	0.13
Cal Avg Rets -2 to 20	0.09	0.12
Cal Avg Rets -2 to 21	0.08	0.09
Cal Avg Rets -2 to 22	0.05	0.06
Cal Avg Rets -2 to 23	0.06	0.07
Cal Avg Rets -2 to 24	0.03	0.03
Cal Avg Rets -2 to 25	0.04	0.04
Cal Avg Rets -2 to 26	0.05	0.04
Cal Avg Rets -2 to 27	0.02	0.02
Cal Avg Rets -2 to 28	0.04	0.03
Cal Avg Rets -2 to 29	0.03	0.02
Cal Avg Rets -2 to 30	0.03	0.02

Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$

Table 8: Additional CAR FF5 Model Regressions

Panel A: including reinclusion dummy

	Dependent variable:					
	CARs -2 to 0	CARs -2 to 1	CARs -2 to 2	CARs -2 to 3	CARs -2 to 4	CARs -2 to 5
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	−3.05	0.92	4.74	4.23	6.68	7.82
	(6.68)	(8.39)	(7.42)	(7.97)	(6.84)	(6.68)
Log size ($M)	1.79	1.61	1.38	1.12	0.64	0.62
	(1.58)	(1.74)	(1.50)	(1.85)	(1.69)	(1.58)
Log M/B	4.53	4.72	3.32	5.03	4.89	4.10
	(3.07)	(4.54)	(3.73)	(4.37)	(3.53)	(3.07)
Average past return	0.88	1.04	0.63	0.40	0.15	0.37
	(1.03)	(1.40)	(1.18)	(1.39)	(1.17)	(1.03)
Average turnover	−0.12	−0.13*	−0.12**	−0.15**	−0.19***	−0.15**
	(0.08)	(0.07)	(0.06)	(0.08)	(0.07)	(0.08)
Log firm age	−2.88	−5.63	−7.28*	−6.71	−7.49*	−7.75**
	(3.95)	(4.27)	(3.99)	(4.10)	(3.94)	(3.95)
No ownership	−3.13	−3.53	−2.53	−2.28	−0.94	−0.49
	(2.76)	(3.50)	(3.00)	(3.63)	(3.14)	(2.76)
Late divestment	−3.96**	−3.38*	−2.73*	−2.26	−2.54	−2.18
	(1.83)	(1.89)	(1.63)	(1.81)	(1.77)	(1.83)
Asia Pacific	2.38	2.24	0.29	0.25	0.51	−0.98
	(1.95)	(2.07)	(1.83)	(2.08)	(1.81)	(1.95)
North America	−4.78	−4.97	−5.06*	−5.70*	−5.19*	−5.24*
	(2.94)	(3.05)	(2.78)	(3.42)	(3.06)	(2.94)
Europe	0.26	0.80	1.31	2.16	2.78	2.22
	(2.39)	(1.87)	(1.69)	(2.12)	(2.18)	(2.39)
Conduct	0.54	1.16	0.73	0.75	0.63	−0.09
	(1.46)	(1.19)	(1.16)	(1.38)	(1.41)	(1.46)
Reinclusions	0.88	1.58	0.31	2.38	1.47	0.97
	(1.93)	(1.65)	(1.51)	(1.85)	(1.94)	(1.93)
Observations	105	105	105	105	105	105
R^2	0.24	0.22	0.20	0.18	0.18	0.17
Adjusted R^2	0.14	0.11	0.10	0.07	0.07	0.07
Residual Std. Error (df = 92)	7.53	8.94	8.06	10.21	9.74	8.96

Note: *p<0.1; **p<0.05; ***p<0.01

Heteroskedasticity-adjusted White Standard Errors

Panel B: adding non-excluded firms

	Dependent variable:				
	CARs -2 to 0				
	(1)	(2)	(3)	(4)	(5)
Constant	−1.67	−1.50	−1.67	−2.09	−2.04
	(5.33)	(5.74)	(5.77)	(5.55)	(5.54)
Log size ($M)	1.45	1.41	1.32	1.43	1.46
	(1.16)	(1.29)	(1.28)	(1.18)	(1.17)
Log M/B	4.71	4.74	4.89	4.80	4.75
	(4.15)	(4.10)	(4.09)	(4.16)	(4.16)
Average past return	0.44	0.44	0.52	0.48	0.49
	(1.03)	(1.03)	(1.05)	(1.07)	(1.07)
Average turnover	-0.02^{**}	−0.02	−0.02	-0.03^{**}	-0.03^{**}
	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)
Log firm age	−2.50	−2.55	−2.48	−2.31	−2.38
	(2.57)	(2.56)	(2.62)	(2.65)	(2.65)
No ownership	−3.33	−3.35	−3.23	−3.20	−3.23
	(2.92)	(2.89)	(2.87)	(2.86)	(2.87)
Late divestment	-3.86^{***}	-3.84^{***}	-3.69^{***}	-3.72^{***}	-3.82^{***}
	(1.38)	(1.41)	(1.42)	(1.35)	(1.37)
Asia Pacific	1.19	1.21	1.41	1.37	1.30
	(1.89)	(1.87)	(1.77)	(1.88)	(1.86)
North America	-5.37^{**}	-5.28^{**}	-4.92^{*}	-5.21^{**}	-5.27^{**}
	(2.51)	(2.69)	(2.61)	(2.43)	(2.43)
Europe	−0.53	−0.51	0.04	−0.12	−0.20
	(1.70)	(1.70)	(1.65)	(1.64)	(1.62)
Conduct	0.16	0.14	0.19	0.11	0.22
	(0.89)	(0.90)	(0.90)	(0.89)	(0.90)
not excluded	−1.73	−2.45	−2.55		−0.68
	(2.10)	(3.00)	(3.00)		(2.12)
not excluded and not sold		0.96	3.26		
		(4.37)	(4.32)		
not excluded and not reduced holdings			−3.86	−3.03	−2.47
			(4.43)	(3.87)	(4.31)
Observations	115	115	115	115	115
R^2	0.22	0.22	0.22	0.22	0.22
Adjusted R^2	0.13	0.12	0.11	0.13	0.12
Residual Std. Error	7.40 (df = 102)	7.44 (df = 101)	7.46 (df = 100)	7.40 (df = 102)	7.43 (df = 101)

Note: *p<0.1; **p<0.05; ***p<0.01
Heteroskedasticity-adjusted White Standard Errors

Table 9: Endowments and Pension Fund ownership changes

Panel A: Lionshares Ownership before and after exclusion announcement (quarters), constant sample, until Q1 2013

Quarter (vs event)	-1	0	1	2	3	4
Sample	53	53	53	53	53	53
IO (Total)	0.4104	0.4081	0.4055	0.4090	0.4075	0.4053
IO_CAT5 (Pension Funds and Endowments)	0.0230	0.0227	0.0224	0.0205	0.0187	0.0182

Panel B: Lionshares Ownership percentage change after exclusion announcement (quarters), constant sample, until Q1 2013

%Change Quarter -1 vs Quarter:	0	1	2	3	4
Sample	53	53	53	53	53
IO (Total)	-0.54	-1.18	-0.33	-0.70	-1.23
IO_CAT5 (Pension Funds and Endowments)	-1.35	-2.41	-11.02	-18.47	-21.01

Panel C: Average percentage of Free Float shares owned by pension or endowment funds

	sample	before event	after event	tstat	pvalue
2-Years (520wd)	58	0.80	0.26	2.16	0.03

Table 10: Lionshares Fund Holdings percentage change of ownership after exclusion announcement (quarters) vs quarter before exclusion, constant sample, until Nov 2016

Quarter -1 vs Quarter:	0	1	2	3	4
Shares	0.58	4.68	9.60	15.84	16.42
GROWTH	-4.77	3.70	-2.14	10.83	2.97
INDEX	8.77	4.45	21.89	11.81	26.49
GARP	-6.96	3.22	4.44	9.41	6.86
YIELD	2.07	8.36	15.90	21.85	34.94